PUBLIC SECTOR GOVERNANCE AND SUSTAINABLE DEVELOPMENT: AN EMPIRICAL STUDY OF HEALTH AND EDUCATION SECTORS IN MALAWI

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in

Commerce

By

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CERTIFICATE

This is to certify that the work reported in the Ph. D. thesis entitled "Sector Governance and Sustainable Development: An Empirical Study of Health and Education Sectors in Malawi" submitted in fulfillment of the requirement for the reward of degree of **Doctor of Philosophy (Ph.D.)** in the Mittal School of Business, is a research work carried out by Caroline Lindah Mphande Buliani, Registration No.41900396, is bonafide record of his/her original work carried out under my supervision and that no part of thesis has been submitted for any other degree, diploma or equivalent course.

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CHAPTER 1: INTRODUCTION

Study Background

The issue of a responsive and efficient public sector is becoming increasingly important, serving as the foundation for many changes being implemented by the Malawian government to improve public service delivery. This calls for strong, transparent, and effective Systems of managing Public Finances which are essential for effective public service delivery and sustainability in economic management (OECD, 2018; Acemoglu & Robinson, 2012). Public Finance Management (PFM) is key for countries whose objectives pivot on expanding their economic growth and increasing resource availability for the implementation of national development plans that integrate agenda 2030 (SDGs) and agenda 2063 for sustainable development (PEFA, 2016). PFM describes governments' capabilities to efficiently mobilize resources, transparently account for expenditures, and systematically provide information on public resource management in pursuance of policy objectives (Renzio, 2015; Welham et.al, 2013). As such, timely and reliable information about the performance of various Ministries, Departments, and Agencies (MDAs) is eminent to policymakers.

On the other hand, a quest for a well-governed public sector that contributes immensely toward better utilization of resources for intended purpose to ensure improved livelihood of the citizens, has increasingly become of critical importance to most governments. Thus, making good governance of public sector a critical enabler for equitably and sustainably achieving development in an African context (Munthali and Nantchouang, 2018) where it is linked with service delivery and performance of public sector organizations.

Status of development in Malawi

Malawi, one of the developing countries in Africa, is deemed to be one of the poorest countries in Southern Africa and globally and it is ranked position 170 out of 188 (World Bank's Human Development index, 2017), with gross per capita income of USD 340 (Annex of the Commission on annual action program 2018 from 11th European

Development Fund). Though not strictly vulnerable. The country displays a number of characteristics of fragility and conflict-affected nations, especially in terms of the functionality of the governance institutions (Bird, 2017).

The country has made efforts toward eradicating poverty and bringing about sustainable development for the citizenry. However, these efforts have not yielded much impact on the progress of having sustainable development in place. The country has continued to grapple with the challenges of having over half of its population living below the global poverty line, and one-third of its population consuming less than the required food intake leading to stunted growth among children. Though agriculture contributes about 38% to Malawi's GDP, the country has continued to rely on rain-fed agriculture which has most of the time been affected by drought despite efforts in promoting irrigation. For the past years, it has been relying on debt and aid from development partners, which has had an impact on its sustainable development. Progress made in aspects of education and health has relied mostly on ODA flows which have contributed to improved access to primary school education and improved under-five child mortality rate.

Despite having mineral deposits, the country has suffered exploitation to the extent that the extractive industry, which has the potential of contributing about 20% to the country's GDP, has not yielded much with its prevalence standing at 1% for the past four years. Despite many countries making significant progress towards achieving the Millennium Development Goals, Malawi managed to achieve four goals out of the eight.

The challenges have been attributed to inefficient and ineffective performance in various sectors including the economic, extractive, health, agriculture, education, transport infrastructure, and rural development. The poor performance has its bearing on public sector governance and public finance management. Therefore, additional efforts are needed to advance the development of the country beyond 2015. These efforts could be directed toward good public sector governance and public finance management.

Governance in Public Sector

Public Sector Governance (PSG) comprises of prevailing arrangements that underpins definition and attainment of envisaged outcomes of policies and strategies for public service delivery (IFAC, 2014). It concerns the procedures and policies in use for directing entities' activities while providing assurance regarding the achievement of objectives and ensuring that operations are implemented with ethics and accountability. It relates to the way of establishing and accomplishing objectives. Governance ensures fulfilment of purpose by public sector entities as spelt in their mandates, achieve intended outcomes for service users and citizens, and that they follow efficiency, ethics and effectiveness in their operations (CIPFA 2004). Good PSG aims at encouraging improved service delivery and accountability.

Further to this, public sector governance is concerned with accountability with regards to specific public outcomes, which go beyond service delivery, to also comprise the effect of policies to the citizens (Almqvist et al., 2013). Effective PSG encourages better utilization of resources, supports stewardship accountability for resources, and improves service delivery management. This in turn contributes improved standard of living. It also aids in building citizens' confidence regarding in public sector entities' effective attainment of their objectives.

The principles of good public sector governance include participation, coherence, openness, effectiveness and accountability (The EU, 2001). CIPFA, 2014 outlines codes of good public sector governance as follows: "Integrity Behaviour that, demonstrate solid commitment to ethics and valuing the prevailing laws; ensuring open and all-inclusive engagement of stakeholders; Outcomes definition that takes on board sustainable benefits socially, economically and environmentally; determination of interventions that optimize the attainment of intended strategic outcomes; and development of the entity's leaders and individuals' capacities; Managing performance and risks through strong PFM and internal ; and ensure effective implementation of reported transparent and accountable good practices." Gresh et al., (2015) also suggest that there are five principles of good governance namely: "Policy, legal and institutional framework; equity and fairness, transparency and accountability, decentralization and participation in decision making; and government effectiveness."

Good governance is critical for economic enhancement, citizen enablement and government accountability. On the other hand, corruption, declining economy and civil society unrests are linked to poor governance. In Malawi, governance has for a long time been one of the key priority area for improvement to enable effective public service delivery. Since the time Malawi attained her independence in 1964, the government has been trying to promote public sector's efficiency through design and adoption of programmes that brings reform (Msosa 1998). Although public sector reforms have proved to be complex and difficult, and in turn making it difficult to establish their record of improved performance, they are critical in promoting PSG (Collier and Gunning 1999). The country has been facing a number of governance challenges including: 1) policy incoherence leading to partial decentralization process implementation with fragmented arrangements that are not well-coordinated by the central government (Chiweza, 2010). The policy incoherence is manifested though various characteristics such as complex reporting structures, legal confusion, functional fragmentation, over-complicated processes, overlapping jurisdictions in sectors, and multiple funding streams. 2) collective action failures as a result of dysfunctional institutional arrangements, and 3) information asymmetries challenges that come due principal-agent problems and further leading to challenges in provision of oversight and discipline in service delivery (O'Neil et al., 2014). Recently, the nation has been implementing a variety of changes in the public sector to improve service delivery by enhancing good governance.

Sustainable development goals

Sustainable Development Goals (SDGs) represent a result framework for the "Agenda 2030" of sustainable development comprising 17 goals (Figure 1.4.1) with 169 targets which was agreed upon by all countries falling under the United Nations in 2015. A total of 232 indicators were approved for measuring the progress of achievement of the targets and goals. The SDGs are far-reaching global objectives that comprise of five all-encompassing areas: Planet, Prosperity, People, Partnerships, as well as Peace (the "5Ps"). The "Agenda" provides a common blueprint for the present and future peace and prosperity of the planet and people. The 2030 Agenda mainly aims at improving the present and future lives of people and forms a basis of the OECD's task is premised on supporting better

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policies for improved well-being, which particularly includes definition and measurement of sustainability (OECD, 2017) The SDGs acknowledge that fighting dearth and other means of deprivations calls for policies that improve education and health; reduces disparity; support economic development, deals with climatic changes, and seek to protect our ecosystems.

Figure Error! No text of specified style in document.**.1** **The Sustainable Development Goals**

Source: (United Nations, 2019[2]), Sustainable Development Goals Communications Materials, www.un.org/sustainabledevelopment/news/communications-material/ (accessed on 10 April 2019)

The SDGs are the product of decades of work by the UN Department of Economic and Social Affairs (UNDESA), the United Nations (UN), and its member states.

An outline of the events that led to the establishment of the SDGs is presented below.

- In Rio de Janeiro, Brazil, in June 1992, 178 or more countries endorsed Agenda-21, a comprehensive progressive plan to establish global partnerships for sustainable development to increase human well-being and protect the environment. In September 2000, at the UN headquarters in New York, all member states overwhelmingly endorsed the Millennium Declaration. In order to eliminate extreme poverty by 2015, eight Millennium Development Goals (MDGs) were created.

- The commitments made for eliminating poverty were reiterated at a World Summit on Sustainable Development in South Africa in the "Johannesburg Sustainable Development Declaration" whose Implementation Plan was endorsed in 2002. It also advanced the Millennium Declaration (Agenda 21) which emphasised more on international collaborations.

- The United Nations and member countries adopted a result framework for desired future at the June, 2012 Sustainable Development Conference held in Rio de Janeiro, Brazil. The 'UN High-Level Political Forum (HLPF) on Sustainable Development' was established to begin the process of developing the SDGs that build from the MDGs. The Rio + 20 conclusion outlined additional steps for SDGs implementation

- A 30-member Open Working Group General Assembly met in 2013 draft an SDGs proposal. This was followed by the commencement of drafting the Agenda 2030 in the month of January 2015, The process concluded with the adoption of the 2030 Agenda for developmental Sustainability Development, with its 17 goals during the September, 2015 UN conference for Sustainable Development.

- Approval of a number of key accords in 2015, multilateralism and the creation of global policy underwent a sea change and HLPF that convenes annually.

Currently, the SDGs division in UNDESA is responsible for providing comprehensive back-up and build capacities for implanting the SDGs.

Malawi was among the 186 United Nations (UN) countries that ratified the agenda 2030 for sustainable development. As part of its commitment on delivering on the SDGs, Malawi Government adapted the SDGs by refining and reviewing its institutional framework and policies that support implementation of the SDGs (OECD, 2019; Malawi Government 2020). The SDGs were domesticated in the current Malawi's National Development Plan, Malawi 2063 and further the ten-year implementation plan known as MIP-1 which has an average SDG alignment of 81.62% (CONGOMA, 2022).

1.1.1 SDG 4: Quality Education

Quality education is fundamental for attaining sustainable development. It is deemed as a force multiplier for enabling intellect liberation, boosting economic growth through skills enhancement, and unlocking imagination and it is essential for self-respect. It is critical to prosperity as it gives way to a world of opportunities and enables one to contribute to a healthy and progressive society. Considering that learning is beneficial to every human being, it is imperative that it is made available to all. SDG 4 has ten (10) targets for creating action that enable quality education (Figure 1.4.2), which are to be achieved by 2030. This study focuses on targets 4.1 (Free primary and secondary education), 4.2 (Equal access to quality pre-primary education), 4A (Building and modernizing inclusive and safe schools), and 4C. (Upturn the supply of competent teachers in developing countries).

Figure Error! No text of specified style in document.**.2** **Sub-targets under SDG-4 (Quality Education)**

Source: https://mishrapawan.wordpress.com/2020/01/30/sustainable-development-goal-4-quality-education/

1.1.2 Sustainable Development Goal - 3: Good health and wellbeing

Broadly, SDG - 3 relates to Safeguarding healthy lives and upholding well-being for all at all. The benefit of the highest achievable health standards is a right that is fundamental for all human beings without discrimination of religion, race, political affiliation, social or economic condition (WHO, (2006). It is also a reliable indicator of assessing the extent to which countries are pursuing their sustainable development. Inefficient and ineffective health systems are a threat to the rights of the citizenry as they impair their engagement in educational programs, ease their capability to fully join in gainful employment and economic activities, and ultimately increases poverty regardless of gender.

Health does not merely refer to infirmity or disease absence but also a state of complete well-being physically, mentally, and socially. Achievement of the entire SDG 3 requires achievement of Universal Health Coverage (UHC) as well as provision of access to quality of health services (WHO, 2015). As such UHC is considered central to attainment of SDG 3. The goal has thirteen (13) targets (Figure 1.4.3) which have been outlined in Appendix-A.
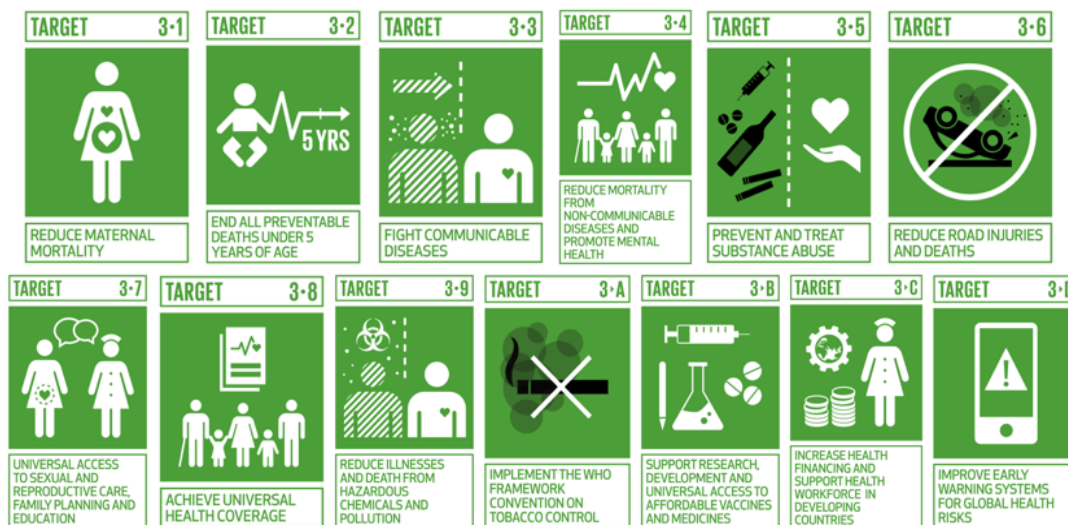

Figure Error! No text of specified style in document..**3   Sub-targets under SDG-4 (Good Health and Well-Being)**

Source: https://globalchangeecology.com/2021/06/04/the-sdgs-series-goal-3-ensure-healthy-lives-and-promote-well-being-for-all/

Goal 3 of the "Agenda 2030" encompasses a number of grouped targets pertaining to the unachieved Millennium Development Objectives (MDGs) like communicable diseases, child and maternal health; other targets relating to Non-Communicable Diseases (NCDs) and social determinants, as well as targets relating to UHC and health systems as presented in table 1.4.1. According to WHO report (2015), the achievement of the health targets under the MDGs were on track compared to others.

Table Error! No text of specified style in document.**.1   Health SDG-3 targets including the unaccomplished MDG target 3.8**

MDG unaccomplished Targets and expanded agenda	New SDG 3 Targets	SDG 3 Means of Targets Implementation
3.1 Reduce maternal mortality	3.4 Reduce mortality of NCD and improve mental health	3a Strengthen implementation of framework convention on tobacco control
3.2 End preventable new born and child deaths	3.5 Strengthen prevention and treatment of substance abuse	3b Provide access to medicines and vaccines for all, support R and D of vaccines and medicines for all.
3.3 End pandemics of HIV, TB, malaria, and NTD and combat hepatitis, waterborne and other communicable diseases	3.6 Halve global deaths and injuries from traffic accidents	3c increase health financing and health workforce in developing countries
3.7 ensure universal access to sexual and reproductive health care services	3.9 Reduce deaths from hazardous chemicals and air, water, and soil pollution and contamination	3d Strengthen capacity for early warning, risk reduction, and management of health risks

Source: WHO report (2015).

Globally, current trends on health trends are worrisome: women continue to experience inadequate access to reproductive and general health care, inadequate accessibility to essential drugs and medicines, inadequate accessibility to clean and portable water, and challenges of undernourishment. As such, it is paramount to provide emphasis on health care services considering the challenge and ensure improved health governance and systems along with prevention of disease, provisions of water and sanitation, and reduced risks of diseases. This calls for better and more resilient health systems that are able to address significant health challenges.

Tracking the progress of implementation of the targets is critical as such capacities for monitoring and reporting on the progress need to be strengthened (African Union,

Economic Commission for Africa, et al., 2017). National statistical offices in the member countries often collect data for monitoring the progress of implementation over a five-year interval using household surveys which poses a challenge for annual monitoring (ECA et al., 2018). Globally, some of the indicators lack data (Figure 1.4.4) which has led to the use of estimates. Figure 3 shows the number of SDG indicators with data available against total number of SDG indicators per goal.
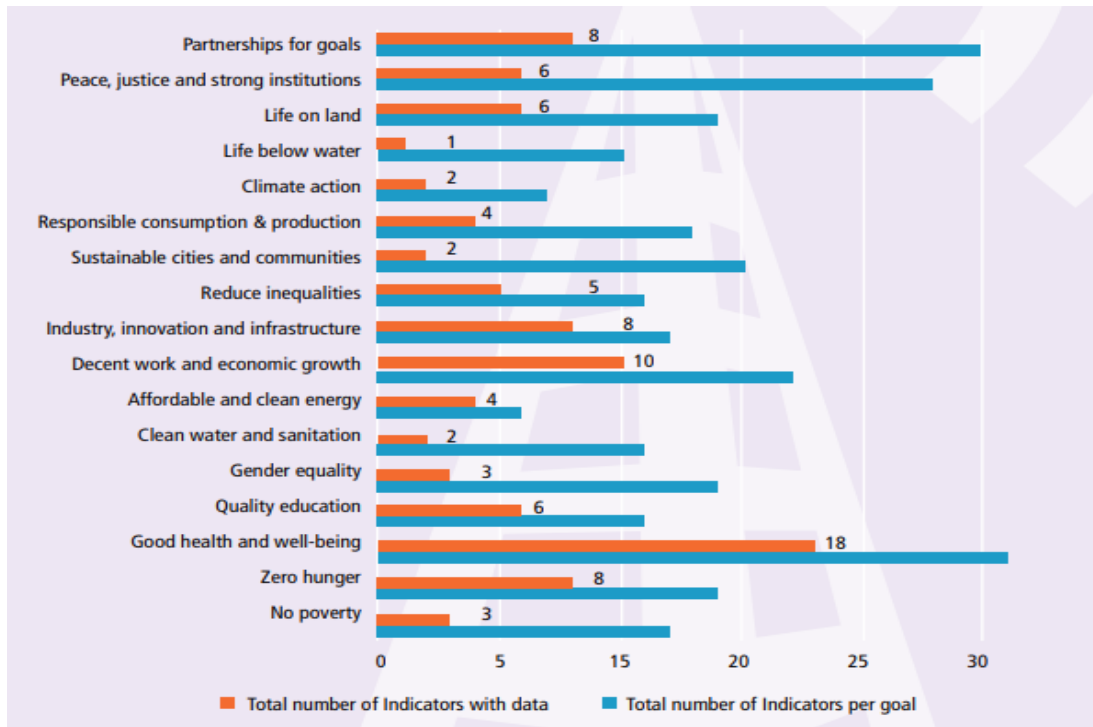

Figure Error! No text of specified style in document.**.4   Data availability against SDG indicators**

Source: ECA et al., 2018; SDGC/A and SDSN, 2018

The figure depicts data availability challenges in SDG-3 and this is further presented in Figure 1.4.5 which shows the general health-related SDG data availability and gaps globally.

General health-related SDG data availability and gaps globally

	Indicator topic	Country data availability	Disaggre-gation	Comparable estimates	Source estimates
3.1.1	Maternal mortality	Fair	Poor	Annual	UN MMEIG
3.1.2	Skilled birth attendance	Good	Good	In prep.	UNICEF, WHO
3.2.1	Under-five mortality rate	Good	Good	Annual	UN IGME
3.2.2	Neonatal mortality rate	Good	Good	Annual	UN IGME
3.3.1	HIV incidence	Fair	Fair	Annual	UNAIDS
3.3.2	TB incidence	Fair	Fair	Annual	WHO
3.3.3	Malaria incidence	Fair	Fair	Annual	WHO
3.3.4	Hepatitis B incidence	Poor	Poor	In prep.	WHO
3.3.5	Neglected tropical diseases at risk	Fair	Poor	Annual	WHO
3.4.1	Mortality due to NCD	Fair	Poor	Every 2-3 years	WHO
3.4.2	Suicide mortality rate	Fair	Poor	Every 2-3 years	WHO
3.5.1	Treatment substance use disorders	Poor	Poor	Not available	UNODC, WHO
3.5.2	Harmful use of alcohol	Fair	Poor	Annual	WHO
3.6.1	Deaths road traffic injuries	Fair	Poor	Every 2-3 years	WHO
3.7.1	Family planning	Good	Good	Annual	UNPD
3.7.2	Adolescent birth rate	Good	Good	Annual	UNPD
3.8.1	Coverage index UHC	Good	Fair	In prep.	WHO, World Bank
3.8.2	Financial protection	Fair	Fair	In prep.	WHO, World Bank
3.9.1	Mortality due to air pollution	Fair	Poor	Every 2-3 years	WHO
3.9.2	Mortality due to WASH	Fair	Poor	Every 2-3 years	WHO
3.9.3	Mortality due unintentional poisoning	Fair	Poor	Every 2-3 years	WHO
3.a.1	Tobacco use	Fair	Good	Annual	WHO
3.b.1	Access to medicines and vaccines	Poor	Poor	Not available	WHO
3.b.2	ODA for medical research	Fair	n.a.	In prep.	OECD , WHO
3.c.1	Health workers	Fair	Poor	Not available	WHO
3.d.1	IHR capacity and emergency preparedness	Fair	n.a.	n.a.	WHO
6.1.1	Drinking water services	Good	Good	Annual	WHO, UNICEF
6.2.1	Sanitation services	Good	Good	Annual	WHO, UNICEF
7.1.1	Clean household energy	Fair	Fair	In prep.	WHO
11.6.1	Air pollution	Good	Good	Annual	WHO
13.1.1	Mortality due to disasters	Fair	Poor	Every 2-3 years	WHO
16.1.1	Homicide	Fair	Fair	Every 2-3 years	WHO
16.1.2	Mortality due to conflicts	Fair	Poor	Every 2-3 years	WHO, UNPD

Figure Error! No text of specified style in document..**5   Data availability against SDG (Health) indicators**

Source: WHO, (2017), Monitoring the Health-Related Sustainable Development Goals (SDGs)

An aggregate of 4 health-related SDG targets was addressed in this study. The targets included 3.1 - Decreased maternal related death ratio; 3.3 - Eradicate Pandemics of communicable diseases); target 3.8 - Health accessibility for all; and target 3c (Increase Health Financing and Workforce). Contributions from this study will enlighten a number of variables that form part of the health global. It is envisaged that the contributions will timely provide implementation support towards SDG 3 and support for global efforts in overcoming health challenges, particularly in countries such as Malawi.

Malawi Health and Education Sectors

1.1.3 Education Sector overview

Education is the most a critical input for every aspect of sustainable development. The Malawi Goals Development Strategy III (MGDs III), which was developed based on the Agenda 2030 (Sustainable Development Goals), considers education as acritical instrument to human resource development and a significant requirement for industrial growth and socio-economic development. The education sector is made up of five subsectors including basic, secondary, teachers, and tertiary education and support services. According to the 2018 Education Management Information Systems report, Malawi is characterised by significant size, managerial, and system-related constraints due to high student-teacher ratios of 59:1 in secondary schools, the high primary pupil-to-classroom ratio of 126:1 in 2017, and the predicted need for 27,118 additional primary classrooms.

The overcrowding or the high classrooms ratio is said to be due to Malawi's high population growth rate, with 500,000 new students entering primary standard 1 annually, necessitating the hiring of 6,000 new classrooms and 6,000 new teachers just to keep things as they are. As a result, the education infrastructure is still depleted and insufficient, with the majority of schools being in poor condition, which has a negative impact on learning outcomes. The overcrowding has been since the government's introduction of non-paying primary education in 1994 and the enflamed student admissions has caused great pressure on the limited available resources.

In the 2018/19 financial year, the education sector got a recurrent budget of MK224.56 billion – (approximately US$50 million), 27% of the total voted recurrent allocations that exclude statutory expenditures, registering as the highest funded sector (Table 1.5.1). A larger proportion of the amount was allocated towards salary payments for secondary and primary school teachers (MK144.1 billion of the MK224.56 Billion representing 64%). Funds that went among the non-salary allocations were the MK3.16 billion spent on Teaching and Learning (TLM) purchases for both primary and secondary schools, Secondary school running expenses in all the six education divisions – MK6.4

billion, and primary schools running expenses - MK9.5 billion. In 2017/18, education got 26% out of which 51% went to salaries.

Table Error! No text of specified style in document.**.2** **Total Government recurrent budget for education (MK'000,000,000)**

Recurrent Provisions	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Total Recurrent Education	43,750	49,890	73,430	93,400	112,790	157,869	174,690	207,589	224,545
Total Voted Recurrent Allocation (excludes Statutory Expenditures)	182,580	194,790	321,460	386,220	495,750	582,522	666,255	788,999	840,966
% of recurrent allocation (excluding statutory expenditures) spent on education	24	26	23	24	23	27	26	26	27

Source: Government of Malawi, (2019), Malawi Education Sector Analysis based on Ministry of Finance – Financial Statements

Basic education got the largest share of the education budget at 56% of which 77% was for salaries creating a big gap for learning and teaching materials, construction, as well as maintenance for classrooms. The result is that the sector is unable to adequately achieve its educational goals. Over the years, the recurrent unit cost for primary school education went up by 178.8% (thus from MK9,186 to MK25,612 between 2013 and 2019) as presented in figure 1.5.1. The recurring unit estimated cost for secondary school education went up 151.4% (thus, from MK51,664 in 2013 to MK129,867 in 2017) and later went down to MK114,815 in 2019 as a result of improved enrolments in the secondary schools (Figure 1.5.2). Primary school enrolment in 2016-17 has increased by almost 3.5% from the previous year, and in 2020 it was at 5,073,721. The growth projection of the enrolment as of 2030 stood at 7,098,827 (Figure 1.5.3).
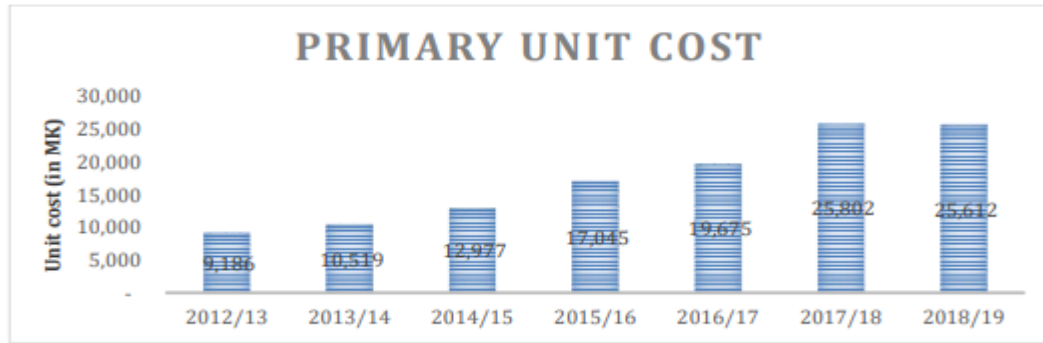
Figure Error! No text of specified style in document.**.6** **Primary school education recurrent unit cost trend from 2012/13 -2018/19**

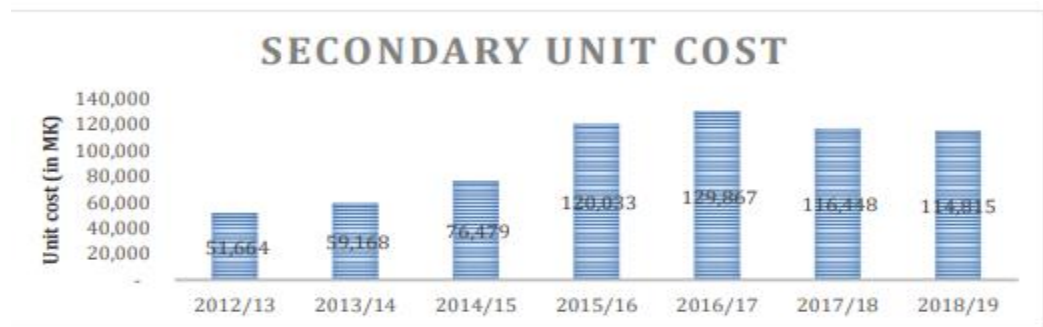*Source: Government of Malawi, (2019), Malawi Education Sector Analysis*

Figure Error! No text of specified style in document.**.7** **Secondary education recurrent unit cost trend from 2012/13 – 2018/19**

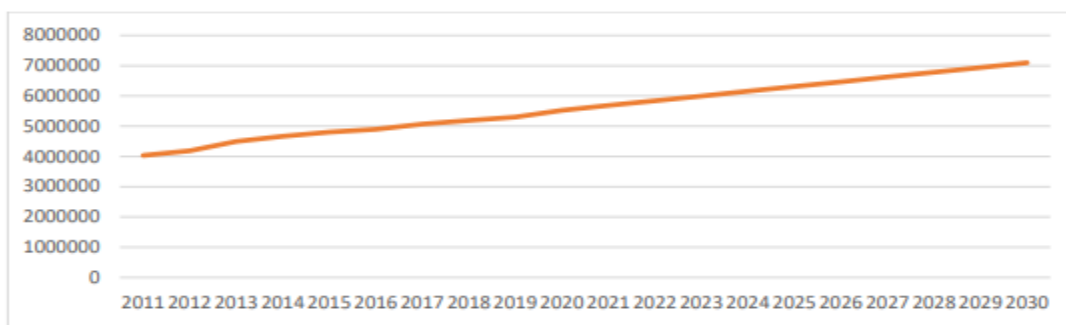*Source: National Education Sector Investment Plan (NESP), 2020-2030*

Figure Error! No text of specified style in document.**.8** **Primary school enrolment projections**

Source: Education Management Information System (EMIS)

The number of primary school qualified teachers increased leading to an enhanced Pupil Qualified Teacher Ratio (PQTR) of 70:1 in 2018 from 92:1 in 2009 against the 60:1 target PQTR indicated in the NESP. This implies a continued challenge of shortage of qualified primary school teachers. On the other hand, the ministry has been unable to recruit all qualified teachers. As a result, the Pupil Teacher Ratio is high i.e. 3 million learners against a total of about 45000 teachers. This indicates an efficiency risk in terms of service delivery as highlighted by the 2018-2019 budget document that repetition rates were around 23% and a shortage of science teachers with a student science teacher ratio of around 120:1 against an ESIP II target of 50:1.

There are still large disparities in the deployment of teachers among schools and within schools as well as a shortage of teachers and under-qualified teachers about 54.21% of the teachers are under-qualified. This also points to risks of inefficient service delivery and risk in the deployment of teachers. There are reportedly indications of efficiency risks in the management of education infrastructures as highlighted that most CDSSs still have no laboratories and libraries despite the rollout of the new curriculum. inadequate classrooms as access to public secondary schools are very restrictive and it is based on the availability of secondary school placements, teaching, and learning materials; Because much of the infrastructure in colleges does not meet the needs of people with impairments, very few students with disabilities enrol in higher education institutions, and payments for contractors take long due to huge floats between the time the certifications are done and the time payments are made. According to the SDG index 2022, major challenges remain in Malawi for SDG 4 – quality education despite being on track in achieving some of the targets like primary education enrolment, Data availability for monitoring progress is a challenge as far as target 4.2 is concerned (Figure 1.5.4).

SDG4 – Quality Education

Participation rate in pre-primary organized learning (% of children aged 4 to 6)	NA	NA	●	●
Net primary enrollment rate (%)	98.1	2019	●	↑
Lower secondary completion rate (%)	24.0	2015	●	●
Literacy rate (% of population aged 15 to 24)	72.9	2015	●	●

Figure Error! No text of specified style in document.**.9   Achievement of SDG-4 in Malawi**

Source: SDG Index 2022

1.1.1   Health Sector in Malawi

Health-care services are provided by public health facilities that fall under the Ministry of Health for free and private health facilities which are both for-profit and not-for-profit. As of 2014, there were 1060 public health facilities (Table 1.5.2).

Table Error! No text of specified style in document.**.3   Malawi Health facilities**

Type	Government	CHAM	Private	NGO	Company	Total
Hospital	51	44	22	2	0	**119**
Health Centre	360	112	5	5	7	**489**
Dispensary	46	2	2	0	5	**55**
Clinic	25	11	223	52	58	**369**
Health Post	27	1	0	0	0	**28**
Total	**509**	**170**	**252**	**59**	**70**	**1060**

Source: Government of Malawi, (2017)

Health-care services are pro-Health services are given at three levels; tertiary, secondary and primary. Provision of primary health-care services is done through Health Surveillance Assistants (HSAs) at health dispensaries, posts, centres, clinics, and community health facilities. Majorly, HSAs provide preventive and promotive health care services (Ministry of Health, 2011). Secondary health care services are provided at district

and CHAM health facilities. They also provide referral health care services from the health center and community health facilities in addition to the in and out-patients services for the surrounding populace. Tertiary health services are provided by central hospitals which include specialist services for their region and referrals from district hospitals (Ministry of Health, 2011).

The Ministry headquarters is responsible for making policies, setting standards, providing quality assurance, resource mobilization strategic planning providing technical support to health facilities, and executing monitoring and evaluations. There are five (5) Zone Health Support Offices (ZHSOs) which extend from the central ministry level and are responsible for providing technical support to facilities in the districts.

Despite making progress in the maternal mortality ratio as of the year 2016, the situation still remains the highest in the sub-Saharan region. The country is still struggling with inconsistency in the utilization of preventive measures for HIV, and the high prevalence of Tuberculosis, and malaria. It still has capacity gaps in relation to human resources, health infrastructure, and equipment. Thus, Malawi grapples with capacity gaps in human resources in all cadres in all health facilities. Based on categories of eight (8) front-line clinical human resources, 17,298 out of 25,755 established positions are filled (Table 1.5.3)

Table Error! No text of specified style in document.**.4**　　　**Clinical staff vacancies against established posts for CHAM and government health facilities**

Cadre	Establishment	Filled	Vacant	% Vacant
Medical Officer	398	284	114	29%
Clinical Officer	3,135	1,159	1,976	63%
Nursing Officer	3,275	1,098	2,177	66%
Nurse Midwife Technician	8,626	3,475	5,151	60%
Medical Assistant	1,506	1,199	307	20%
Pharmacy Technician	1,063	218	845	79%
Lab Technician	1,053	397	656	62%
Health Surveillance Assistants	6,699	9,468	(2,769)	-41%
Total	25,755	17,298	8,457	33%

Source: Government of Malawi, (2017) based on HRH Assessment Report, June 2016

The sector has experienced mixed progress with regard to governance and financial management. The health care system in Malawi depends heavily on foreign resource support and from the 2012/13 financial year, there has been a decline in development partners' support with rising public expenditure (Figure 1.5.5). The sector is among those that receive a bigger percentage of the country's budget share.
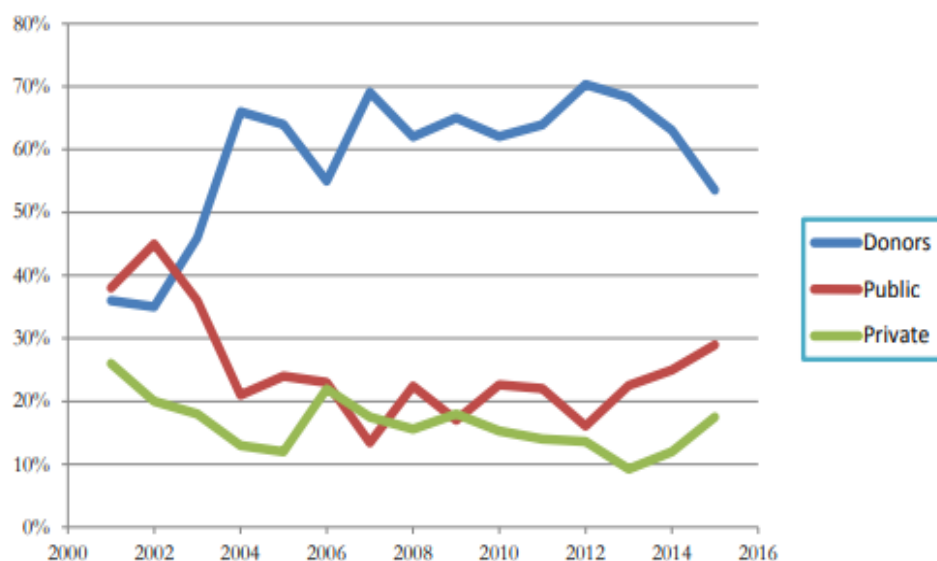

Figure Error! No text of specified style in document.**.10**   **Trend of Health services financing by source**

Source: Government of Malawi, (2017) based on National Health Accounts, 2002 -2015.

Malawi's commitment to achieving SDG-3 and ensuing attainment of UHC is evidenced through its Health Sector Strategic Plan II (HSSP II) which spans from 2017 to 2022. The plan integrated the SDGs and built upon the progress made in implementing the MDGs for decreasing child mortality; fighting HIV, malaria, TB, and added communicable diseases; reducing maternal mortality, and increasing coverage and access to critical health interventions. Two of the four MDGs that were attained included reduction of child death and fighting malaria, HIV/AIDS, and other related diseases as presented in table 1.5.4.

The plan also focuses on strengthening health sector governance considering that its implementation depends on both domestic and foreign financing. The contribution of the HSSP II to the SDG 3 is designed to be through interventions directed towards action on social health determinants and basic health care packages. Its objectives mainly include: 1) Increase the retention, performance, availability, and motivation of human force to

effectively, efficiently, and equitably deliver health services; 2) Lessen social and environmental risk factors directly affecting health; 3) expand the accessibility, excellent, consumption of medications and medicinal supplies; 4) Produce better information while making it available to all targeted users; and 5) Improve the accessibility, quality, and utilisation of health workers.

Table Error! No text of specified style in document..**5**   **The end line report of Malawi's Millennium Development Goals**

GOAL	INDICATOR	BASELINE	MDG TARGET	ACHIEVEMENT	REMARK
Eradicate extreme poverty and hunger	Prevalence of Underweight children (%)	25.4	14	16.7	NOT MET
Reduce child mortality	Under five mortality rate (per 1000)	189	78	85	MET
	Infant mortality rate	103	44.7	53	MET
	Proportion of 1 year children immunised against measles	83.2	95.3	85	MET
Improve maternal health	Maternal mortality ratio (per 100,000)	1120	155	574	NOT MET
	Proportion of births attended to by skilled health personnel	55.6	100	87.4	NOT MET
Combat HIV and AIDS, Malaria and other diseases	HIV prevalence among 15-24 year old pregnant women (%)	24.1	0	10.6	MET
	Prevalence and death rates associated with Malaria (%)	3.6	0	3.3	MET
	Access to Malaria treatment within 24h of onset of symptoms (%)	8		31	MET
	Proportion of households with at least one ITN	31		71	MET
	Death rates associated with Tuberculosis	22		8	MET
	Proportion of TB cases under DOTS (%)	57	100	84	MET

Source: Malawi Millennium Development Goals End-line report 2016

Public Finance Management and Reforms in Malawi

Public Finance Management is defined laws, regulations, rules, processes, and systems applied for public resource mobilization, allocation, spending, accounting, and oversight (Lawson, 2015). It embraces broader sets of functionalities and is mostly perceived as a six-phased sequence that commences with policy development and ends with audit and assessment. The other phases include budget formulation, budget approval, budget execution, and accounting. Further, it engages a number of actors for its transparency and effectiveness while preserving accountability. PFM system aims at promoting accountability and transparency; sustaining collective financial discipline; warranting distribution of public funds to planned priorities for achievement of allocative efficiency, and ensuring operational efficiency while achieving value for money in the delivery of public services. A robust Public Finance Management System is a critical

aspect of an effective country's institutional framework as it is a necessary condition for a number of development outcomes. As such, improving the effectiveness of a PFM system generates long-lasting benefits for a country.

In Malawi, Public Finance Management in its broadest sense encompasses managing of the entire budget cycle, institutional and legislative framework, including capability for managing public funds (Leiderer et al, 2007). The PFM legal framework provides the complete setting of the budget process development. It fixes binding budgetary practices rules and regulations. It incorporates both constitutional regulations and concrete budgetary regulations (Leiderer, 2004). The most important laws governing PFM in Malawi include the PFM Act, 2021; Constitution of the Republic of Malawi, 2002; Public Audit Act 2003 amended 2016; and the 2016 Public Procurement and Disposal of Public Assets Act.

At the Local Council level, PFM is guided by the Local Government Act (1998), National Decentralization Policy (1998), Development Planning System Handbook for District Authorities, (2001), and Reporting Guidelines for Local Authorities Finances (2004). The PFM institutional framework outlines the organization of the budget process. It defines the organizational arrangements of the governing and administrating bodies. It also defines the fiscal relationships at different levels of government. Quality and suitability of technical and human capacities form an important aspect of efficient and effective PFM systems. In addition, well-functioning information systems form an important element of efficient PFM Systems allowing decision makers to control aggregate expenditures, and shortfalls and prioritize spending on implementation of policies, projects and programmes.

Since the late 1990s, developing partners have placed attention on PFM system reforms in developing countries. In Malawi, PFM reforms started way back in the mid-1980s, with a reform of budget preparation driven by a World Bank conditionality for structural credits adjustment, (Durevall and Erlandsson, 2005). In the 1990s, several initiatives to strengthen PFM were undertaken. These included an introduction of a Medium-Term Expenditure Framework (MTEF) in 1995, a cash budgeting system in 1996, a credit ceiling allocation system as a way of improving cash management in 2000, and

initiation of the Integrated Financial Management System (IFMIS) program in 1996 (Fölscher et al., 2012). Another PFM reform program prepared with IMF support was approved in January 2015 and was aimed at restoring financial controls and accountability through a series of short-term measures that emerged due to the cash gate scandal (World Bank Document, 2016). Further, the reforms aimed at strengthening the government system and competencies in public finance, public procurement, internal control, and establishing a coherent and operative tax policy regime. The focus of PFM reforms in Malawi had been on the Procurement system, Integrated Financial Management Information System (IFMIS), and external audit function

PFM, which has been one of the main focus of reforms by most governments, is considered to be complex and its implementation initiatives have faced challenges, especially in developing countries such as Malawi. Development partners including DFID, have prioritized their attention toward PFM systems reforms despite yielding mixed results such as slow progress and elusive benefits. Governments' reluctance and failure to fully-engage in effective reform activities has been attributed as being a cause. Research has attributed the reform performance differences and implications on reforms design and provision of external support to the following prerequisites: Leadership that includes strong political will and technical commitment; Policy space for developing appropriate reforms; and adaptive, iterative, and inclusive processes.

Public sector performance

Public Sector Performance (PSP) is mostly associated with service delivery which in turn translates to achievement of sustainable development (World Bank, 1999). Well-performing public sectors have the ability to translate developed policies into development strategic outcomes that can be delivered to the citizens depending on the country's affordability (Beschel et al., 2018). Achievement of service delivery objectives translates to sustainable development for the citizenry (Cheruiyot et al., 2017; Buger and woods, 2008; Gurazada et.al, 2020). As such, the understanding of conditions that derive performance management by public service managers is critical considering that it leads to timely and better controls which in turn improve the performance of public organizations

(Bjurstrøm, 2020). Public institution managers should strive to implement Performance Measurement Systems if they are to improve service delivery (Tran and Nguyen, 2020). Better public service delivery is influenced by good governance and effective public finance management (Arora, 2010; Ferry and Ahrens, 2017; Renzio, 2015)

For some time, Malawi has been experiencing challenges in service delivery as reflected in the various sectors policy outcomes including health and education (O'Neil et al., 2014). The desire for Malawi to achieve her vision of turning to a middle-income state by 2063 require delivery of public services that are fit for the purpose, high performing public sector entities and public servant that are results oriented to facilitate an improved, transformed and modernized economy (Banda, 2021).

In view of this, public sector reform programmes are on the verge of being effected in order to enhance service delivery and restore citizens' confidence. This confidence calls for public services that meet required quality standards (The Malawi Public Service Charter, 2020). These reforms include, among others, the introduction of performance evaluation and management framework in 2008 with aim to improve efficiency, service output and effective delivery of services despite having challenges of its implementation (Kalowafumbi, 2013; Munyala & Farhat, 2020).

Study Scope

The research focused on governance practices implemented in the health and Education public services in Malawi and whether this has led to improved performance. It investigated the linkage between PSG and SDGs. The research focuses on (Goal 3: Health and Goal 4: Education) as far as sustainable development goals are concerned. It explores the serial mediation role of Public Finance Management (PFM) and Public Sector Performance (PSP) in the sectors education and health. For purpose of this study, public sector performance has been limited to service delivery which includes quality, quantity, and accessibility to the services. Public finance management has been limited to value-for-money aspects and the entire budget process.

Data for the study has been gathered from the Malawian education and health sectors as one of the developing countries whose results can be replicated in other developing countries facing similar challenges in the pursuit of attaining development sustainably. Data on the performance indicators were collected with a focus from the year 2015 when the sustainable development goals were signed and agreed upon to the year 2020 when most of the countries had submitted at least one voluntary national report for the progress so far made in the implementation of SDGs.

Significance of the study

Addressing this topic contributes to the practical and theoretical literature in relation to research studies that have looked at this kind of serial mediation linkage between PSG and SDGs. It also contributes to literature in the research world in the area of governance, sustainable development, public sector performance, and public finance management. The developed framework significantly contributes to the theoretical literature while the results of its application contribute to the practical literature.

Further, it contributes to the enhancement of public sector service delivery in Malawi and other developing countries facing challenges in implementing sustainable development and improving the lives of the citizenry. The study results allow the Supreme Audit Institution in Malawi to advance means of promoting PSG for enhanced public service delivery. Recommendations made will help improve the way public sector entities engage with issues of governance and public finance management. It will also help to inform the Public Economic and Finance Assessments (PEFA), Public Finance Management (PFM) reporting framework, and the implementation of Malawi Growth Development Strategies for sustainable development.

Purpose and objectives of the study

The study mainly was premised on developing a framework to be applied in exploring the relationship that exists between public sector governance and sustainable development goals having regard to the serial mediation role of functioning public finance management system and the performance of public sector entities. This was further broken

into three objectives which were also aligned with the research questions. The objectives included:

- To compare the existing governance practices in Education and Health Sectors

- To assess the linkage between PSG and SDGs in Education and Health Sectors

- To investigate the serial mediation role of Public Finance Management (PFM) systems and Public Sector Performance on the linkage between Public Sector Governance and Sustainable Development Goals in Health and Education Sectors

Outline of the Thesis

The outline of the thesis is presented as follows:

Chapter two (2) covers a review of literature existing academic literature on public sector governance and sustainable development goals; governance and performance of public sector entities; Public Finance Management and Sustainable Development. It also highlights the bibliometric analysis of existing literature on public sector Governance and sustainable development goals in health or education sectors; Governance and performance of public sector entities (service delivery); Governance and Public Finance Management (Value for Money); and Governance and Public Finance Management (Value for Money), Performance (Service Delivery) and Sustainable Development (Health and Education). The chapter has also presented a review of literature on Composite-based methods of structural modeling and serial mediation relationships on public sector Governance and Sustainable Development goals, and a framework supporting the study of Governance and SDGs based on a review of literature for identification of antecedents used for the constructs in the study. The chapter winds up with a presentation of the identified research gaps from the review of the literature.

Chapter 3 presents the methodology applied for research. It consists of a presentation of conceptual framework; research question, objectives and their formulated hypothesis; research design and sampling design; Identification of constructs, antecedents, and questionnaire statements; Expert validation of constructs, antecedents, and

questionnaire statements; methods of data collection and analysis; pilot survey, descriptive statistics, reliability test, and the revised questionnaire.

Chapter four (4) highlights the existing governance frameworks or structure in Malawi health and education sectors including a comparative analysis based on the content and descriptive analysis of the data based on the antecedents of the PSG constructs from various reports including policy documents. Further, descriptive statistics for PFM, service delivery and SGDs are presented.

Chapter five (5) presents the results of analyzed data, and their discussion. Using Smart-PLS, results have been presented and discussed to draw conclusions from the study. Chapter six (6) presents the conclusion and chapter seven (7) proposes the areas of future research within the study framework.

CHAPTER 2: REVIEW OF LITERATURE

A review of existing literature is essential when conducting studies (Webster and Watson, 2002). It analyses and synthesizes the value of existing literature in a study area. It provides a strong foundation for the topic under study in terms of identification of research methodology; its contribution to the knowledge body and its relevance (Chiasson et al., 2008; Levy and Ellis, 2006; Dibbern et al., 2004; Bandara et al., 2011). The review aimed at systematically identifying and synthesizing academic literature to describe research insights, identifying gaps that exist in the research area and establishing future opportunities for research (Palmatier, Houston and Hulland, 2017). The systematic review of existing literature was conducted using bibliometric analysis tools namely biblioshiny and *VOSviewer*. Further, the review of academic literature aimed at providing a background for the key research concepts and the research study. Thus, public sector governance and how it relates to the performance of public sector entities; an exploration of existing academic literature in relation to public finance management and sustainable development. Thereafter, the chapter presents a summary of the identified gaps from the reviewed literature for future research as well as the gaps addressed in this research.

2.1 Bibliometric analysis on governance and performance of public sector entities with regards to public finance management for sustainable development

Bibliometric analysis entails an orderly examination of literature aimed at ascertaining authors that have contributed to the knowledge body of the study area, and the common addressed themes using cluster analysis of keywords in the existing studies (Wahyuni et al., 2019). Bibliometric analysis presents in quantitative manner development in a specific study area to ascertain publication outlines and tendency on particular themes of the area of study (Lee and Hew, 2017). The review method is vital for analyzing existing trends in research for a particular study based on indicators such as: most relevant authors, most cited articles, institutions/affiliations, countries, and

sources/journals (Bonilla et al., 2015). Using bibliometric analysis, a research collaboration among authors, institutions, and countries can also be established.

This approach enables a presentation of analysis for research work contribution in a systematic, static and transparent way. Bibliometric analysis is a method of meta-analysis of research work, which statistically identifies the qualitative and quantitative trends of a particular study (Miskiewic, 2020). Researchers have broadly applied this review method to analyze numerous publications from diverse fields and domains (Marvuglia et al., 2020; Cullen, 2017). According to Donthu et al., (2021), there are some important techniques and enrichment techniques for conducting bibliometric analysis. The main techniques include performance analysis and science mapping while the enrichment technique involves network analysis. These techniques are detailed in Figure 2.1.1.
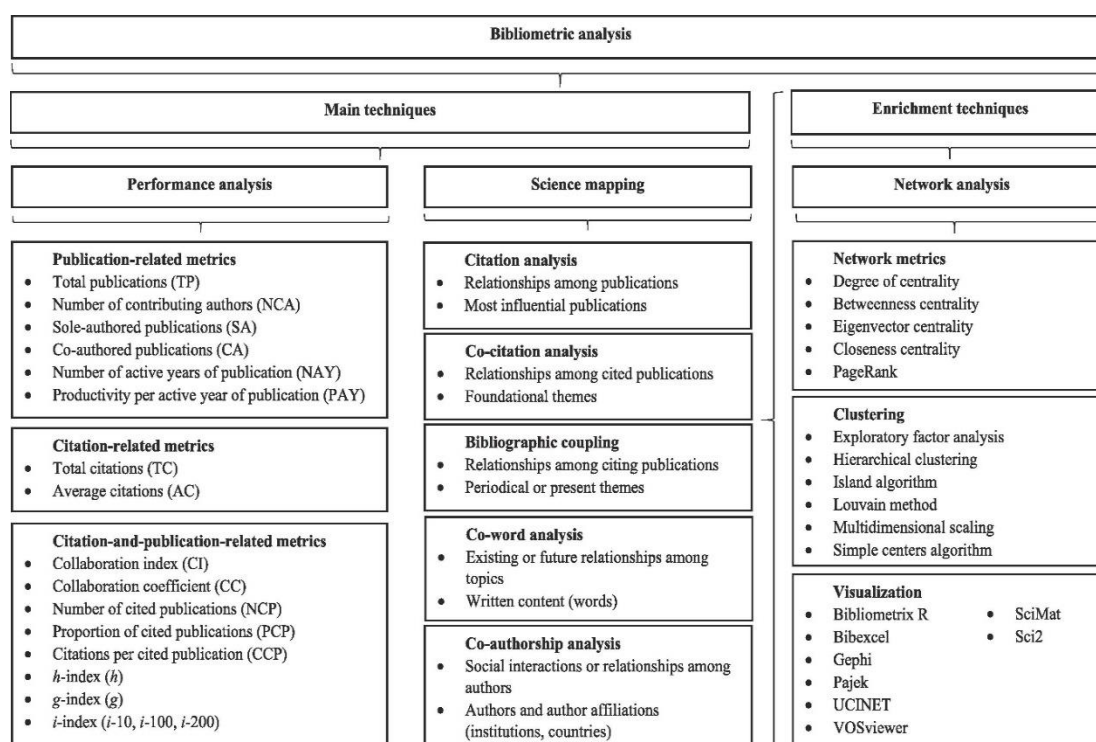
Figure 2.1.1 A Toolbox for bibliometric analysis

Source: Donthu et al., (2021)

Performance analysis in the bibliometric analysis involves an examination of research contributions to a particular area under study (Cobo et al., 2011). The nature of the analysis is descriptive and includes measures such as publication related metrics,

citation related metrics, or a combination. Science mapping involves an examination of relationships between constituents of research (Baker et al., 2021). The analysis relates to connections in structure and intellectual interactions (Tunger and Eulerich, 2018; Baker et al., 2020). Techniques used in science mapping include (i) Bibliographic coupling where common references in authors, documents, and journals are analyzed (Kessler, 1963; Zhao and Strotmann, 2008; White and McCain, 1998; Yan and Ding, 2012). (ii) Co-citation analysis of authors, documents, and sources (Small, 1973). Citation and co-citation measures the level of scientific collaboration mapping. (iii) Co-authorship analysis where co-occurrence of authors, countries and institutions in documents are analyzed. Co-authorship analysis studies the social structure and collaboration networks using authors and their affiliations (Peters and Van Raan, 1991; Glänzel, 2001) and (iv) Co-word analysis where co-occurrence of words in an articles such as keywords are analyzed. Co-word analysis using keywords studies the conceptual arrangement of a research area and produces area semantic maps that facilitate knowledge of the cognitive structure of the research area (Callon et. al., 1983). The analysis of words, keywords, and co-keyword is useful for visualizing and describing the structure of scientific fields of particular publication groups.

In this research, bibliometric analysis was applied to analyze trends of research studies on governance, the performance of public sector entities, Public Finance Management, and sustainable development. Thus, all three techniques; performance analysis, science mapping, and network analysis were applied. Herein, the analysis used information mined from SCOPUS on 8th April 2021, 7th June 2021, and 28th September 2021. The Selection of the SCOPUS database was due to the fact that it is extensively recognized as an all-embracing literature source with credible and reliable content with publications from numerous journal publishers like Emerald Insight, Springer, Elsevier, and Taylor and Francis are indexed (Maflahi and Thelwall, 2016; Foncubierta-Rodrigue and Müller, 2014).

The search for literature centred on the main themes and dimensions of the relationships under the study of Governance and sustainable development. These included Governance and Sustainable Development; Governance and Public Sector Performance (service delivery); Sustainable Development (Health or Education) and

Public Sector Performance (service delivery); Public Finance Management (Value for Money) and Sustainable Development (Health or Education). Herein, the researcher limited sustainability achievement of SDG 3 (health) and SDG 4 (education), Performance to service delivery, and Public Finance Management to Value for Money. The search of literature used Boolean operators including "AND" and "OR" (Janik et al., (2020). Table 2.1.1 presents the number of studies mined from the Scopus Database for the themes and dimensions of the relationships in this study.

Table 2.1.1   Number of studies mined from SCOPUS database

Theme/Dimension/ relationships of the proposed study	Number of studies mined
Governance and sustainable development (health or Education)	375
Governance and public sector performance (service delivery) and Sustainable development (Health or Education)	818
Governance and Public Finance Management (Value for Money) and Sustainable development (Health or Education)	48
Governance and PFM (Value for money) and public sector performance (service delivery) and sustainable development (Health or education)	15

Bibliometric software tools used for the analysis were VOSviewer version 1.6.16 and Biblioshiny of R version 4.1.0, and version 3.1.4 of bibliometrix package. Visualization of Similarities (VOSviewer) is an internationally widely used free bibliometric analysis software to analyze, and visualize various relationships including that of authors, journals, countries, years of publication, and institutions/affiliations (Eck and Waltman, 2010; Guo et al., 2019). According to Janik et al., (2020), the tool is powerful at presenting network structures with numerous elements with a distance-based approach visualization.

The networks created using this tool consist of lines and nodes which are presented depending on the type of analysis such as by author, by keywords, countries, or sources. The nodes are further classified into clusters and the lines in between them

represent their relationships such as co-citation and co-occurrence (Waltman et al., 2010). Biblioshiny is a software tool used to present general statistics and relationships between most key scientific collaboration units by use of three field plots. Data mined from the Scopus database was exported to the software to conduct the network analysis, which is, grouped in three parts (Eck and Waltman, 2014). Thus, (1) analysis of Word, keywords, and co-keyword, (2) mapping of scientific collaboration and (3) analysis of sources, top authors, and key relations.

The bibliometric analysis sought to answer the following questions on governance, performance of public sector entities with regards to public finance management for sustainable development

1. Which are the most relevant and impactful research authors and articles in the area of study?

2. What is the institution wise and country wise literature contribution existing in the area of study?

3. What are the common discussed themes by researchers in the existing literature?

4. What is the trend contribution toward the literature of the study area?

2.2 Bibliometric analysis on Governance and Sustainable Development
2.2.1 Literature Review on PSG and Sustainable Development Goals

Corporate governance is an instrument that guides the administration of entities to ensure operational transparency, good management results, and efficient service delivery (Khudir and Ali, 2019). According to Juiz et al., (2014), it provides a structure for determining organizational objectives and performance monitoring. PSG entails the use of these practices to delivery of public services. PSG comprises the existing arrangements that underpin the definition and attainment of envisaged outcomes of policies and strategies for public service delivery (IFAC, 2014). IFAC and CIPFA, through their standards framework, define effective PSG as codes that underpins improved policymaking, efficient public resource utilization and strengthening resource stewardship accountability. PSG translates to effective organization, good performance, public money usage, behaviour, and outcomes (Juiz et al., 2014). It

promotes transparency, accountability, efficiency and respect of existing laws. It enables better control of natural, financial, and human resources for sustainable development (Sachiko and Durwood, 2005).

Numerous codes of public sector governance are approved by the public service and other stakeholders. These include: (i) the Good Governance Standards for Public Services by the Independent Commission for Good Governance in Public Service (OPM and CIPFA, 2004) which presents six principles commonly adopted by all public sector entities. They build on the Nolan's Principles of conduct for public officers (CIPFA, 1995); (ii) the Worldwide Governance Indicators which summarize various stakeholders' opinions on the excellent of governance (World Bank, 2013); (iii) The World Bank's Anti-Corruption and Governance Strategy which authorize increased use of actionable and disaggregated indicators for governance (World Bank, 2007); (iv) IFAC Governing Body Perspective that focuses on public sector governance arrangements (IFAC, 2001); (v) Institute of Directors in Southern Africa which aims at explaining the principle-based approach of governance (IodSA, 2011); (vi) the OECD Guidelines (OECD, 2002); (vii) The IFAC's International Good Practice Guidance (IFAC, 2009).

According to the CIPFA and IFAC framework of governance, the function of PSG, which is to ensure public sector entities act in the public interest always, form the basis of the seven key principles of public sector governance. These are as presented in Figure 2.2.1
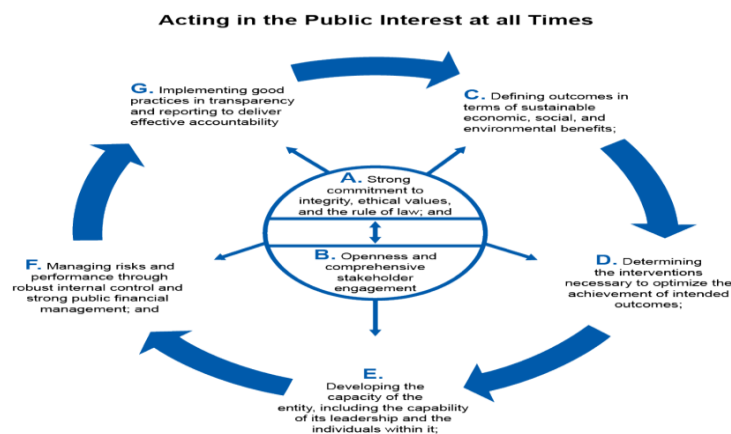
Figure 2.2.1   Seven Principles of good governance, acting in the public interest

The principles of good public sector governance also include participation, coherence, openness, effectiveness and accountability (The European Union, 2001). Gresh et al., (2015) also suggest that there are five principles of good governance as presented in Figure 2.2.2.
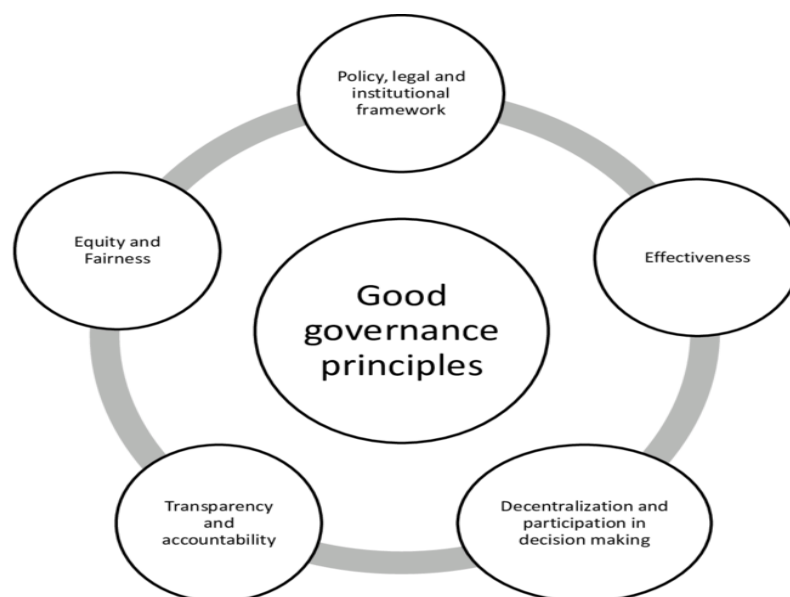
Figure 2.2.2   Five Principles of Good Governance

Governance entails the comprehensive measures and instruments in place that influence social change in predetermined directions (Lafferty, 2004). Others perceive governance to entail the exercise of political, economic, and administrative authority to manage the socio-economic affairs of the country at various levels in totality for development (The United Nations Development Program, 1997; The World Bank, 1992). Effective public sector governance is critical to the attainment of sustainable development (Munthali and Nantchouang, 2018; Kardos, 2012), as it is aligned with enhancing the performance of public sector service delivery. Governance plays a vital role in enhancing accountability and transparency to attain policy outcomes for service delivery and their impacts on the lives of the citizenry and environment (Berger, 2003; Ijeoma and Ezejiofor, 2013; Almqvist et al., 2013).

On the other hand, sustainable development entails meeting the needs of today while being mindful of the ability to meet the needs of the future generation (UN, The Brundtland Report, 1987; Jordan, 2008; Ugoani, 2017; Mensah, 2019). It aims at ensuring better living standards that balance the environmental and socio-economic spheres (Borysivna, 2016). The agenda for sustainable development was adopted in September 2015 by the heads of states at the United Nations Sustainable development summit. The agenda provided a framework that integrates five constituents of sustainable development namely planet, people, prosperity, partnership, and peace. The agenda perceives sustainable development as an organizing principle for global cooperation that integrates social inclusion, economic development, and environmental sustainability (SDSN, 2015). It has a result framework consisting of seventeen (17) Sustainable Development Goals (SDGs), further disaggregated into 169 targets. The principle prerequisites for the implementation of these goals include (i) national ownership (where they are to be adapted to the national context by setting intermediate targets and translating them into policies and determining the cost interventions as well as aligning the budgets to these goals); (ii) Universality; (iii) Human rights oriented; (iv) inclusiveness and participation of various stakeholders; (v) leaving no one behind by adopting the whole of government approach; and (vi) integration in terms of the interconnectivity of the goals.

The review of literature denotes governance as a means to achieve desirable outcomes. The issue of governance has been debated for decades in the field of public administration, and the SDGs present a governance challenge regardless of a country's income level (OECD, 2019). Governance encompasses a wide range of systems, procedures, networks, and institutional mechanisms that can be used to implement the SDGs. Good governance with its strategic measures contributes to a number of factors that underpin the implementation of sustainable development goals (Kemp et al., 2005). The factors are engagement of strategic objectives and long-term commitments, vertical and horizontal policy coherence and coordination, open and transparent stakeholder engagement, and bringing SDGs closer to local people and communities (Lafferty, 2002; Meadowcroft, 2007; Kardos, 2012). Sound public governance can promote a shift from traditional siloed policymaking to more integrated approaches that balance short

and long-term interests for sustainable development (OECD, 2016). Both good governance and sustainable development depend on the existence of institutional structures and the availability of economic resources (Roy and Tisdell, 1998).

A literature search has established a few bibliometric analyses conducted on governance and sustainable development. Using "CiteSpace" Software, Ye et al., (2020), conducted a bibliometric analysis with a focus on corporate social responsibility in sustainable development to analyze and establish a knowledge map. Their analysis showed that the involvement of Corporate Social Responsibility in sustainable development is one of the recent topics under study. They established the top three (3) influential journals namely Sustainability; Corporate Social Responsibility and Environment Management; and the Journal of Cleaner Production. Carroll AB and Porter ME were the most impactful authors and noted that the network of the co-authors was fragmented. They identified highly concerned eleven (11) clusters where "NGO" and "Stakeholder" were mostly featured keywords. The newest and strongest keywords in the clusters were "strategy", "sustainability", "Performance", "Disclosure", "Stakeholder, Developing Country", and "Climate Change and Supply Chain Management". They noted that the studies underwent a four-stage evolution. The first stage is known as the initial phase spanning from 1997 to 2004, the second stage is: Debating phase spanning from 2005 to 2009, the third stage is: Rapid Developing Phase spanning from 2010 to 2013 and the fourth stage is: Research Realization Phase spanning from 2014 to 2019.

Chen et al., (2019) conducted a bibliometric assessment of public-private partnership related policies with regards to sustainable development in China for the period between 1980 and 2017". 299 policy documents were quantitatively bibliometric analysed in order to cover gap on literature for sustainable development relating to Public-Private Partnerships (PPPs). They identified priorities relating to PPP in three stages namely "the encouragement of foreign investment in infrastructure" (1980 to 1997), "the encouragement of the marketization of urban public utilities" (1998 to 2008), and "the intensive institutionalization and extensive application of PPP for solving the local debt problem" (2009 to 2017). Based on the three priorities, the article established that there has been a shift in the pattern of policies relating to PPP and

sustainable development. Thus, moving from non-existence to a situation where the policies inclined more toward sustainable development.

2.2.2 Results of Bibliometric analysis for Governance and Sustainable Development

2.2.2.1 Production and Keyword analysis

i. Growth in Publication trend

Biblioshiny bibliometric analysis, of the annual scientific production of literature on governance and sustainable development goals in health or education sectors for the period 2006 to 2021 showed that out of 375 literature publications, 99 were published in 2020, representing the highest. Further, the analysis showed an increasing trend in publication of literature on governance and sustainable development goals especially from the years 2014 to 2020. So far in the year 2021 there has been a production of 75 documents. Thus, this paper adds to the contribution towards the study on the topic. Figures 2.2.3 presents the publication trend from 2006 to 2021.

Production Trend	
Year	**Articles**
2021	75
2020	99
2019	64
2018	59
2017	29
2016	27
2015	10
2014	7
2013	3
2012	1
2006	1
Total	**375**
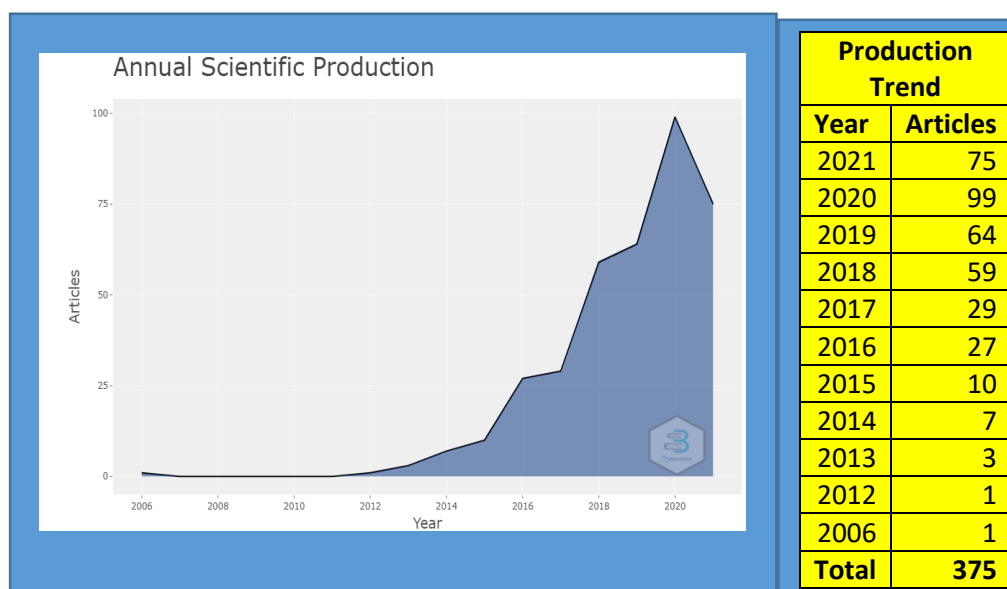
Figure 2.2.3 Biblioshiny Publication trend analysis on governance and sustainable development

ii. Most Relevant Sources,

An analysis of publication sources noted 20 to most relevant journals published 123 articles out of the 375. Figure 2.2.4 presents the details of the 20 top most relevant sources of publication for articles on governance and sustainable development goals.
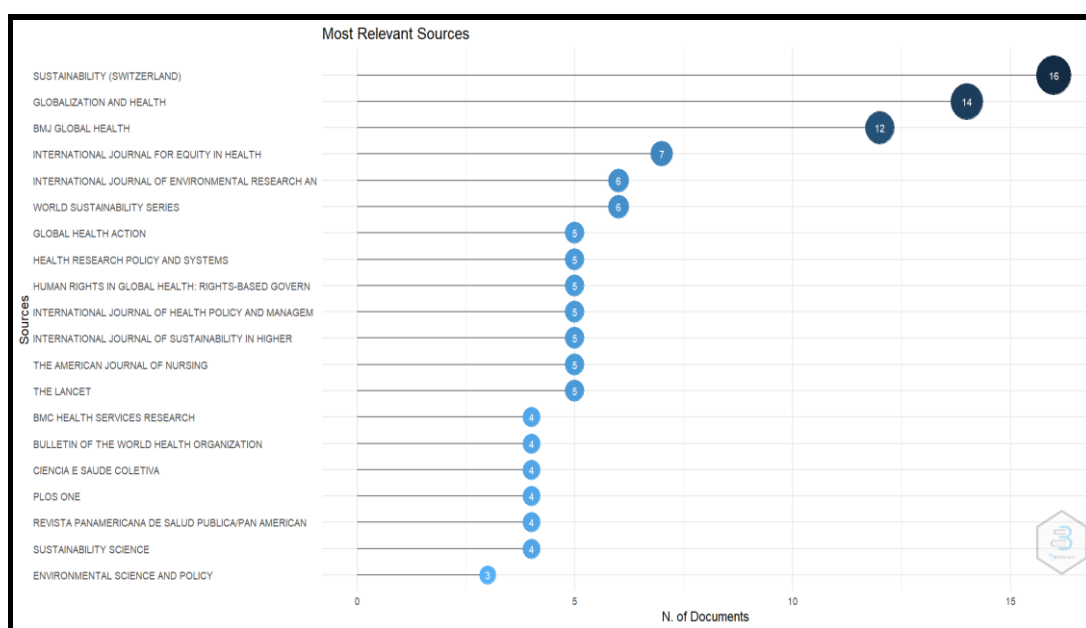
Figure 2.2.4   Biblioshiny analysis of most relevant sources (Journals)

The analysis, as depicted in Figure 2.2.4, revealed that the top most relevant sources (journals) in this research area are Sustainability (16), Globalization and health (14) and BMJ Global Health (12). Most of the journal sources published 5 articles. This signifies the existence of research contribution gap on governance and sustainable development goals in health or education sectors. Source production growth analysis showed an increasing trend in literature publication from the sources in this study area as depicted in Figure 2.2.5.

Further analysis noted that Sustainability journal started publishing articles in this research area in the year 2017 with two articles. The journal experienced an increase in growth from 2019, 2020 and 2021 with 7, 13 and 16 articles respectively. Globalization and Health commenced publication of articles in this area in 2014 and experienced growth in 2018, 2019, 2020 and 2021 with 6,9,13 and 14 respectively. BMJ Global Health commenced publication of articles in this area in 2017 with 2 articles and experienced since then with 5,7,11 and 12 in 2018, 2019, 2020, and 2021 respectively.

Table 2.2.1, shows number of articles the 6 to most relevant sources published over time. The analysis indicates the opportunities for researchers' contributions to these sources.
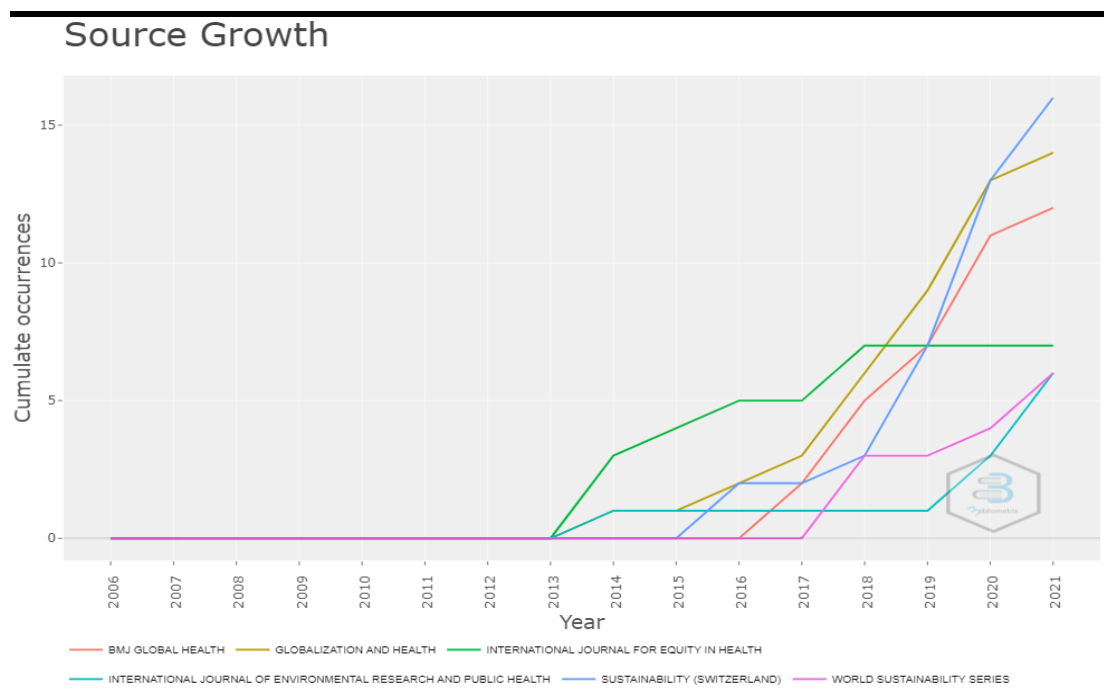
Figure 2.2.5   Biblioshiny analysis of source growth over time

Table 2.2.1   Source Production Growth

Year	Sustainability (Switzerland)	Globalization and Health	BMJ Global Health	International Journal for Equity in Health	International Journal of Environmental Research and Public Health	World Sustainability Series
2006	0	0	0	0	0	0
2007	0	0	0	0	0	0
2008	0	0	0	0	0	0
2009	0	0	0	0	0	0
2010	0	0	0	0	0	0
2011	0	0	0	0	0	0
2012	0	0	0	0	0	0
2013	0	0	0	0	0	0
2014	0	1	0	3	1	0
2015	0	1	0	4	1	0
2016	2	2	0	5	1	0
2017	2	3	2	5	1	0

2018	3	6	5	7	1	3
2019	7	9	7	7	1	3
2020	13	13	11	7	3	4
2021	16	14	12	7	6	6

Source impact analysis noted that Globalization and Health and Sustainability had the highest H-index of 6 followed by BMJ Global Health (5), Bulletin of the World Health Organization, Health Research Policy and Systems, International Journal for Equity in Health, International Journal of Health Policy and Management and the Lancet had an H-index of 4. Figure 2.2.6 depicts the Source impact by H-Index of the 20 top most journal sources.
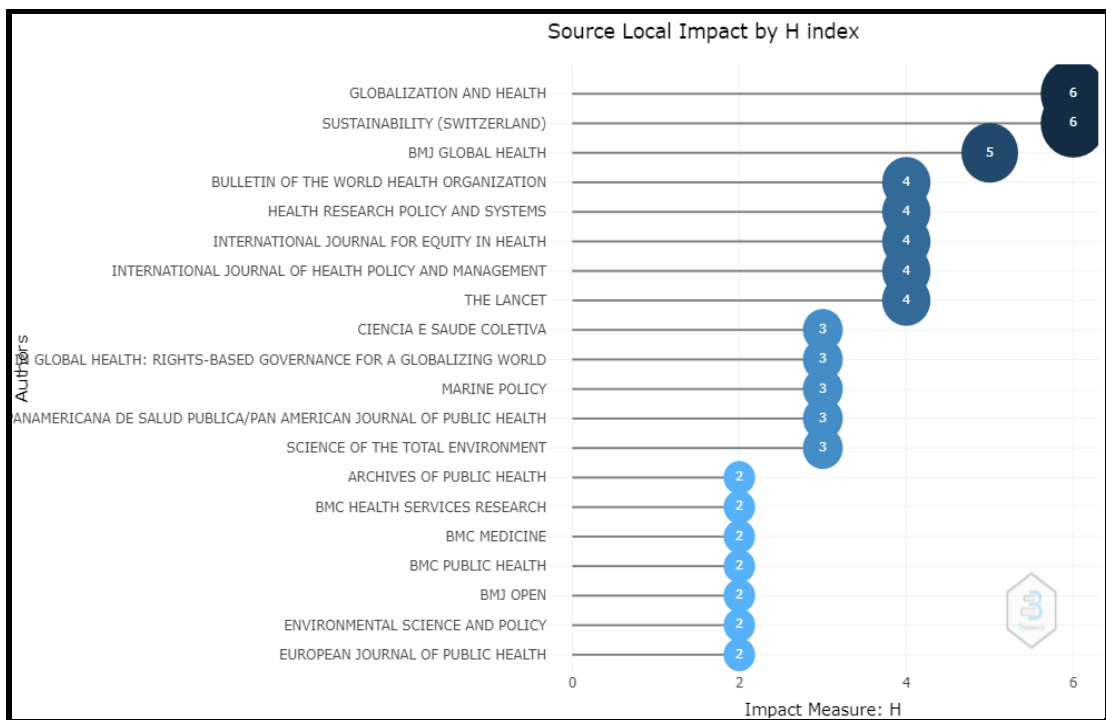
Figure 2.2.6   Source Impact by H-Index

ii. Country Scientific production and Affiliations

The bibliometric analysis also showed that the out of 15 top country scientific production, United States of America (USA) - 268, United Kingdom (UK) -195, Canada -107, Australia - 101 and China - 80 frequently contributed towards literature production on the research subject from period 2006 to 2021. The analysis showed an existing gap of scientific production from countries in Africa. This provides an opportunity for this research contribution from Malawi. The analysis showed the most

cited countries in research work on governance and sustainable development goals from period 2006 to 2021 were United Kingdom (1264), Australia (182), Canada (155), USA (495), Netherlands (402) and China (199) as depicted in table 2.2.2. As such, it would be interesting to have research in this subject area based on Malawi in Africa.

Table 2.2.2   Top 15 Country Scientific production and most cited countries

Country	Frequency	No. of Citations	Average Article Citations
USA	268	495	11.51
UK	195	1264	30.83
CANADA	107	155	9.69
AUSTRALIA	101	182	9.1
CHINA	80	199	14.21
SWITZERLAND	52	36	6
BRAZIL	50	53	5.89
SOUTH AFRICA	50	46	4.18
INDIA	48	45	4.5
GERMANY	46	65	6.5
JAPAN	31	82	9.11
SPAIN	31	54	7.71
ITALY	30	16	2.67
NETHERLANDS	29	402	67
NIGERIA	23	9	2.25

An analysis of the top 20 affiliations noted that less contributions originated from institutions in developing countries (Figure 2.2.7). Thus, this research attempts to address that gap.
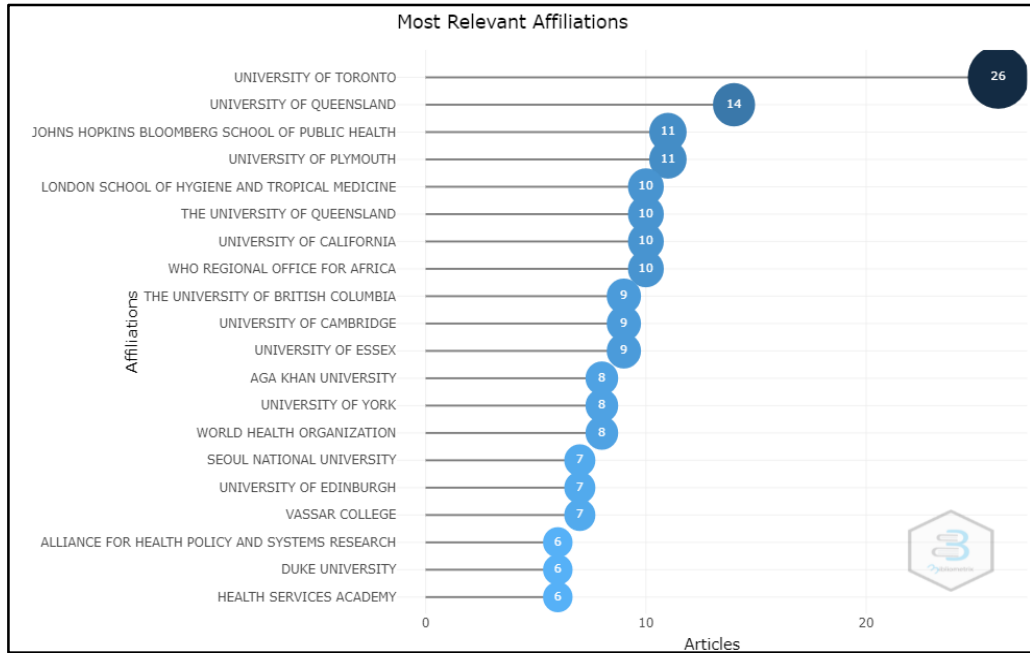
Figure 2.2.7 **Top 20 Most relevant affiliations contributing to literature on governance and sustainable development goals.**

iii. Authorship Analysis

A bibliometric analysis using VOSviewer software based on a highest number of 5 authors per article and a lowest of 2, noted that out of 597 authors 47 emerged as the most productive authors. A Scopus analysis and biblioshiny bibliometric analysis of authorship revealed Hill, P.S as the most productive and most relevant author, having published six (6) articles followed by Brolan, C.E and Mackey, T.K who published five (5) articles each. Most of the authors in this area published three articles. Figure 2.2.8 depict the graphical presentation of authorship for articles on governance and sustainable development goals in health or education sectors.
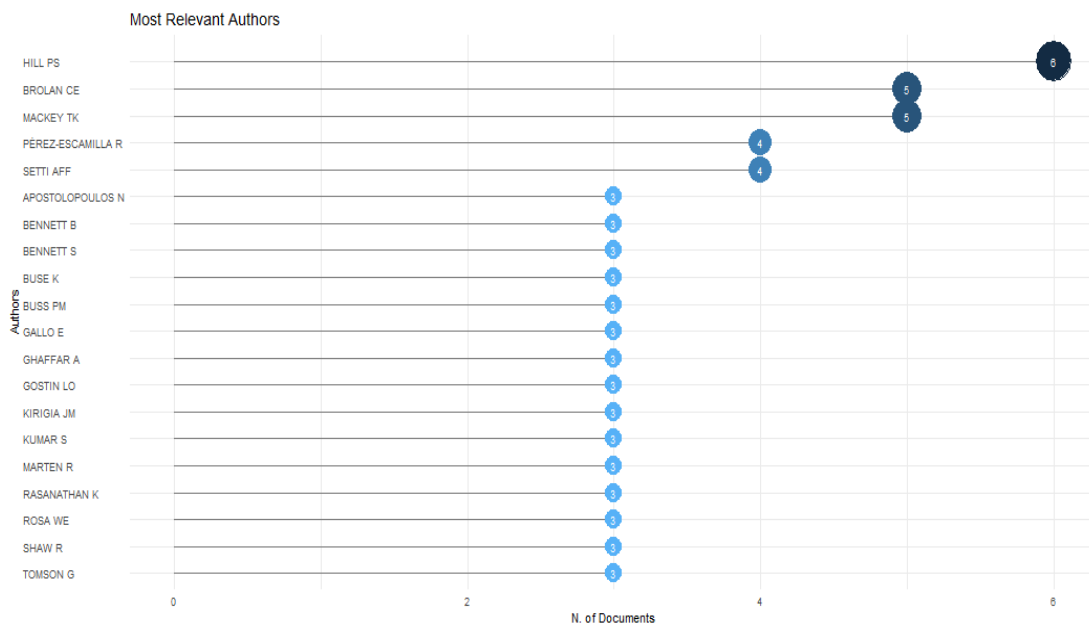
Figure 2.2.8 Biblioshiny Analysis for most relevant authors on Governance and sustainable development

The following are contributions from the two most productive authors (Mackey T.K and Hill P.S): Biblioshiny bibliometric analysis showed that Mackey T.K published five (5) papers. The first paper which was co-authored with Cratsley, K. focused on describing two World Health Organization instruments on mental health (Cratsley and Mackey, 2018). These included the Mental Health Action Plan for 2013-2020 and the Mental Health Atlas (World Health Organization, 2013 and 2015, respectively). The paper further presented a comparative analysis of the two instruments with the United Nation's Agenda 2030 and its results framework, the SDGs (United Nations, 2015). The authors concluded that the way forward for WHO on mental related health required having in place specific objectives, strategies, and targets focusing on improving governance and coverage of health services. They noted that the United Nations' SDGs has one goal with an indicator specifically aimed at mental health for tracking suicide mortality rates. The authors suggested that such a gap calls for an increase in policy coherence and that improved governance can ensure and accelerate good progress concerning global mental health. This provides an opportunity

for further research to look into the effect of improved governance on health service delivery, which forms the basis for this paper.

Secondly, Mackey T.K co-authored another paper on the SDGs as a structure for fighting corruption in health sector (Mackey, Vian and Kohler, 2018). In this paper, they argued that corruption directly affects delivery of health service and that as a theme, corruption cuts across result framework of the United Nations' 2030 Agenda. The authors suggested that there has to be a new approach for health sector governance to combat corruption. This in turn will improve health service delivery and achievement of the sustainable development goals. Thirdly, Mackey T.K also co-authored paper, that aimed at exploring solutions to mitigate specific risks from health-related corruption (Mackey et al., 2016). Their arguments in both articles suggests a research gap that can be explored to check whether a significant link exist between governance, development that is sustainable and health service delivery. As such, this research builds upon this gap to have it further explored.

Fourthly, in a co-authored paper, they suggest that urgent priorities in ensuring drug safety and quality are strengthened governance in pharmaceuticals and setting up a quantifiable target for SDGs (Nayyar et al., 2019). This underpins the assumption that there is some kind of a relationship between governance and sustainable development goals. Lastly, in his commentary, by applying Kingdon's Multiple Stream Framework, he assessed existing opportunities for mobilizing the global agenda for combating health corruption. The assessment established that Kingdon's constraints, strategy, and political regimes are merging in coming up with a policy opening opportunity that could be pursued leveraging on current advances around corruption in the health globally and international community developments. The policy window opportunity includes "the recent development of the Global Network for Transparency, Anti-Corruption, and Accountability, spearheaded by the World Health Organization (WHO), the Global Fund (GF), and the United Nations Development Programme (UNDP) since 2019". It also embraces "connecting shared objectives of dealing with corruption that ensures progress towards health-oriented goals in the 2030 Agenda for attaining universal health coverage (UHC)".

Bibliometric analysis showed six (6) literature contributions from Hill, P.S on governance and sustainable development goals. The first co-authored a review paper with a focus on research results published from the period 2012 to 2016 where publications' thematic contents were analyzed and their impact on health globally and development strategies by applying citation metrics (Te et al., 2018). The review noted 6 major themes relating to SDGs which included; process of health related SDGs, Health accessibility to all, health rights, the voice of side-lined stakeholders on health governance, and incorporation of health goals with others in the SDG result framework. The analysis in the paper presented clear evidence of the extent of research contributions from the project. The review noted a research gap in that it is limited in-depth academic literature on the identified six major themes. This provides an opportunity for the research that has to contribute to one of the key themes of health governance and SDGs.

The second literature contribution was co-authored with Brolan C.E, Buse, K., and Ooms G, argued that for health to remain relevant for continued negotiations and future implementation there would be a need to adopt four strategic shifts (Hill et al., (2014). Thus, reframing health from the perspective of poverty reduction, which was the emphasis of the millennium development goals (MDGs) to embrace the paradigm of social sustainability; speaking and listening to the entire agenda for development that is sustainable and integrating health centered themes and applicable policies; creation of goals that are universally participated by all nations, and exploring the global governance structures needed for financing and implementation of the sustainable development goals. The fourth strategic shift provides a basis for the current research to contribute to academic literature.

The third literature contribution was co-authored with Brolan C.E and McEwan C.A that identified and explored submissions on multi-stakeholder views on SDG implementation as part of Australia's Overseas Development Assistance (ODA) (Brolan et al., 2019). The review compared synthesized concerns, views, and priorities of sampled stakeholders' inquiries with the treatment of health SDG as presented in Australia's Voluntary National Report. The paper concluded that the SDG Agenda could offer a unique way of the paradigm shift in the development approach adopted

by the Australian Government. It further pointed out that the political factors influencing health and factors influencing the achievement of SGDs would call for stakeholder engagement in various sectors. This point underpins the basis of the current research where stakeholder engagement forms one of the variables in the constructs of governance and sustainable development.

The fourth paper was co-authored with Sheridan S.A, Brolan C.E, Fitzgerald L., Maleb M.F, Tasserei J., and Rory J.J, which noted that the youth are aware of the need for combined efforts at the national and global level towards improving health in the post-2015 agenda on developmental goals for sustainability and for framers of health related policies (Sheridan et al., 2014). This suggests the importance of stakeholder engagement at various levels in enforcing governance to achieve sustainable development goals. The fifth paper was co-authored with Ibell C., Sheridan S.A., Tasserei J., Maleb M.F, and Rory J.J titled "The individual, the government and the global community: Sharing responsibility for health post-2015 in Vanuatu, a small island developing state" (Ibell et al., 2015).

The paper presented a perspective of Vanuatu communities on their needs for essential health and ways of meeting them. The study noted that significant barriers to attaining improved health centres on failures within the healthcare system. Further, it notes the emphasis on respect for governance and stakeholder involvement in making decisions important to essential health. Building on this revelation, research can be done on governance (stakeholder engagement) and the provision of essential health care as part of achieving sustainable development goal 3 for Health. The fifth literature contribution was co-authored with Bennett B., Mankad A., Cohen I.G., Gostin L.O., Davies S.E., and Phelan A.L. which presented four future thematic challenges that will keep on challenging prioritization on global health governance including framing and setting up priorities in global health governance; stakeholder identification; understanding health-behaviour relationship; and role of regulations and governance in global health support (Bennet et al., 2018). This also supports research in governance and sustainable development goals.

iv. Authors' production over time

An analysis of authors' production over time as depicted in figure 2.2.9, showed that Hill P.S and Brolan C.E have been consistent in the production of literature from 2014 to 2019. Mackey T.K emerged in 2016 and he has consistently contributed to literature with most of his papers published in 2019.
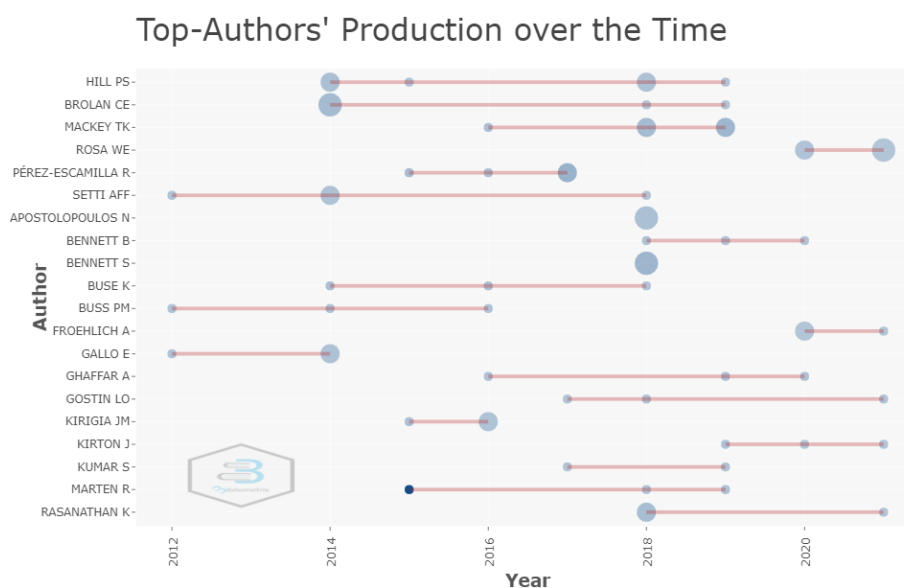

Figure 2.2.9   Biblioshiny Analysis of top authors' production over the time on Governance and sustainable development

However, recently Rosa W.E has published 2 and 1 articles in 2020 and 2021 respectively. Ghaffar A. as one of the recent authors published one paper, which had total citation of 5. Table 2.2.3 reveals the top 20 authors' production over the years.

Table 2.2.3   Most recent Top 20 author productions

Author	Year	Frequency	Total Citations	Total Citations per Year
GOSTIN LO	2021	1	2	2
RASANATHAN K	2021	1	0	0
ROSA WE	2021	1	0	0
SHAW R	2021	3	1	1
BENNETT B	2020	1	0	0
GHAFFAR A	2020	1	5	2.5
ROSA WE	2020	2	2	1
TOMSON G	2020	1	5	2.5

BENNETT B	2019	1	0	0
BROLAN CE	2019	1	1	0.333
GHAFFAR A	2019	1	4	1.333
HILL PS	2019	1	1	0.333
KUMAR S	2019	1	4	1.333
MACKEY TK	2019	2	36	12
MARTEN R	2019	1	8	2.667
APOSTOLOPOULOS N	2018	3	14	3.5
BENNETT B	2018	1	7	1.75
BENNETT S	2018	3	51	12.75
BROLAN CE	2018	1	1	0.25
BUSE K	2018	1	3	0.75

v. Authors' impact

Research studies suggest quantifying the quantity of authors' journal papers activities based on total citations as appropriate performance measurement (Lehmenn et al., 2006). As such an H-Index was introduced as a less difficult measurement that aggregates the number of journal articles and their influence in terms of citations (Hirsch, 2005). Biblioshiny analysis of authors' impact showed that Mackey T.K and Pèrez-Escamilla R had the highest impact with an H-index of 4. Further, the analysis (Table 2.2.4), showed that Marten R, Pèrez-Escamilla R and Mackey T.K had the highest total citation of 748, 154 and 96 respectively. However, Hill P.S has the highest G-index of 6 and a total citation of 50.

Table 2.2.4   Biblioshiny analysis of Authors' Local Impact

Element	h_index	g_index	m_index	TC	NP	PY_start
MACKEY TK	4	5	0.667	96	5	2016
PÉREZ-ESCAMILLA R	4	4	0.571	154	4	2015
BENNETT S	3	3	0.75	51	3	2018
BROLAN CE	3	5	0.375	74	5	2014
BUSE K	3	3	0.375	64	3	2014
BUSS PM	3	3	0.3	37	3	2012
GALLO E	3	3	0.3	45	3	2012
GHAFFAR A	3	3	0.5	25	3	2016
HILL PS	3	6	0.375	50	6	2014
KIRIGIA JM	3	3	0.429	30	3	2015
MARTEN R	3	3	0.429	748	3	2015
SETTI AFF	3	4	0.3	46	4	2012
TOMSON G	3	3	0.5	26	3	2016

VIAN T		3	3	0.5	62	3	2016
ALI M		2	2	0.5	55	2	2018
APOSTOLOPOULOS N		2	3	0.5	14	3	2018
BRAULT MA		2	2	0.667	4	2	2019
BUSS DF		2	2	0.2	32	2	2012
CORVINO A		2	2	1	25	2	2020
FONSECA LE		2	2	0.333	9	2	2016

2.2.2.2 Science Mapping

The following techniques were applied to examine both the social and Intellectual arrangement of research areas of governance and sustainable development: Citation and Co-citation analysis, co-authorship analysis. The Social Structure was analyzed using Collaboration Network Analysis. Collaboration in research lead to high impact articles (Avkiran, 2013). Authors' and countries' collaboration network was analyzed as follows:

i. Intellectual structure

Citation analysis assumes that Citations in research reflect linkages in intellectual among publications where one journal article quotes the other (Appio et al., 2014). Such an analysis determines the most influential article in the research area under study. Results obtained from the bibliometric analysis on citation analysis are presented in Table 2.2.5.

Table 2.2.5   Citation Analysis of top research papers

Paper	DOI	Total Citations	TC per Year	Normalized TC
WHITMEE S, 2015, LANCET	10.1016/S0140-6736(15)60901-1	788	98.5	8.6784
KEESSTRA S, 2018, LAND	10.3390/land7040133	302	60.4	18.5411
NILSSON M, 2018, SUSTAINAB ILITY SCI	10.1007/s11625-018-0604-z	144	28.8	8.8408

AGUSTINA R, 2019, LANCET	10.1016/S0140-6736(18)31647-7	103	25.75	9.9879
SPAISER V, 2017, INT J SUSTAINAB LE DEV WORLD ECOL	10.1080/13504509.2016.1235624	92	15.333	6.0636
PÉREZ-ESCAMILLA R, 2017, CURR DEV NUTR	10.3945/cdn.117.000513	79	13.167	5.2068
JAN S, 2018, LANCET	10.1016/S0140-6736(18)30323-4	78	15.6	4.7888
PATTBERG P, 2016, AMBIO	10.1007/s13280-015-0684-2	77	11	4.1663
Cooper AF, 2013, The Group Of Twenty (G20)	10.4324/9780203071236	69	6.9	2.5875
BOLUK KA, 2019, J SUSTAINAB LE TOUR	10.1080/09669582.2019.1619748	63	15.75	6.1091
PANSERA M, 2016, SUSTAINAB ILITY	10.3390/su8010051	60	8.571	3.2465
BLACK MM, 2015, ADV NUTR	10.3945/an.115.010348	57	7.125	0.6278
CHEN T-L, 2020, SCI TOTAL ENVIRONM ENT	10.1016/j.scitotenv.2020.136998	46	15.333	9.5472
FUKUDA-PARR S, 2019, GLOBAL POLICY	10.1111/1758-5899.12604	46	11.5	4.4606
CHENG S, 2018, J	10.1016/j.jenvman.2017.09.043	45	9	2.7627

ENVIRON MANAGE				
PIZZI S, 2020, J CLEAN PRODUCTION	10.1016/j.jclepro.2020.124033	38	12.667	7.8868
STRINGER LC, 2020, ENVIRON SCI POLICY	10.1016/j.envsci.2019.10.007	38	12.667	7.8868
KHARRAZI A, 2016, SUSTAINAB ILITY	10.3390/su8121293	38	5.429	2.0561
MULUMBA M, 2014, INT J EQUITY HEALTH	10.1186/s12939-014-0076-4	36	4	2.1724
LIM MML, 2018, ECOL SOC	10.5751/ES-10182-230322	35	7	2.1488

ii.   Thematic analysis-based Co-citation analysis

Co-citation examination is science mapping procedure that assumes thematic similarity for publication that are cited together (Hjørland, 2013). Using this technique thematic clusters can be identified and the most influential publications in the study area (Liu et l., 2015).

Citation analysis for most cited research publications on governance and sustainable development in health or education sectors was done using *VOSviewer* bibliometric analysis tool. The analyzed results were categorized into topic clusters based on similarities of their contents (Xi et al., 2013; Kraus et al., 2014). The analysis came up with 239 articles that could be subjected to citation analysis. Articles with a maximum number of 2 citations were selected and arrived at 152 out of which 20 top most cited papers were selected which formed 7 clusters as depicted in figure 2.2.10. The 20 papers were published between the period 2014 to 2018 as presented by the *VOSviewer* visualization outlay.
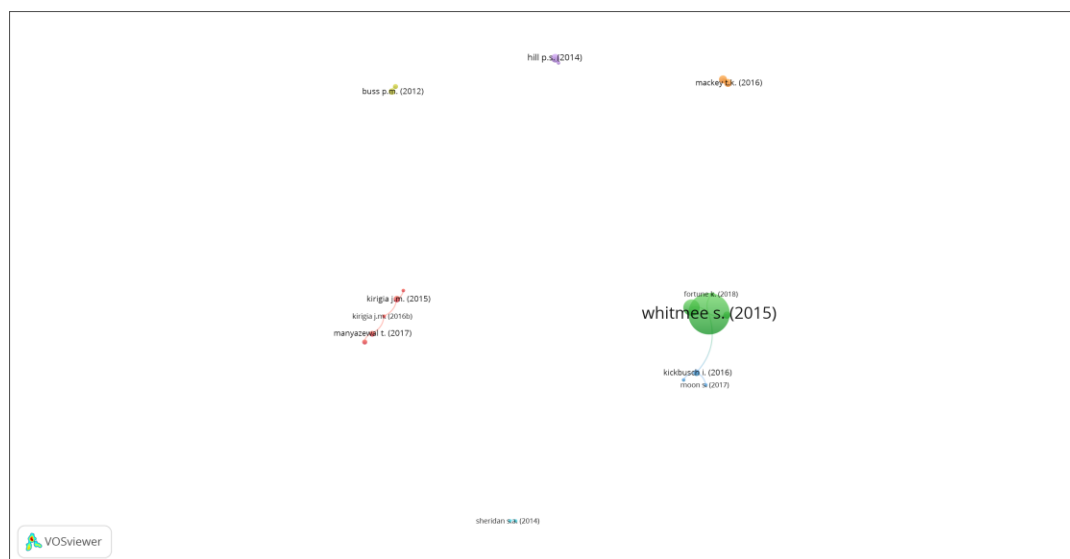
Figure 2.2.10 VOSviewer citation analysis

The seven categories of the topic clusters are presented in table 2.2.6.

Table 2.2.6   Cluster and themes found in existing research

Cluster	Topic/Theme category	Research Paper	Source	Number of citations
1	Progress of SDGs achievement	Fowkes F.J.I, (2016)	BMC Medicine	13
		Kirigia J.M, (2015)	Health research policy and systems	21
		Kirigia J.M, (2016a)	BMC Health services research	3
		Kirigia J.M, (2016b)	BMC Health services research	6
		Manyazewal T., (2017)	Archives of public health	15
2	SDG interaction	Fortune K., (2018)	Bulletin of the World Health Organization	8
		Nilsson M. (2018)	Sustainability Science	124
		Queenan K., (2017)	Cab reviews: perspectives in agriculture, veterinary science, nutrition and natural science	23
		Whitmee S., (2015)	The Lancet	742

3	Financing mechanisms and governance for Global health	Kickbusch I., (2016)	International Journal of Health Policy and management	22
		Moon S., (2017)	Health economics, policy and law	7
		Van de Pas R., (2017)	International Journal of Health Policy and management	6
4	Governance to achieve SDGs	Buss P.M., (2012)	Ciencia e saude coletiva	18
		Gallo E., (2014)	Ciencia e saude coletiva	13
5	Global health governance	Bennet B., (2018)	Global public health	7
		Hill P.S., (2018)	Globalization and health	34
6	Essential health needs	Ibell C., (2015)	International Journal for equity in health	3
		Sheridan S.A., (2014)	International Journal for equity in health	4
7	Global health and corruption	Mackey T.K., (2016)	BMC Medicine	
		Mackey T.K., (2018)	Bulletin of World Health Organization	

iii. Co-word analysis

This analysis involves an examination of the actual publication contents derived from the author's keywords, titles of the study, full texts, and abstracts (Baker et al., 2020; Donthu et al., 2020). Its assumption is based on the thematic relationship being derived from frequency of word appearance in the studies. Table 2.2.7 presents the results of co-word analysis for governance and sustainable development and shows the betweenness and closeness scores of the five clusters found during analysis. It also studies the conceptual arrangement of studies in research areas. Conceptual structure in this study was determined using the author's keyword analysis, thematic map, and thematic evolution.

Table 2.2.7   Co-Word Network Analysis

Node	Cluster	Betweenness	Closeness	PageRank
governance	1	168.2830605	0.017241379	0.103622032
sustainable development	1	14.84592653	0.014925373	0.060150715
sustainability	1	4.158566459	0.013888889	0.044376381
sustainable development goals (SDGS)	1	0.209436962	0.012195122	0.023590267

climate change	1	1.461184908	0.013513514	0.027659306
health	1	37.87603041	0.01369863	0.029183239
2030 agenda	1	0.064516129	0.012658228	0.015806433
education	1	0	0.012987013	0.013379487
united nations	1	4.500633165	0.014285714	0.027375889
circular economy	1	0	0.010526316	0.006598614
food security	1	0	0.009090909	0.006946873
SDG	1	0	0.010526316	0.006598614
non-communicable diseases	1	0	0.010526316	0.006598614
health system	2	0	0.008695652	0.007445857
world health organization	2	37.07692308	0.012820513	0.021174723
social determinants of health	3	37.33797909	0.01369863	0.022730913
equity	3	0	0.009090909	0.007359113
global health	4	19.18712372	0.014705882	0.050564887
health policy	4	4.412106677	0.013888889	0.036771664
universal health coverage	4	1.147677526	0.013157895	0.024004913
global health governance	4	5.171146752	0.012820513	0.020335127
health systems	4	0	0.012345679	0.016441271
corruption	4	0.246153846	0.010869565	0.009741316
health governance	4	0.186633039	0.012658228	0.016401344
sustainable development goals	5	488.8335033	0.02173913	0.220954512
SDGS	5	0.675202224	0.013513514	0.024177956
millennium development goals	5	0	0.012048193	0.014655439
Africa	5	0	0.012345679	0.013288217
policy	5	1.014805922	0.013333333	0.020340351
covid-19	5	0.068965517	0.0125	0.014677225
human rights	5	0	0.013157895	0.015910823
India	5	0	0.012048193	0.006548475
child health	5	0	0.012048193	0.006548475
global governance	5	0	0.012345679	0.010456041
implementation	5	0	0.012048193	0.007899636
water	5	0.242424242	0.0125	0.014143864
institutions	5	0	0.013157895	0.012444444
Latin America	5	0	0.012048193	0.006548475
sanitation	5	0	0.012048193	0.006548475

iv.   Authors' keyword analysis

Keywords refer to a list of important words that best briefly present the context of a document (Haggag et al., 2012). Authors' keywords are significant for establishing research trends and measuring the development of research topics (Wen and Huang, 2012). In biblioshiny, the Co-occurrence of authors' keywords forms a bibliometric relationship indicator under scientific knowledge (Shibata et al., 2007). The word cloud from the bibliometric analysis showed the most frequent keywords used in the area of governance and SDGs as depicted in figure 2.2.11.
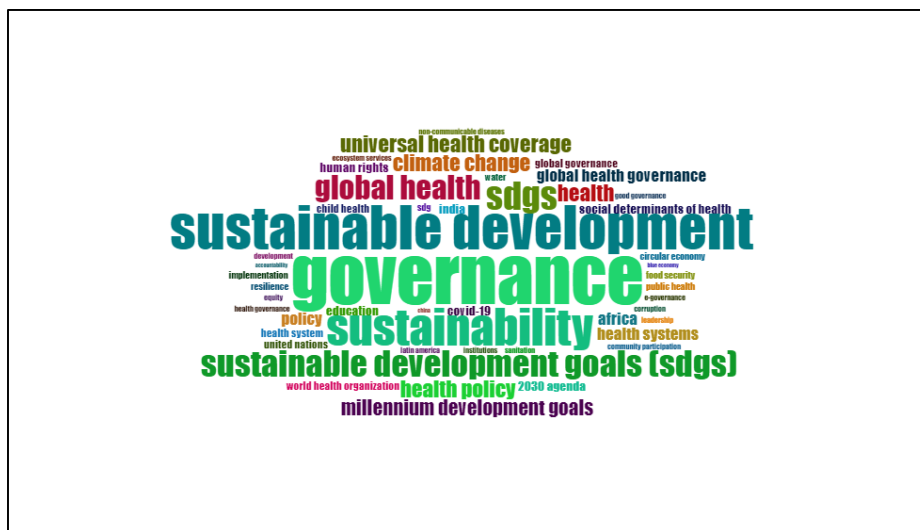
Figure 2.2.11 Biblioshiny Authors' keyword word cloud for most frequent word on Governance and Sustainable Development

Both Biblioshiny and *Vosviewer* bibliometric analysis of keywords show the strength of keyword relationship using colour, size of circle, font and connecting line thickness (Sweileh et al., 2017) as depicted in figures 2.2.12 and 2.2.13 respectively.
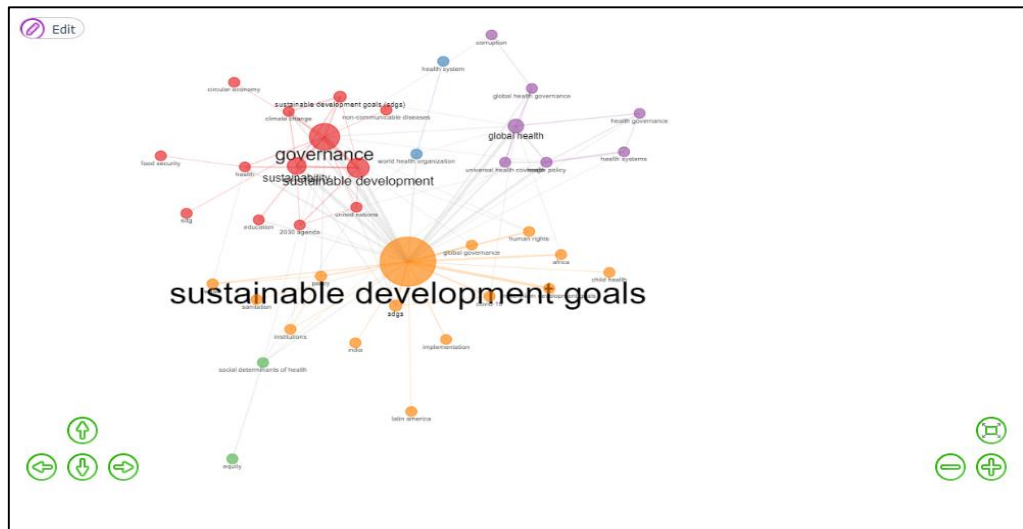
Figure 2.2.12 Biblioshiny Authors' keyword co-occurrence network for Governance and Sustainable Development.
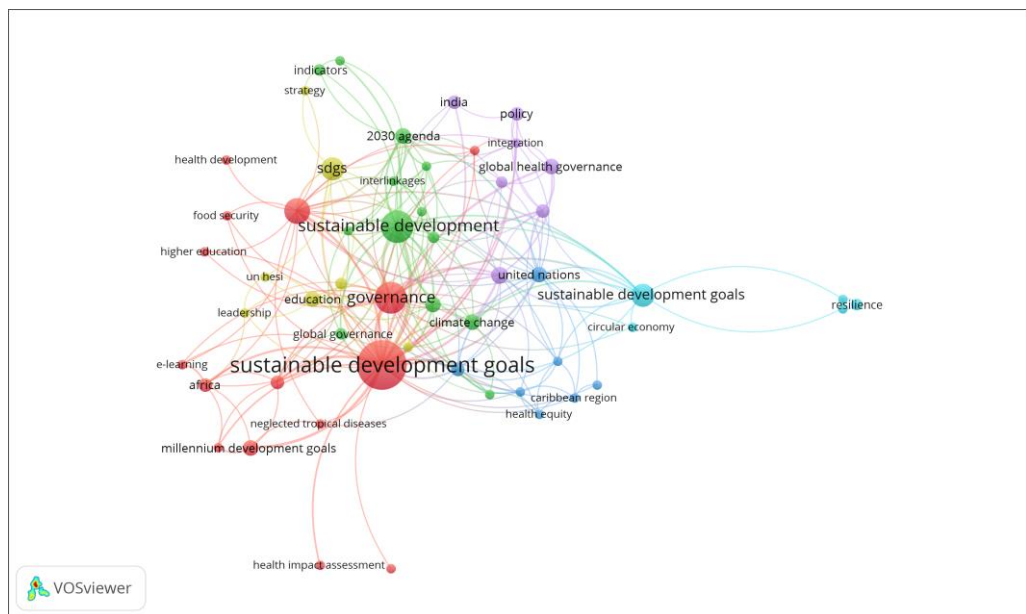
Figure 2.2.13 VOSviewer Network Visualization on Authors' keywords for Governance and Sustainable Development

VOSviewer analysis using a minimum of two authors' keywords showed 513 keywords out of which 54 met the threshold for authors' keywords co-occurrence. The key word, "sustainable development goals" had both the highest occurrence (50) and total link strength (91) in the published articles. "Governance" which had an occurrence of 21 and total link strength of 48 detailed in table 2.2.8.

Table 2.2.8   Keyword Analysis on Governance and Sustainable Development

No.	Keyword	Occurrences	Total link Strength
1	Sustainable development goals	50	91
2	Governance	21	48
3	Sustainable development	22	52
4	Sustainability	14	30
5	Global Health	6	21
6	Health policy	4	14
7	United Nations	5	20
8	Universal Health Coverage	4	13
9	Sustainable development goals (sdgs)	11	19
10	Climate change	5	14
11	Health	5	11
12	World Health Organization	6	18
13	Millennium development goals	5	10
14	Global health governance	5	11
15	Human rights	4	14
16	Policy	4	6
17	SDGs	11	12
18	Social determinants of health	7	15
19	2030 Agenda	5	11
20	Africa	4	13
21	Health systems	8	12
22	Education	5	11
23	Institutions	4	9
24	Non-communicable diseases	2	9
25	Child health	6	8
26	Corruption	4	8
27	Development	3	9
28	Global governance	3	8
29	Implementation	4	8
30	Sanitation	4	8
31	SDG	5	8
32	Good governance	3	7
33	Health system	6	7
34	India	4	5
35	Circular economy	5	5
36	Food security	4	5
37	Public health	5	5
38	Equity	4	4
39	Latin America	2	3
40	E-governance	2	0
41	Community participation	4	2
42	Resilience	5	2

43	Integration	2	10
44	2030 agenda for sustainable development	2	9
45	Civil society	2	9
46	Systematic review	2	9
47	Interlinkages	2	8
48	Caribbean region	2	7
49	Covid-19	3	6
50	Go4health	2	6
51	Health equity	2	6
52	Health in all policies	2	6
53	Transition	2	6
54	E-learning	2	5
55	Leadership	2	5
56	European Union	2	4
57	Goals	2	4
58	Indicators	3	4
59	Neglected tropical diseases	2	4
60	Targets	2	4
61	UN Hesi	2	4
62	Circular economy	2	3
63	Food security	2	3
64	Higher education	2	3
65	Resilient	3	2
66	Health development	2	1

The overlay visualization showed that a lot of research based on the key words, "sustainable development goals", "Governance", "Sustainability" and "SDGs" was undertaken between 2018 and 2019 with strong linkages to each other as presented in figure 2.2.14.
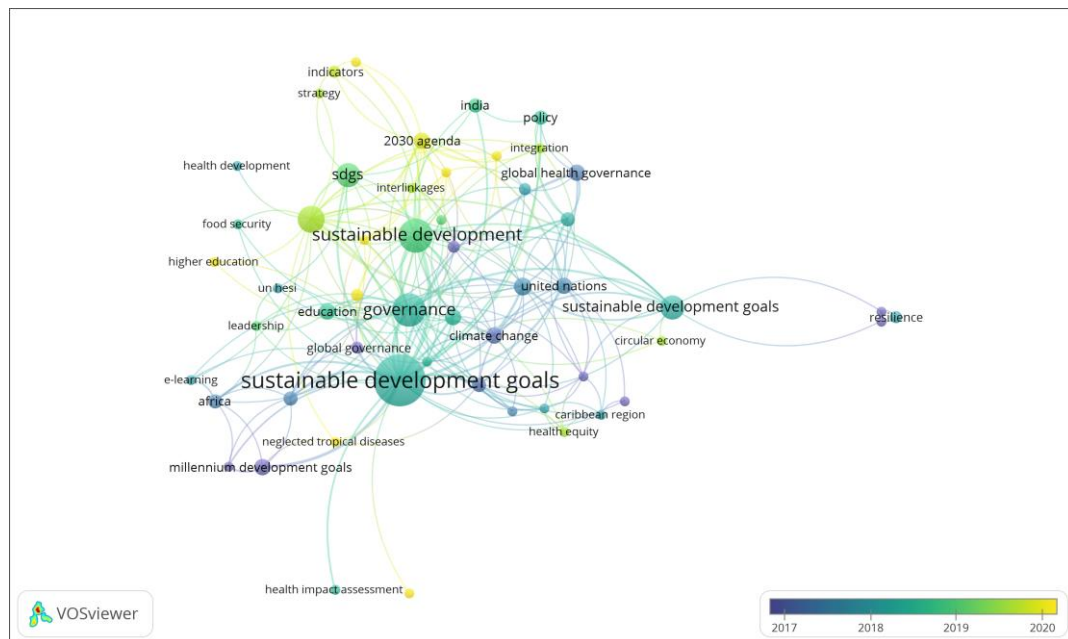
Figure 2.2.14 Overlay Visualization for Keywords analysis on governance and sustainable development

v. Thematic map and evolution

Keywords clusters are drawn using co-word analysis where they are translated into themes. The cluster size is presented by the number of keywords occurrences signifying the number of linked research papers. The authors' co-keyword analysis is instrumental in defining the map of the major themes of the research area (Fusco et al., 2020). Classification of themes is based on centrality and density that is mapped on a two-dimensional diagram called a thematic map with four quadrants, (Cobo et al., 2011). Centrality, "as a measure of theme importance", measures the network interaction degree with other networks while density measures the theme development degree. In biblioshiny bibliometric analysis, the map is used to analyze the keywords in accordance with their position in a quadrant. As depicted in figure 2.2.15, each quadrant discusses clusters with a high number of relevant papers.
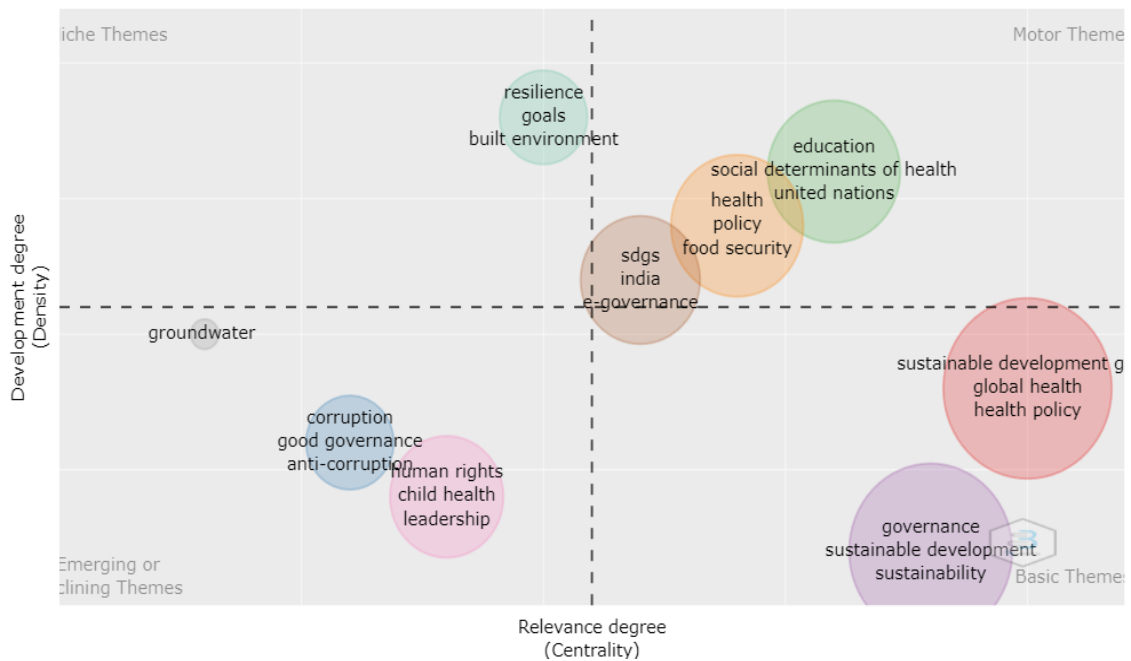
Figure 2.2.15 Biblioshiny bibliometrix thematic map on governance and sustainable development goals

According to Aria and Cuccurullo, (2018), the upper right quadrant locates "Motor themes", which are considered as well developed, very critical to the research structure, and have both high centrality and high density. In this paper, among the motor themes, the green cluster centres around education and social determinants of health as some of the concerns in the United Nations; the orange cluster discusses health policy and food security; while the brown cluster whose centrality is on the axis discusses SDGs and governance in India. The lower right quadrant locates "Basic themes". These are also known as generic or transversal themes, which have low density signifying that they are not well developed, and have high centrality signifying their importance.

Thus, in this quadrant, the red cluster shows that sustainable development goals, global health, and health policy are important themes of research but are still now well-developed representing a research gap. Similarly, the purple cluster shows that the themes of governance, sustainable development, and sustainability are significant and remain not well developed, hence representing a research gap. The lower left quadrant locates "disappearing or emerging or peripheral themes". These are characterized by marginal centrality and low density signifying their underdevelopment in research. In

this quadrant, the pink cluster shows that themes around child health, human rights, and leadership have had minimal research focus.

Similarly, the blue cluster suggests that good governance, corruption, and anti-corruption are among the emerging themes in the research world. The upper left quadrant locates "niche themes. These are considered very specialized and well-developed themes, on the other hand, marginal in the research field. The cluster in the niche themes in this paper discusses the goals about resilience within the built environment. Biblioshiny thematic evolution map shows that there was more research work on governance and social determinants of health between 2006 to 2019. Recently less research has been conducted on the same themes as presented in figure 2.2.16.
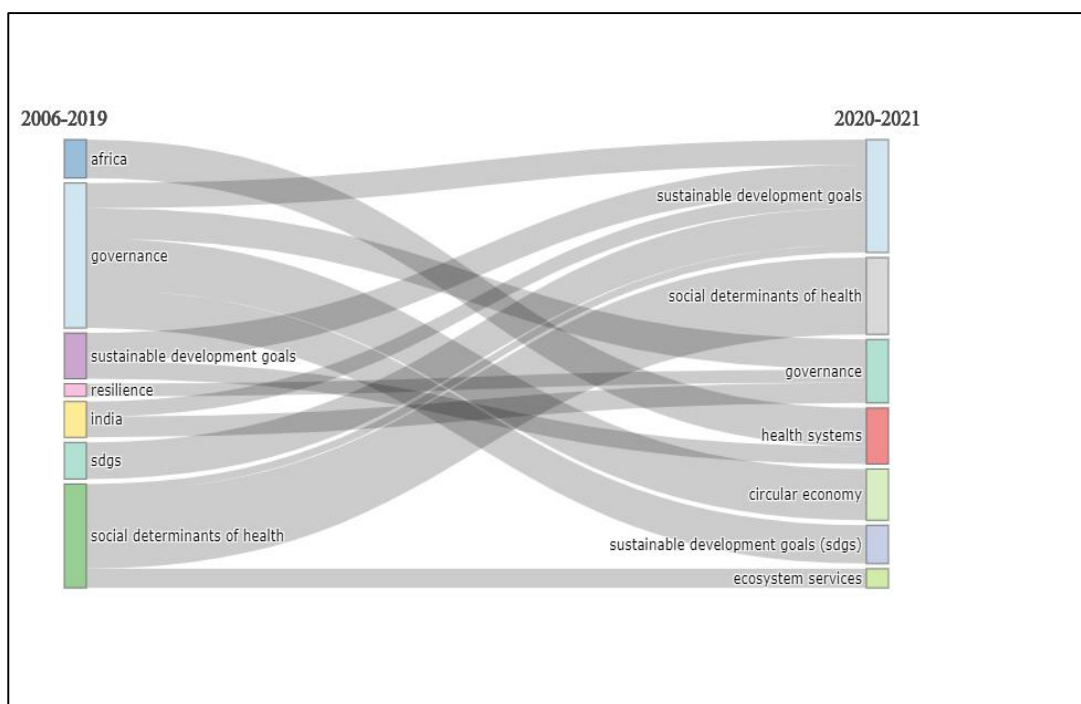
Figure 2.2.16 Biblioshiny bibliometrix thematic evolution map on governance and sustainable development goals

vi. Social structure: Collaboration network analysis

Co-authorship networks identify the level of research collaboration (Farashbandi et al., 2014). Thus, co-authorship networks are social networks that signify authors' participation in one or more research publications. Social network analysis identifies areas of authors' strengths and weaknesses in their contribution to scientific knowledge sharing (Abbasi and Altmann, 2010; Sonnenwald, 2007).

Research has shown that authors with an average quantity of co-authorships have better G-Index (Abbasi et al., 2011) as observed in this analysis where Hill P.S and Brolan C.E have G-Index of 6 and 5 respectively. A biblioshiny bibliometric analysis of authors' collaboration networks from the 347 research articles mined from Scopus revealed a network of 20 authors in 9 clusters as depicted in figure 2.2.17. The analysis showed strong authorship collaboration between Hill P.S and Brolan C.E in cluster 1 (red) followed by that of Setti Aff, Gallo E., Buss D.F, and Buss P.M in cluster 2 (Blue).
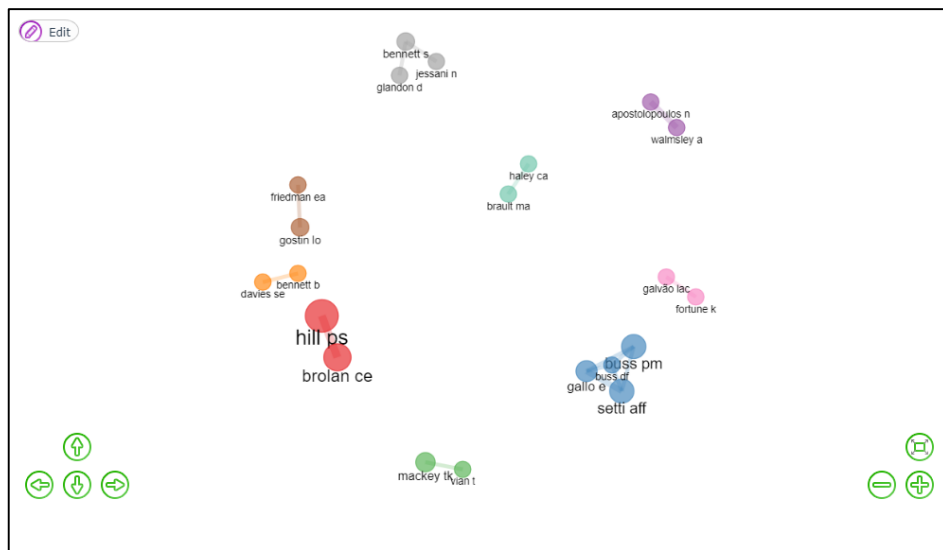
Figure 2.2.17 Biblioshiny Analysis of authors' network collaboration on governance and sustainable development goals

The strong collaboration of Hill P.S and Brolan C.E is also confirmed by VOSviewer density visualization, which showed that the two authors had the highest number of items in the clusters as shown in figure 2.2.18.
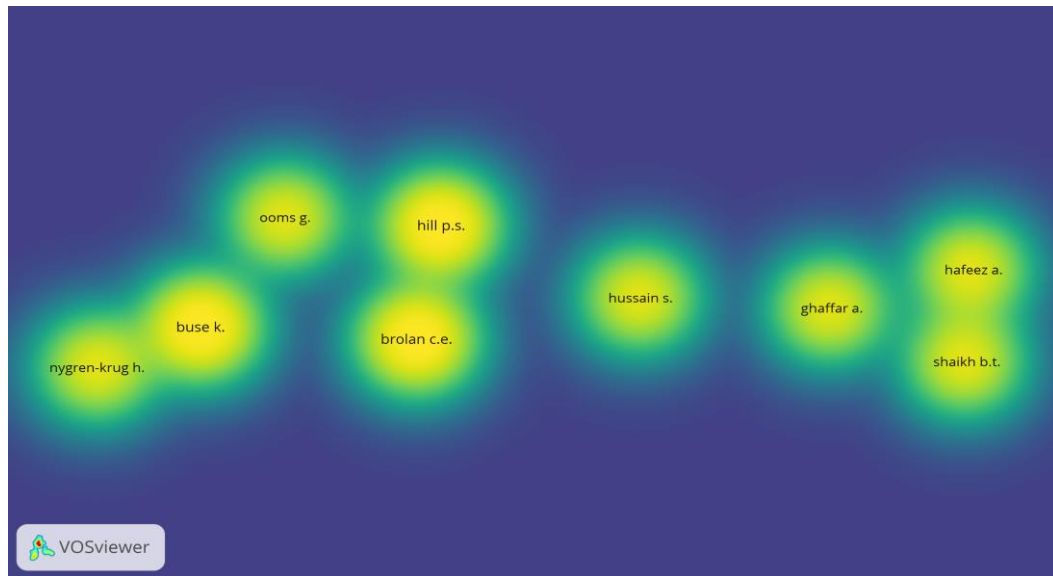
Figure 2.2.18 Density Visualization on Authorship for Governance and Sustainable Development

vii. Country Collaboration Analysis

Biblioshiny bibliometrix analysis noted four clusters of country collaboration in research on governance and sustainable development goals in Health or Education as depicted in figure 2.2.19. Cluster 1 (Green) had sixteen countries collaborating including the United Kingdom, Australia, Korea, Denmark, Norway, Belgium, the Philippines, Switzerland, Sweden, Canada, Cambodia, Vanuatu, Malaysia, Tanzania, and New Zealand. The UK was the highest in collaboration with others in this cluster. Cluster 2 (Red) had 12 countries collaborating including the USA, Japan, Colombia, Mexico, China, India, South Africa, Pakistan, Nepal, Nigeria, and Lebanon. In this cluster, the USA had the highest collaboration in research with other countries. Cluster 3 (purple) had five countries collaborating in research and these include Kenya, Congo, Zimbabwe, Zambia, and Uganda. Cluster 4 (Blue) had six countries collaborating and these include the Netherlands, France, Brazil, Italy, Germany, and Spain. The review noted that no collaboration exists with Malawi among the African countries which present a gap for research.
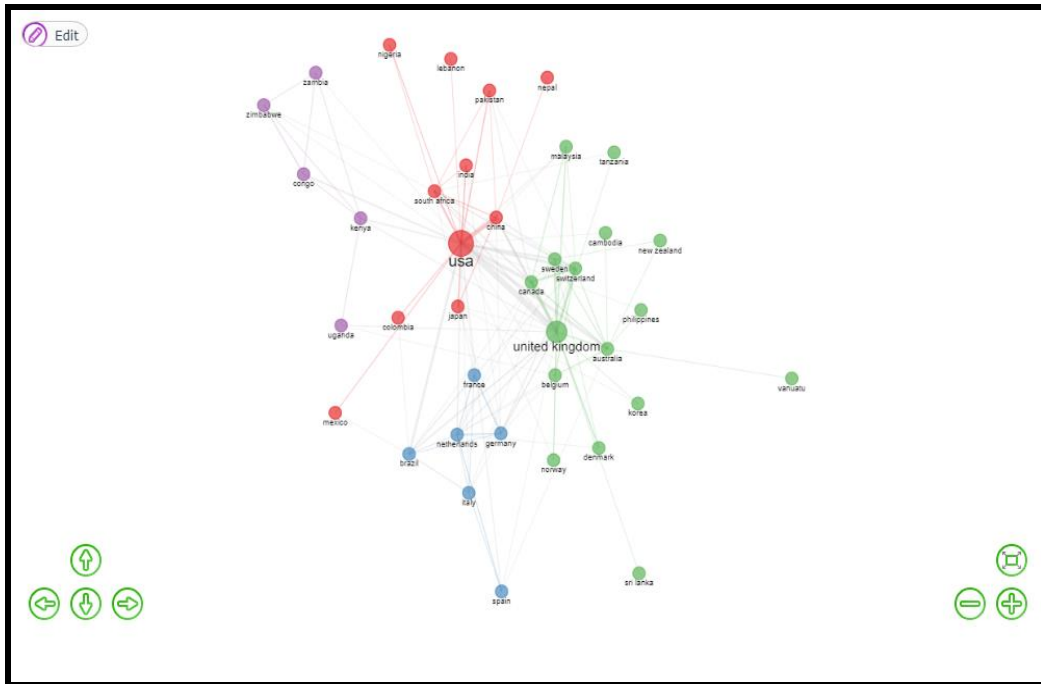
Figure 2.2.19 Country Collaboration Network

Globally, country collaboration map on research on governance and sustainable development in Health or Education showed strong collaboration between USA and other countries in Asia, Australia and UK. The map shows less collaboration exiting in Africa. Figure 2.2.20 depicts the existing global collaboration in research on this subject matter.
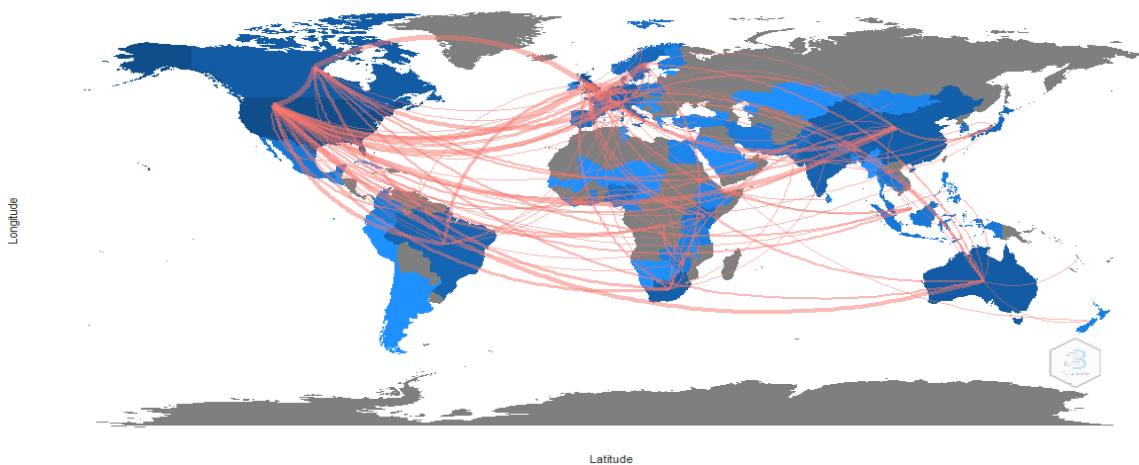
Figure 2.2.20 Country Collaboration Map

Biblioshiny analysis of affiliation/institution noted that most contributions of literature in this research area originated from University of Toronto (26) followed by University of Queensland (14) as presented in figure 2.2.21.
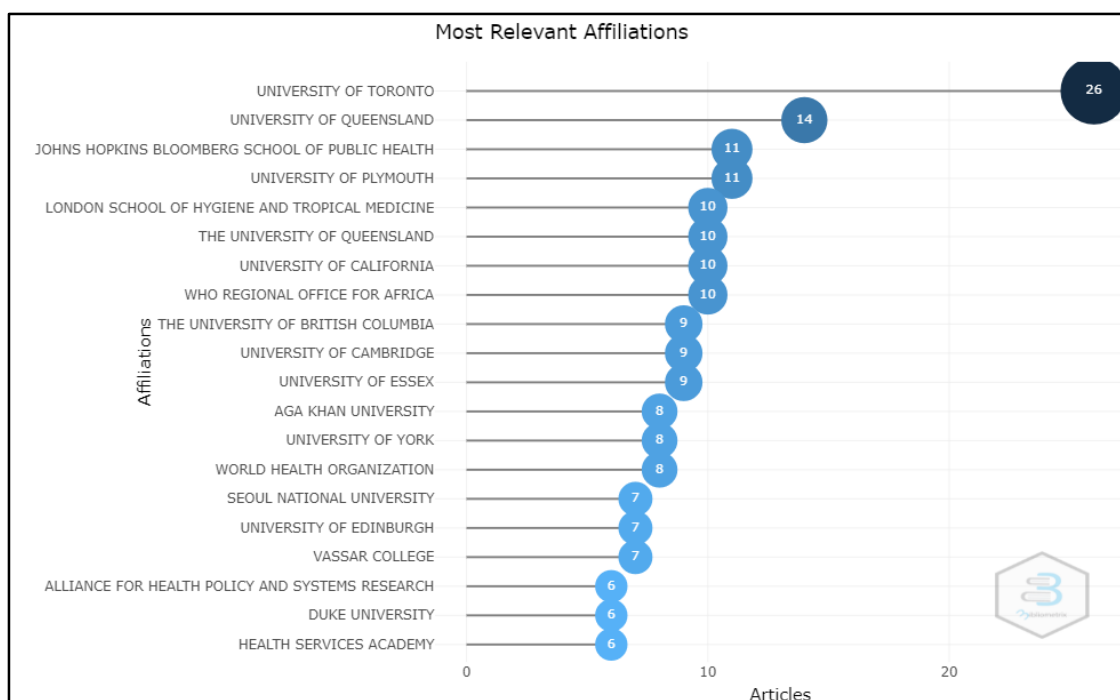
Figure 2.2.21 Most relevant affiliations for authors

2.1.1.2   Conclusion

The bibliometric analysis showed that research contribution to governance and sustainable development exist since 2006. There was an increase in publications from the year 2015 and the publication of most papers was in the year 2020. The analysis revealed the three most productive authors namely Hill, P.S, Brolan, C.E and Mackey, T.K. Furthermore, it categorized the largest set of co-authorship connections into nine clusters. The analysis depicted that recently, Rosa W.E has published 2 and 1 article in 2020 and 2021 respectively. Most publications came from the University of Toronto in the research area. The most cited source was Globalization and Health. These publications were from the top 15 institutions based in the United States, Australia, South Africa, the United Kingdom, Belgium, Denmark, and Nigeria. A few came from Africa, revealing a research gap that can be explored in developing countries. Sustainable development goals as a keyword have been widely used by researchers

followed by governance and sustainability. Successful implementation of the SDGs is primarily dependent on the quality of governance and the capability of a country's public sector, with national governments playing a pivotal role in achieving success (Tanzi, 1999). The scope and size of SDGs present new governance challenges due to the absence of all-encompassing authority, enforcement mechanisms, or legal provisions in the Goals program (Biermann et al., 2017). As a result, governance in the context of the SDGs is more about legitimacy, accountability, resource mobilization, and popular support than traditional state command. The SDG agenda requires coordination and administration across several government ministries, departments, agencies, and centres, presenting unprecedented governance challenges until the end of the 2030 agenda (Dalby et al., 2019). The successful implementation of these ambitious goals will depend on how well governance aligns with the SDGs (Falkner, 2016). The analysis provided a basis for research to be conducted in the area of governance and sustainable development with a focus on African scenarios. Further, it provided the basis to have more contributions to the literature in this area considering that recent research work was published in 2019.

2.3   Bibliometric analysis on Governance and public sector performance
2.3.1   Literature review on Governance and public sector performance

Governance has proved to be one of the topical subjects in both private as well as public sector entities. It is said to have been first embraced by the private sector as a means by which societies, lenders, and investors place their confidence in the efficiency and effectiveness of corporations in order to commit their finances (Hepworth, 2003; CIPE, 2002). The public sector has also embraced it as a centrepiece of taxpayers' assurance on how public sector organizations operate, perform, and are managed (Barret, 2002). In line with the principles of the agency and stakeholder theories where prioritization of the interest of shareholders by managers and directors is key, controlling officers for various government institutions are also anticipated to serve various stakeholders' interests including those of the citizens.

IFAC (2014), refers to PSG as comprising of the structures that exist to ensure the definition and achievement of intended outcomes for stakeholders. Further to this,

public sector governance is concerned with accountability with regard to specific public outcomes, which include service delivery and the effect of government policies on the lives of the citizens (Almqvist et al., 2013). CIPFA (2004), outlines that public sector governance ensures that public sector institutions fulfil their purpose as spelled in their mandates, achieve intended outcomes for service users and citizens and that they operate in an efficient, effective and ethical manner. Based on the understanding of the whole system of public sector governance, governments in collaboration with public sector institutions mobilize resources from various sources including taxpayers, development partners, and financial institutions to ensure delivery of services to the citizenry. Thus, the main focus for public sector governance can be drawn from this definition and outlined as centering on the achievement of intended outcomes to the citizenry through efficient and effective service delivery. This focus formed part of the basis for reforms requiring the public sector to operate, deliver and adopt managerial styles of performance management and leadership techniques of the private sector.

Singaporean style of public sector management with its corporate control mechanism is featured as an example to be emulated by the private sector for improvement of their management practices (Anwar and Sam, 2006). Research has alluded that public sector governance requires public officials and their institutions to demonstrate compliance with regard to having in place officials with relevant knowledge and competencies that enable them to accomplish their duties; appreciate the aims and interests of their stakeholders; appreciate the objectives of the departments they work for; and appreciate what is deemed as reasonable information for an effective government and make effort obtain it (Fourier D, 2006). Compliance with these requirements will ensure that public officials are well informed and prepared to implement and achieve the objectives of the department. In so doing, their performance would not be less than acceptable and they would accomplish their accountability obligations. Studies have emphasized that the understanding of conditions that derive performance management by public service managers is critical considering that it leads to timely and better controls which in turn improve the performance of public organizations (Bjurstrøm, 2020).

Kaufman et al. (1999) demonstrate empirically that there is a substantial causal relationship between good governance and enhanced development outcomes, such as high per capita incomes, low infant mortality rates, and improved literacy. The research highlighted the significance of a functioning public sector in a strong manner. This speaks to the significance of the public sector in society. Hence effective PSG reassures efficient utilization of resources, reinforces accountability for the resources stewardship, and improves management and delivery of service thereby contributing towards improved lives for citizenry. It also aids in building trust in public sector entities with regards to the effective fulfilment of their objectives.

However, it is contrasted that successful adoption of PSG can be impinged by the existence of a complexities in social, political, environmental, and economic intents that support maintenance and enhancement of citizens' well-being, (Stafford and Stapleton, 2016; IFAC, 2014). A further argument is raised by Stafford and Stapleton, (2016) and Spiller, (2013), that two critical threats that interact with making regulatory systems and processes and achievement of intended outcomes to be more formalistic, rigid and prone to conflict of interest affect the public sector. These threats include government and third-party opportunism which thrives in an environment of political fragmentation and contestability and where limitations exist for oversight institutions and stakeholders to probe decisions supporting public service delivery.

The conclusion of their research was based on testing public-private partnerships. It did not examine the same parameter on the performance of ministries and departments whose mandates are sorely serviced delivery and not commercial. A research gap exists between the theoretical expectation of the effectiveness of governance on the performance of public sector entities as evidenced by the inefficient and ineffective service delivery that has led to failure to improve the lives of the citizens and expected sustainable development. There is also room to test the effectiveness of public sector governance for the public institutions whose mandate is limited to service provision and not-for-profit.

Literature has also revealed that Heracleous, (2001) also researched the influence of governance on performance of organizations in the United Kingdom, one of the developed countries. The study discussed that latest studies on the significance

of certain good practices in governance have largely failed to establish a substantial relationship with the performance of organizations. Proposed four possibilities for the cause of this outcomes that are not commonly exclusive. 1) the likelihood that the good practices of governance are immaterial to organization performance; 2) that the operationalization of theoretical notions have marginal face validity; 3) that research focus is too constricted for relating essentials of the boards directly to the organization performance of while disregarding other systematic aspects and 4) that various types of institutions require diverse governance practices. The study also highlighted the inferences of each of the likelihoods. Exploratory research was used to establish theoretical concepts in the research area, Correlation analysis was used for establishing the relationships. The study proposed use of Qualitative research to increase validity, the use of approaches that consider multiple, systematic and multi-directional influences as variables to be tested and use of contingency perspectives in building up the theories of research which would influence their empirical.

The research was premised on four hypotheses whose discussion of the research findings centered on the relationship between two variables of governance best practice and organizational performance which was found to be insignificant. The research work proposed that these two variables were not mutually exclusive in the following manner: governance best practices were not relevant to as far as influencing organizational performance was concerned; the existence of low face validity in putting the theoretical concepts to practice; the research scope was not comprehensive and aimed at relating board attributes directly to the performance of the organization. The scope ignored other relevant systematic factors and the possibility of having different types of organizations requiring different practices of governance. Results of this research suggest that a gap exists for future research opportunities. Thus, the study alludes that a radical rethought need to be applied to best practices of governance when relating them to organizational performance.

There is a need for the use of research paradigms that can take into account systematic and multi-dimensional influences. The need to incorporate in the research of governance a contingency perspective. Drawing from methodological and substantive implications of the possibilities, identified research gaps relate to higher

concern relating to validity and reliability of measurements; triangulation of both primary and secondary data methodology is recommended. Theory building and testing to explicitly incorporate contingency aspects; Research to have a strategic focus on various aspects of governance and organization performance. Focus to be on aspects relating to effective group behaviour as part of a greater concerns with board processes than structures only. Focus on the indicated gaps could direct researchers towards obtaining thorough insights relating to research area using more precise mapping techniques, and dialogue between various stakeholders would be improved.

Similarly, Arora, (2010), building on the understanding that investors are concerned over the relationship between governance and performance indicators, examined the same parameters with a focus on Indian Firms for the period 2001 to 2010. The research used market-based and accounting performance measures in the analysis employing panel least-squares with random effects and simultaneous equation methodology. Contrary to the findings of Heracleous (2001), this research concluded that governance bears a strong influence and enhances the performance of Indian firms. In support of this observation, research has shown that a significant relationship exists between governance ratings and a firm's characteristics such as return on assets and cash flows (Suntraruk, 2013). Another study has revealed that governance has an impact on the value of financial reporting via the linkage between operational ratios and accounting income excellence (Heirany et. al, 2013).

The above-contrasted results could suggest that governance effects on institutional performance can be determined based on the level of countries' development. As such an opportunity for future research can be explored. In agreement with this observation, Kaufmann et al, (2019) assessed various governance determinants and their importance. Their study was premised on the model that suggested transparency, corruption, and the quality/level of public service delivery as being critical decision bases for officials in public service. Further, the study divided policies geared toward improving governance into citizen-oriented and institutional structure oriented and concluded that the former policies had a greater impact on performance than the latter. The study established that generally made inferences that are based on simple correlation may be extremely misleading, considering the high

level of multicollinearity between various determinants of governance and the indigeneity found in these variables. As such, there is a gap to test the results of this study in a country's context

In related research, an analysis of the challenges faced and emerging issues affecting the research area in consideration of the importance being placed on SOEs was made (Grossi et.al, 2015). In their research review, the authors acknowledge the articles presented by seven researchers in February 2015, during a Euram-Mini-conference at Leipzig University, whose literature has contributed to the knowledge of the research area. Five out of the seven presentations had their research works based on qualitative research techniques for data collection and analysis while the other two built on testing hypotheses, use of regression, and correlation analysis on both nationally and internationally collected data. The results presented in the research articles included: Civil servants are faced with conflicting values underpinning the implementation of SOEs' mandates and missions. The configuration of these values affects the managerial and political control of SOEs and the possibilities of their contribution to value pluralism in the public sector entities. The contribution of the article reveals the inconsistencies between macro-level organizations and formal policies as well as micro-level strategies and technologies of organizations (Alexius and Örnberg, 2015); Governance change from SOEs to Hybrid governance creates ripple effects on hierarchy. Governance mode does change with time in relation to the interpretation of the SOEs' role by the parent ministry and management of the SOEs (Christensen, 2015); various types of boards governing public sector entities were identified and offered broad insight into the boards' types and their operation in practice (Thiel, 2015); Trust and contracts combinations as control mechanisms in the provision of local public services can be taken as factors that can substitute or complement each other and at times can destroy each other.

As perceived by the authors, the impact of trust and contracts as control mechanisms in service delivery may relate to individual interactions and organizations' ability to keep the interests of the individuals and organizations aligned. As such, regulators, policymakers, and managers in public sector entities may consider deciding on the way numerous control mechanisms would add value to building and sustaining

relationships among public sector entities. Management controls have been more enabling in responding to changes in public sector governance while at the same time changes in systems of management controls to enhance performance have become a catalyst to the development of new practices of governance (Ferry and Ahrens, 2017).

On the other hand, academic researchers may extend and apply the frameworks to studies addressing control for externalized public service providers (Argento and Peda, 2015). Self-sacrifice on the side of public sector employees is significantly negatively related to their work performance whereas desire towards making public policies and commitment to the public interest are significantly positively related to employee performance. Thus, the job performance of public employees can be consistently predicted by their commitment to being public interest-oriented (Tais, 2015); a highlight is provided that performance management systems designed to address principles of balanced goal attainment and difficulty, participative approach to goal setting, goal clarity influence competence, self-determination and impact of public service employees. The right balance between the independence of SOEs and political control including interference remains a question of debate, (Swiatczak et al., 2015). Policymakers in the public sector could embrace Sustainability Reporting (SR) to improve the design and execution of rules and regulations for public service delivery and could also be a subject for future research, (Greiling et al., 2015). However, sustainability reporting is still a voluntary process that has not been fully embraced by most public sector organizations (Domingues et al., 2017). It can be deemed that public sector governance could be a critical instrument for enhancing management and scruity of SOEs, putting in place the parts played by public sector authorities as shareholders, and helping SOEs be more accountable and transparent, (OECD, 2014). The study identifies that there is a gap in establishing appropriate actions for ensuring the efficient, effective, and transparent SOEs. A stimulation of inter-disciplinary studies on emergent topics affecting accountability and governance of SOEs taking into account their significance on socio-economic development. Effective strategies and better practices might contribute to the improved performance of SOEs. Theoretical and empirical evidence has been condensed highlighting the significance of the area of study and the existence of gaps. The review recommends an empirically examined interdisciplinary

literature and innovative practices of SOEs to reinforce motivation, transparency control, and value for money and improve the capability of managing, and monitoring contracts, relationships and performance.

Similarly, governance significantly contributes to accountability and transparency in order to improve the performance of Small and Medium Enterprises (SMEs) and facilitates the achievement of their objectives and social responsibilities (Ijeoma and Ezejiofor, 2013). The study concludes that governance provides a structure through which SMEs' objectives are set, implemented, and monitored in terms of performance to ensure the efficiency and effectiveness of service operations. Incentive based governance framework needs to be developed to encourage SMEs to adopt practices of good governance such as tax incentives. Chambers of SMEs need to be strengthened to advocate for governance. Venture services for SME companies should be established and encouraged to develop sustainable and market-driven governance solutions. Good governance is essential in determining SME performance. There is a positive relationship between governance initiatives and growth in the performance of SMEs. The study further concludes that governance has significantly contributed to ensuring SMEs' accountability and transparency for performance improvement; Achievement of SMEs' social responsibilities has to some extent been facilitated by good governance; Strategic guidance on effective monitoring of SME environment is promoted with good governance; and Governance is essential for implementing goals, objectives and social responsibilities of SMEs. However, a research gap exists to investigate well-defined ethics processes, policies, and strategies that facilitate operations efficiency.

In another study, Suntraruk, (2013), investigates the relationship between governance and entity-related features of listed companies on Thailand Market for Alternative Investment (MAI). Governance rating was based on entities that were publicly reported in the 2012 governance report of Thai listed companies. The methodology used was logistics regression analysis measuring two variables of return on assets (ROA) and free cash flow as profitability measures. Descriptive statistics, normality tests, and univariate tests of difference were used in the study. Observations reveals a significant linkage between return on assets and free cash flow and good

governance. Apparently, current ratio, debt-to-equity ratio, firm's growth, earnings per share, dividend yield, assets turnover, age, and size of firm are not statistically related to governance. It is indicated that a research gap exists to investigate whether the leverage of the firm is essential to improve governance; the extent to which size of the firm influences the greater ability for compliance to governance good practices.

Research has also indicated that implementation of performance measurement systems with the view to strengthen accountability (governance) can translate to improved performance of an institution (Tran and Nguyen, 2020). The results of their study revealed that public accountability forms a link between the performance measurement system and the performance of an organization. Thus, suggesting that public institution managers should strive to implement Performance Measurement Systems if they are to improve service delivery.

Balabonienė and Večerskienė, (2015), alluded that the objective of performance measurement systems is to measure and quantitatively evaluate the degree of achievement of the set goals, strategies, and tasks. They further suggest that two major functions of performance measurement systems include: the provision of information that allows for public sector organization performance improvement and accountability for resource utilization. The study indicates that the analysis of methods for measuring performance reveals that the framework of the European Foundation for Quality Management (EFQM) and Malcolm Baldridge National Quality Award (MBNQA) which are connected by related standards have their focus on results and effectiveness of professional management and not the quality of the services provided. The study argues that the methods are essential tools for improving the performance of organizations but not for day-to-day problem elimination considering that organizational success relies on its performance and structure and not the performance measurement methods.

It suggests that public sector organization performance measurement has to be well coordinated for its meaningfulness to be based on compliance with the strategies and responses to the measurement criteria. It further suggests that more than one performance measurement system could be applied in assessing public sector organizations. On the same note, White, (2019) argues that budget framers and

managers of public service organizations need to keep in mind that performance measurement remains part of their job despite the assessments and evaluations not warranting sustainability in service provision. The study argued that not all performance parameters are measurable. Thus, to say that public service managers need to be careful in determining performance measurement systems and their measurability.

Research by Valedar et al., (2014), aimed at determining the extent to which public service organizations in transition countries conduct and report on performance measurement key indicators. The study used an electronic survey of sampled public sector utility companies and an application of a non-parametric test of Mann-Whitney to test variances among public service organizations in accordance with their performance. The test showed that the public sector measured and reported performance indicators to have a direct effect on operational results drawn from the financial statements. The causes and effects of non-availability of valid and relevant performance measurement indicators in public service. These include inadequate public sector legislation; the resistance of public sector personnel to changing the status quo existing in their organizations; lack of public outcry and reaction to the unsatisfactory public sector situations; and inadequate practice of executing performance audits. The study concluded that Transition countries need to meet the basic prerequisites for public sector reforms which constitute: strengthened public management accountability; identification and use of quality measurement standards; measurement of programs achieved results; introduction of a market mechanism for cost reduction and performance audits as a measurement technique and application of a number of public sectors management techniques. The study identified the following areas of future research: exploring the nature of systems for public sector performance measurement and their impact in countries other than those in Europe; and comparison, analysis and proposition, and application of optimal performance measurement models for transition countries.

In agreement with the assertions of Balabonienė and Večerskienė, (2015), in their contribution to the literature on New Public Management practices, Geominne and George, (2019), noted that there is an argument placed forward by NPM advocates, that the contingencies (including size, budget and past performance of a public service

organization as well as client deprivation/need) have a bearing on public service organization financial performance. Their study demonstrated that financial performance may not be the only factor for determining contingencies relating to the organization and its environment. There is other potential, relevant and effective ways for improving performance where policy framers are found not to be flexible to change organizational and environmental contingencies. Thus, other performance factors can be considered such as governance and accountability. The study also argued that change resistors to the reforms are mistaken to have based their beliefs on the fact that environmental and organizational contingencies are not the only determinant of public service organization performance. It also concluded that past performance and budgets cannot be overlooked considering that the tighter the budget and the worst past performance of a public service organization proves to be a huddle towards achievement of innovative financial standards. This study demonstrated that despite there being a correlation between these contingencies and the financial performance of public service organizations, several variation factors have remained unexplained and these could form a playing field for the managers. This could be an area of focus for future research.

Heirany et al. (2013) examined the impact of governance structures on the quality of financial reporting by examining the relationship between operating ratios and accounting income quality. The causal relationships between the variables were examined using regression analysis and Pearson correlation coefficient. Three hypotheses were tested. First that there is a direct and significant relationship between the concentration of power and unusual accruals. Second, there a negative and significant relationship between the variable percentage of institutional ownership and abnormal accruals. Third, there is a significant negative relationship between the independence of the board members and abnormal accruals.

The study showed a significant correlation between earnings quality with some governance mechanisms. Using model 1 the results noted a significant linkage between centralization of power and earnings quality. Using model 2, it was established a significant linkage between the independence of the board members and earnings quality. Furthermore, the type of ownership is effective in improving the performance

74

of the company. Using model 3, it was revealed that there is a substantial connection between ownership of institutional stakeholders and earnings quality. Future research could try to expand the sample size of companies in order to have more homogeneous results. In addition to regression analysis, the study could use some non-linear models for investigating the effects of governance mechanisms on earnings quality. The study could also be conducted for long-term periods. The effects of other demographic characteristics of the board like age, education, and a number of meetings on earnings quality could also be investigated.

2.3.2   Results of Bibliometric analysis for Governance and Performance (Service delivery)

2.3.2.1 Performance analysis using Descriptive Research Statistics
i.   Growth in Publication trend

The analysis showed that there has been a general increase in publication trend of research on governance and performance of entities from the year 2008 with the highest being in 2020 amidst fluctuations as depicted in figure 2.3.1.

Year	Articles
2021	7
2020	22
2019	14
2018	7
2017	17
2016	11
2015	6
2014	10
2013	4
2012	4
2011	4
2010	9
2009	2
2008	3
2007	2
2005	2
2003	1
2002	1
2000	2
1998	2

75
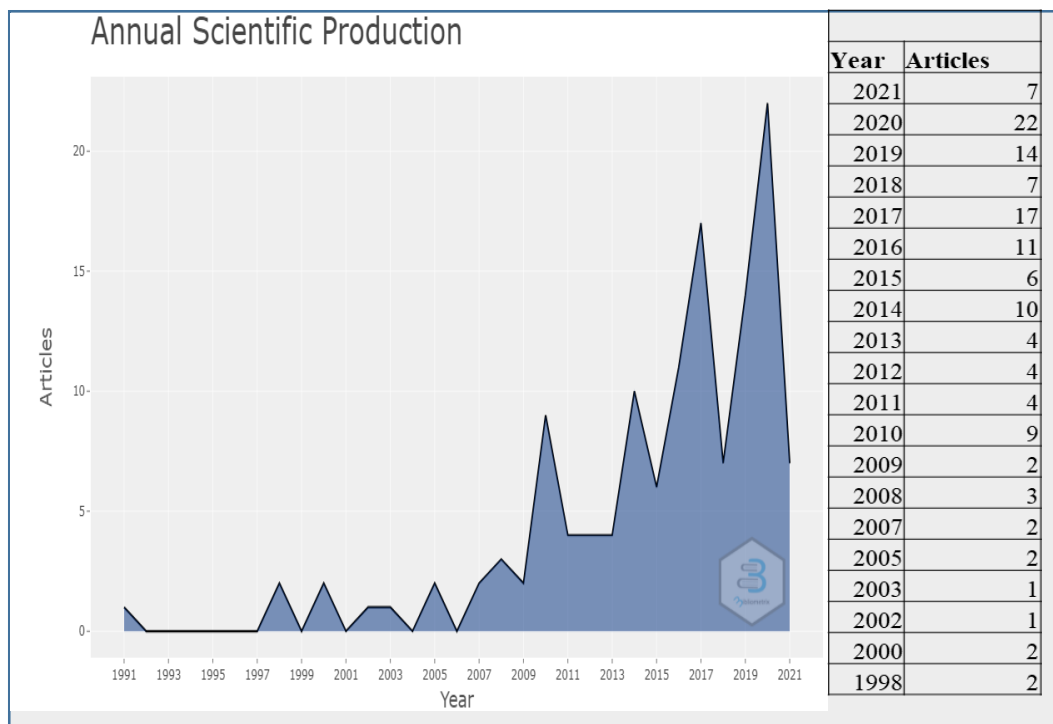
Figure 2.3.1   Biblioshiny Production Trend Analysis on Governance and Performance (Service Delivery)

ii. **Most Relevant Sources**

Publication source analysis noted that there were 475 journal sources with 818 publications on governance and performance in terms of service delivery. The 20 top most relevant journals published 208 articles as presented in figure 2.3.2.
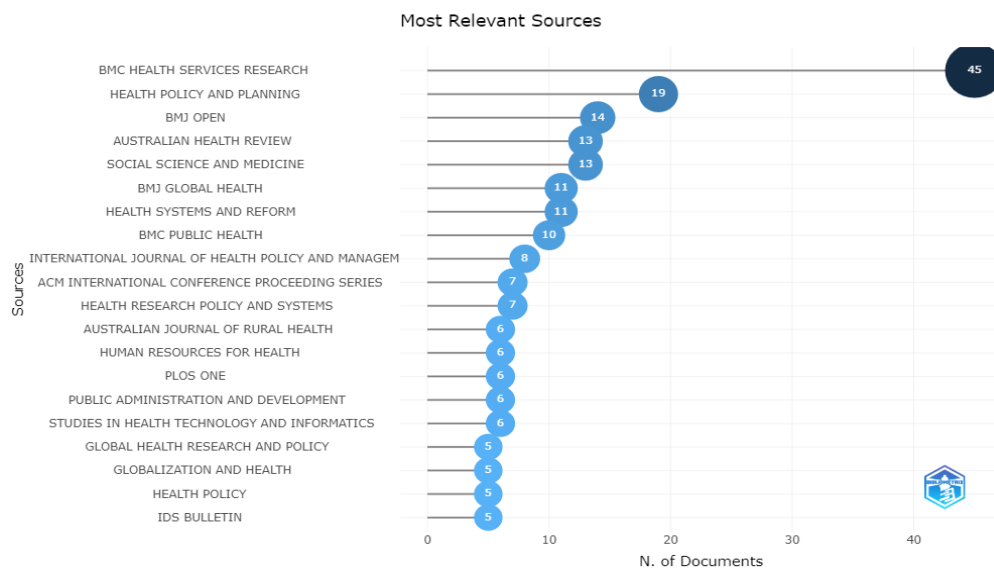
Figure 2.3.2   Biblioshiny analysis of 20 top most relevant sources

The analysis as depicted in figure 2.3.2 showed that the top most relevant journal sources were BMC Health Services Research (45), Health Policy and Planning (19) and BMJ Open (14). Most of the journal publications ranged from 5 to 13 annually. This indicted that there is a gap in the number of publications being sent for publication in the area of governance and performance. Source production growth analysis noted that BMC Health Services Research experience tremendous growth in publication on governance and performance from 2010 to 2021 as depicted in figure 2.3.3. Production statistics for the top 5 journal sources are presented in table 2.3.1. The analysis indicates the opportunities for researchers' contributions to these sources.
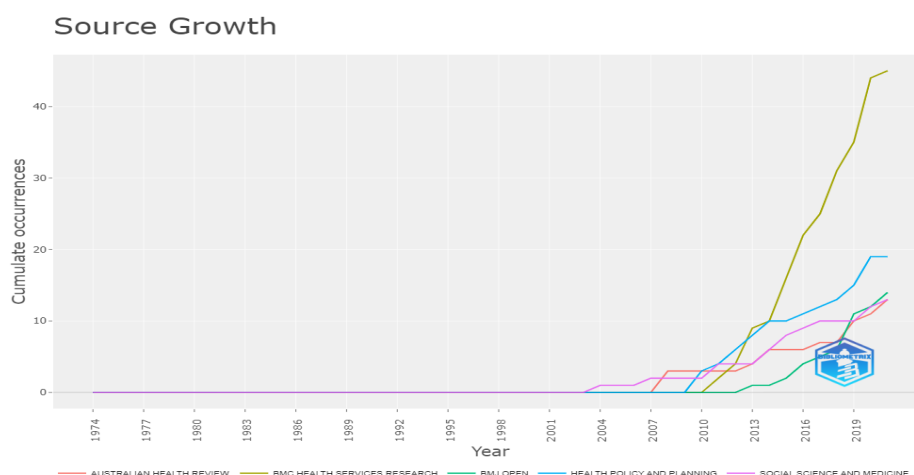
Figure 2.3.3 **Biblioshiny analysis of source growth over time on governance and performance (service delivery)**

Table 2.3.1 **Source growth statistics on governance and performance**

Year	BMC HEALTH SERVICES RESEARCH	HEALTH POLICY AND PLANNING	BMJ OPEN	AUSTRALIAN HEALTH REVIEW	SOCIAL SCIENCE AND MEDICINE
2021	45	19	14	13	13
2020	44	19	12	11	12
2019	35	15	11	10	10
2018	31	13	6	7	10
2017	25	12	5	7	10
2016	22	11	4	6	9
2015	16	10	2	6	8
2014	10	10	1	6	6
2013	9	8	1	4	4
2012	4	6	0	3	4
2011	2	4	0	3	4
2010	0	3	0	3	2
2009	0	0	0	3	2
2008	0	0	0	3	2
2007	0	0	0	0	2
2006	0	0	0	0	1
2005	0	0	0	0	1
2004	0	0	0	0	1

Source impact analysis noted that BMC Health Services Research had the highest H-index of 18 followed by Health Policy and Planning as depicted in figure 2.3.4.
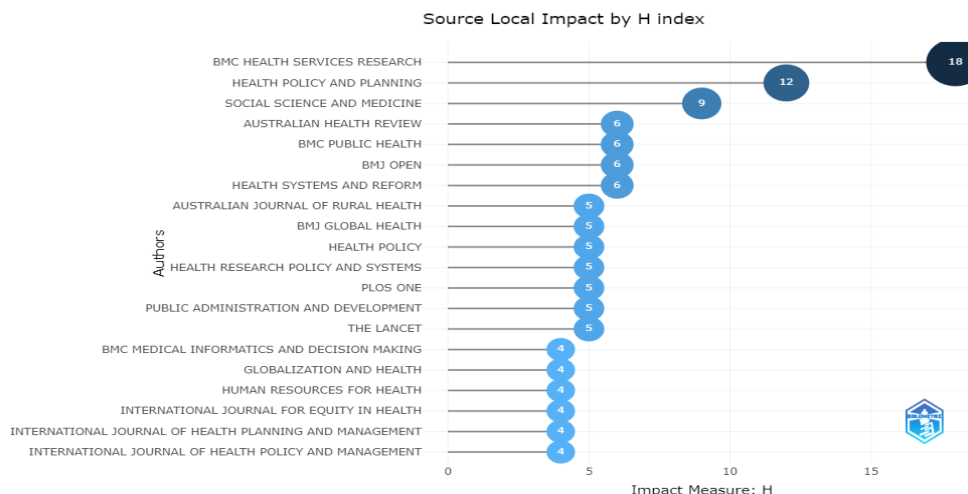
Figure 2.3.4   Source Impact by H-index

iii.   Country Scientific Production and affiliations

Bibliometric analysis showed that United Kingdom (2214), United States of America (1423) and Canada (1033) had the most citations in the published articles from the period 2006 to 2021. They were also the countries mostly contributed to the literature on governance and performance as depicted in table 2.3.2. Less literature contributions came from Africa (South Africa - 139, Kenya – 66, Nigeria- 52 and Tanzania – 46) and nothing from Malawi. Thus, this paper will be a contribution on the literature from Malawi.

Table 2.3.2   Top 20 Country Specific Production and most cited countries

Region	Frequency	Total Citations	Average Article Citations
UK	478	2214	22.364
USA	448	1423	16.356
AUSTRALIA	446	1033	11.874
CANADA	154	612	21.857
SOUTH AFRICA	139	318	8.833
INDIA	122	124	5.636
NETHERLANDS	89	539	28.368
SWITZERLAND	87	511	36.5

IRAN	67	40	3.077
KENYA	66	103	11.444
ITALY	63	11	2.75
NEW ZEALAND	57	71	4.733
PAKISTAN	55	106	7.571
NIGERIA	52	84	12
GERMANY	49	66	7.333
CHINA	48	62	8.857
TANZANIA	46	43	6.143
IRELAND	44	105	15
NEPAL	42	15	7.5
BELGIUM	40	103	12.875

Analysis of the top 20 affiliations noted that less literature contribution came from institutions in developing countries s depicted in figure 2.3.5, the gap that will partly be addressed through this paper.
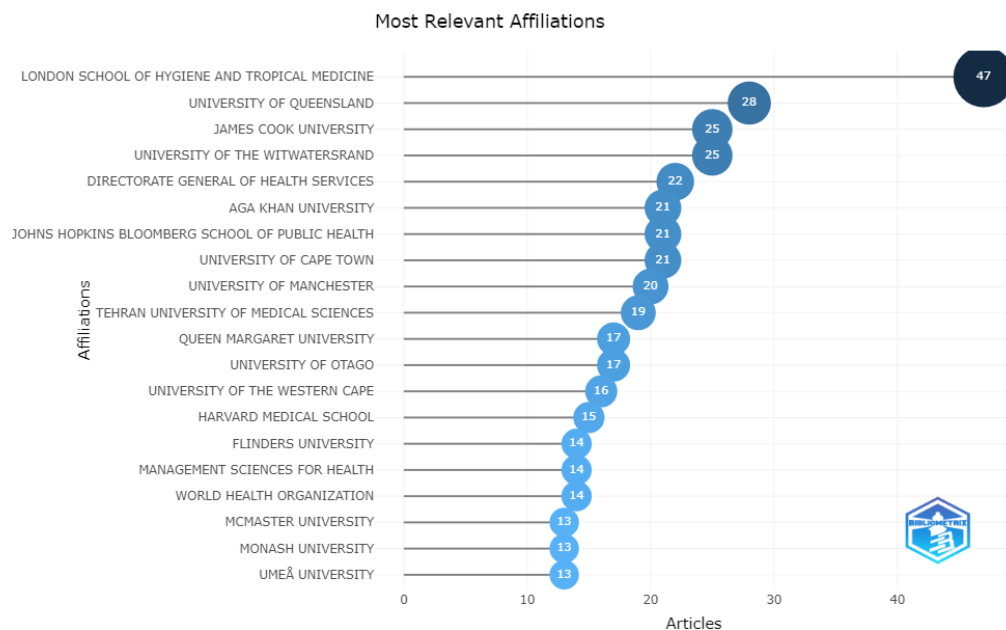
Figure 2.3.5   Top 20 most relevant affiliations contributing to literature on governance and performance

iv.   Authorship Analysis

Bibliometric analysis using Vosviewer software based on highest quantity of 5 authors per document and a lowest of 2 noted that out of 1531 authors, 103 emerged as

most relevant authors on governance and performance. The most productive authors as per Vosviewer and biblioshiny bibliometric analysis were Sheikh, BT., Coker, R. and Gilson, L. as shown in table 2.3.3.

Table 2.3.3   Most Prolific Authors

Authors	Articles	Fractionalized Articles
SHAIKH BT	8	3.78
COKER R	5	1.32
GILSON L	5	1.56
ZARYCHTA A	5	2.03
ATUN R	4	0.76
DE SAVIGNY D	4	0.75
DENIS J-L	4	0.60
GAULD R	4	1.08
GEORGE AS	4	0.69
GRILLOS T	4	1.03
MCKEE M	4	0.74
MIRELMAN AJ	4	0.76
SRIRAM V	4	1.03
SUHRCKE M	4	0.76
ABIMBOLA S	3	1.42
AIKINS M	3	0.71
BERAN D	3	1.31
BHUTTA ZA	3	0.64
BRENNER M	3	0.32
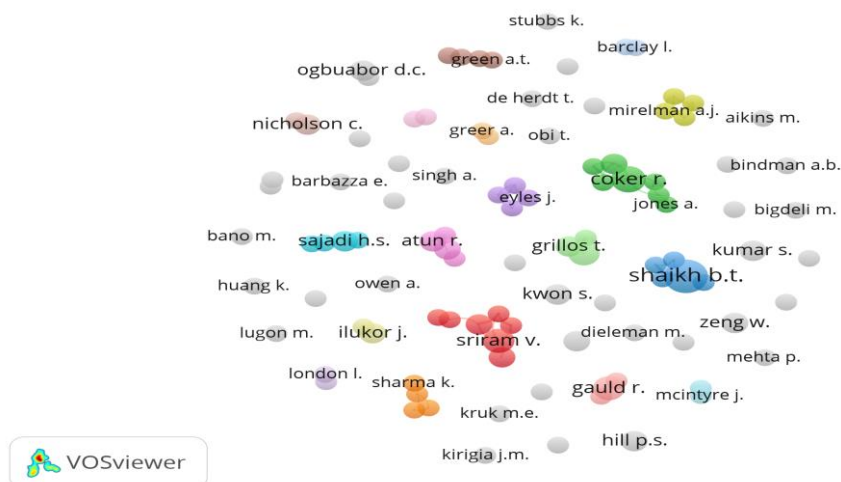
Figure 2.3.6   Top 20 most relevant authors contributing to literature on governance and performance

v. Authors' production over time

An analysis of authors' production over time revealed that mostly authors' contribution to the research area of governance and performance was made from period 2010 to 2020 consistently from the top 20 most relevant authors as presented in figure 2.3.7.
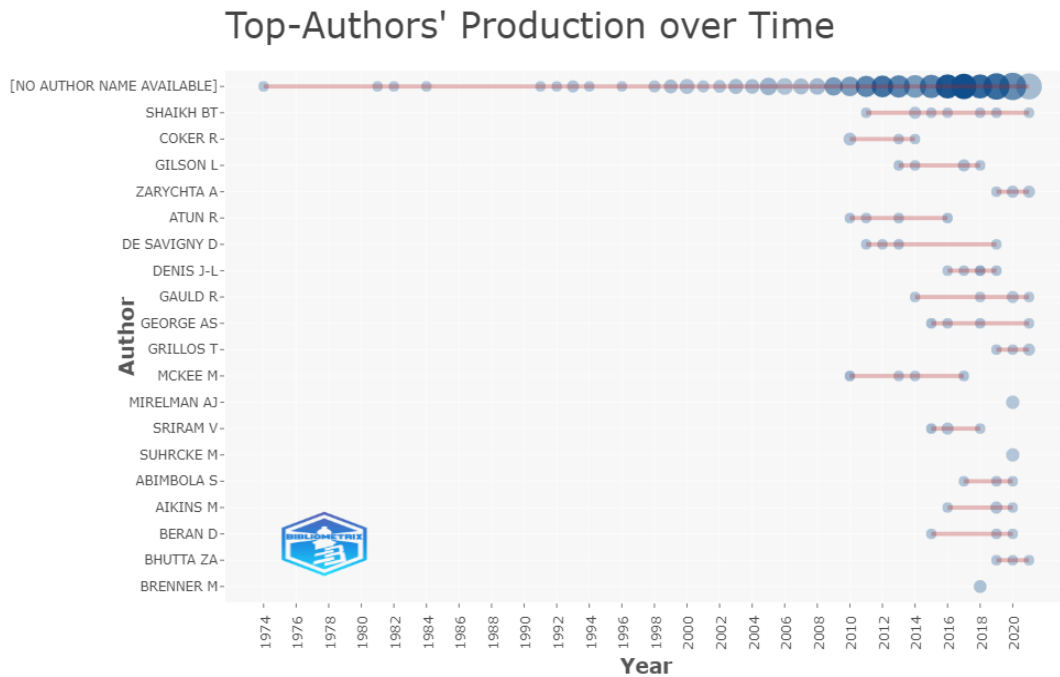
Figure 2.3.7 **Biblioshiny Analysis of top authors' production over the time on Governance and performance**

vi. Authors' impact

Biblioshiny analysis of authors' impact showed that Coker R. and Gilson L. had the highest h-index of 5 from number of publications of and total citations of 61 and 124 respectively as shown in table 2.3.4.

Table 2.3.4   Author's Impact

Element	h_index	g_index	m_index	TC	NP	PY_start
COKER R	5	5	0.385	61	5	2010
GILSON L	5	5	0.5	124	5	2013
ATUN R	4	4	0.308	247	4	2010
DENIS J-L	4	4	0.571	207	4	2016
MCKEE M	4	4	0.308	340	4	2010
SHAIKH BT	4	7	0.333	57	7	2011
SRIRAM V	4	4	0.5	128	4	2015
ABIMBOLA S	3	3	0.5	32	3	2017
BRENNER M	3	3	0.6	28	3	2018
BROWNE G	3	3	0.158	97	3	2004
CITRON I	3	3	0.5	67	3	2017
DE SAVIGNY D	3	4	0.25	125	4	2011
GEORGE AS	3	3	0.375	141	3	2015
HILL PS	3	3	0.2	15	3	2008
HYDER AA	3	3	0.429	23	3	2016
ILUKOR J	3	3	0.375	27	3	2015
KILDEA S	3	3	0.273	77	3	2012
KUMAR S	3	3	0.375	39	3	2015
LAZARUS JV	3	3	0.25	79	3	2011
LEGIDO-QUIGLEY H	3	3	0.333	32	3	2014

2.3.2.2 Science Mapping

The social and intellectual arrangement of research in the area of governance and performance was analyzed and noted the following:

i. Intellectual structure: Citation analysis

Bibliometric analysis showed the following results, in table 2.3.5 on the top 20 most influential publication in the area of governance and performance.

Table 2.3.5   Top 20 most influential publications on governance and performance

Paper	DOI	Total Citations	TC per Year	Normalized TC
BALL SJ, 2012, NETW, NEW GOV AND EDUC		386	35.0909	13.8683
PATEL V, 2016, LANCET	10.1016/S0140-6736(15)00390-6	295	42.1429	17.6295
SAMB B, 2010, LANCET	10.1016/S0140-6736(10)61353-0	263	20.2308	10.9258
LYONS RA, 2009, BMC MED INFORMATICS DECIS MAK	10.1186/1472-6947-9-3	257	18.3571	6.9909
REINIKKA R, 2005, J EUR ECON ASSOC	10.1162/jeea.2005.3.2-3.259	244	13.5556	10.4221
ESPIE CA, 2009, SLEEP	10.1093/sleep/32.12.1549	242	17.2857	6.5829
BRINKERHOFF DW, 2011, PUBLIC ADM DEV	10.1002/pad.584	238	19.8333	9.4405
KRINGOS D, 2013, BR J GEN PRACT	10.3399/bjgp13X674422	191	19.1	10.4845
BELLO AK, 2017, JAMA	10.1001/jama.2017.4046	165	27.5	12.7476
HANSON K, 2003, J INT DEV	10.1002/jid.963	165	8.25	6.7347
BOMBARD Y, 2018, IMPLEMENT SCI	10.1186/s13012-018-0784-z	158	31.6	15.6694
BARNES M, 1999, SOC POLICY ADM	10.1111/1467-9515.00132	130	5.4167	3.9877
HASHIMOTO H, 2011, LANCET	10.1016/S0140-6736(11)60987-2	124	10.3333	4.9186
AHMED T, 2012, J HEALTH POPUL NUTR	10.3329/jhpn.v30i1.11268	103	9.3636	3.7006

GEORGE AS, 2015, PLOS ONE	10.1371/journal.pone.0141091	94	11.75	7.3247
MAYS GP, 2009, AM J PREV MED	10.1016/j.amepre.2008.11.008	87	6.2143	2.3666
SEGAL SP, 1993, SOC WORK	10.1093/sw/38.6.705	84	2.8	1.7684
GAAL P, 2011, HEALTH SYST TRANSIT		82	6.8333	3.2526
ATUN R, 2010, LANCET	10.1016/S0140-6736(10)60493-X	81	6.2308	3.365
COLVIN CJ, 2014, PLOS ONE	10.1371/journal.pone.0108150	75	8.3333	7.593

Thematic analysis based on citation analysis of research on governance and performance noted the following clusters
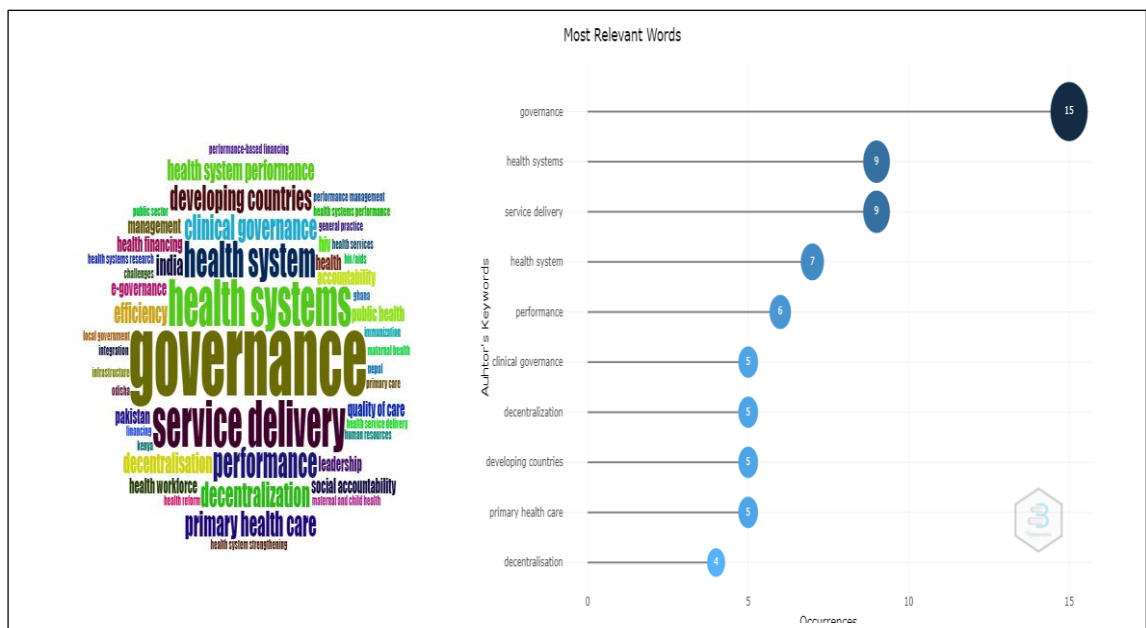
Figure 2.3.8 Authors' keyword analysis

Biblioshiny analysis show that most relevant key words used by authors are governance (15), Health systems (9) service delivery (9). The most relevant and frequently used keywords were as presented in the word cloud in figure 33

Similar results on most relevant words were noted through *Vosviewer* as presented in figure 2.3.9.
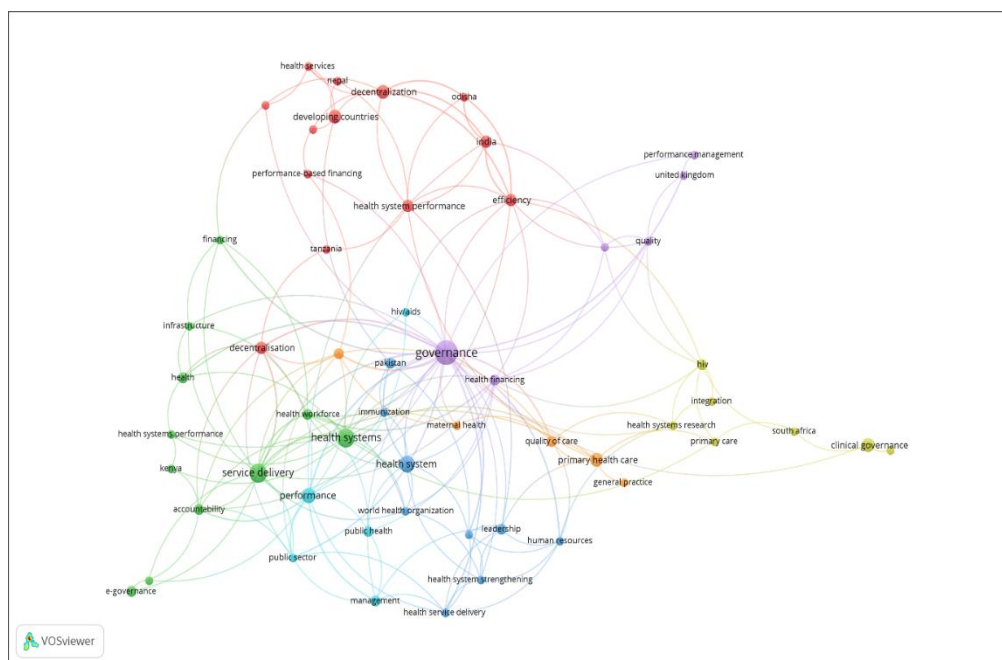
Figure 2.3.9   Most relevant keywords

The thematic map based on authors' key word analysis showed ten (10) cluster themes as presented in table 2.3.6.

Table 2.3.6   Thematic clusters based on authors' key word analysis

Cluster	Callon Centrality	Callon Density	Rank Centrality	Rank Density	Cluster Colour
governance	15.99746032	286.0942761	22	7	#E41A1C80
health systems	8.459744268	285.964536	19	6	#377EB880
service delivery	9.844135802	519.6373457	21	22	#4DAF4A80
clinical governance	1.746666667	388.4615385	15	14	#984EA380
decentralization	6.358333333	313.4705882	18	12	#FF7F0080
primary health care	4.638888889	282.1052632	17	5	#A6562880
e-governance	0.203703704	319.047619	14	13	#F781BF80
health	2.781481481	286.1111111	16	8	#99999980
hiv	9.275	410.3174603	20	18	#66C2A580
ghana	0	464.2857143	7	19	#FC8D6280

The research themes on governance and performance were located under motor themes and basic themes was as depicted in figure 2.3.10. The motor themes which are

well developed and critical to the research structure included service delivery, decentralization, hiv, e-governance and clinical governance. The basic themes which are not well developed included governance, health systems, primary health care and health.
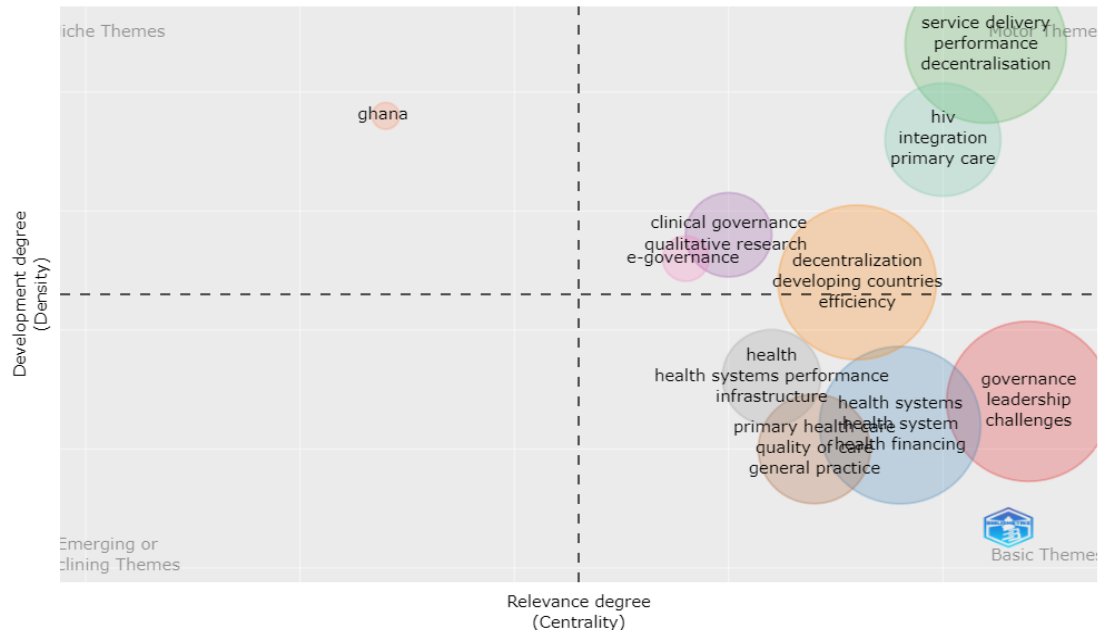
Figure 2.3.10 Biblioshiny bibliometrix thematic map on governance and performance

iii. Social structure: Collaboration network analysis

The analysis showed a lot of collaboration between two authors, Mirelman A.J and Suhrecke M (Figure 2.3.11).
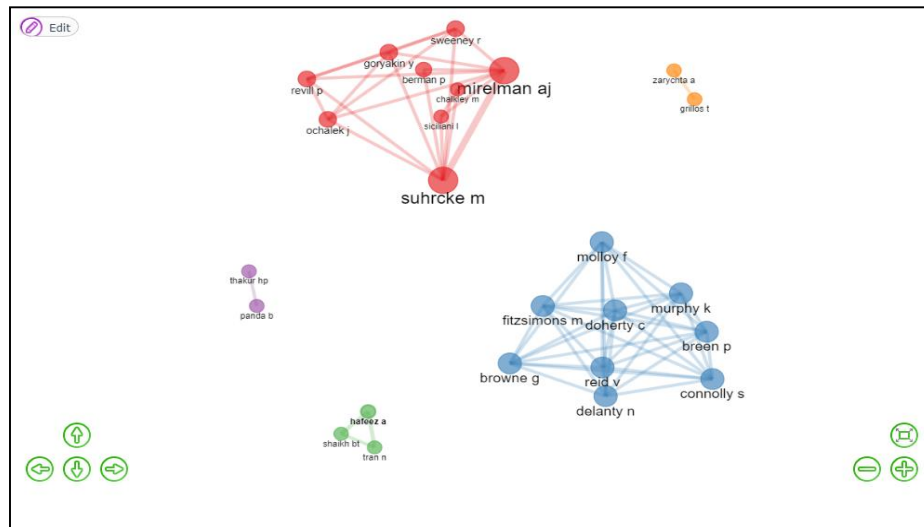
Figure 2.3.11 Collaboration network graph-I

According to figure 2.3.12. VOSviewer network visualization shows that the highly networked author in this area is Mirelman A.J
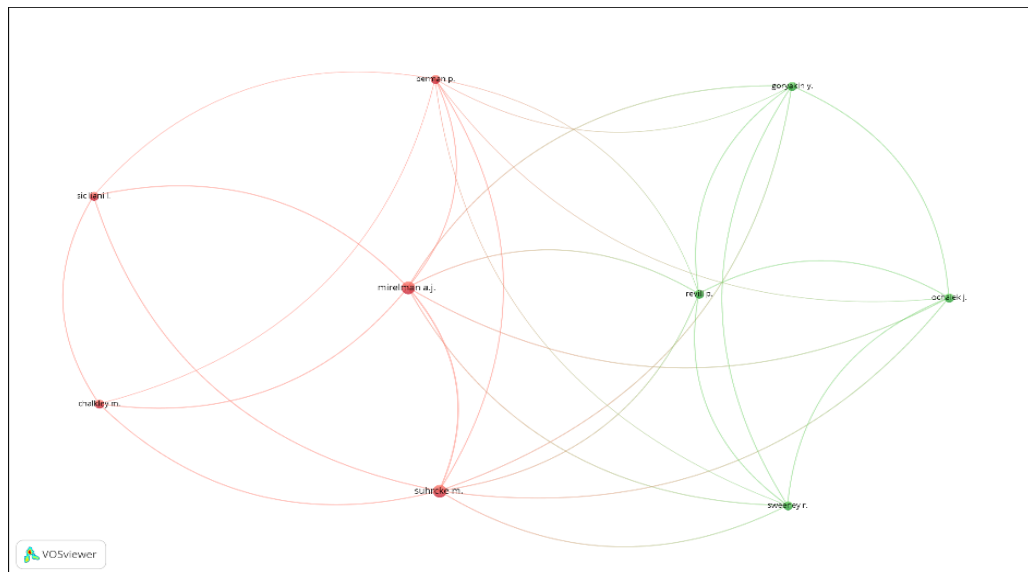
Figure 2.3.12 Collaboration network graph-II

iv. Country Collaboration Analysis

Results of country collaboration analysis were as presented in figure 2.3.13
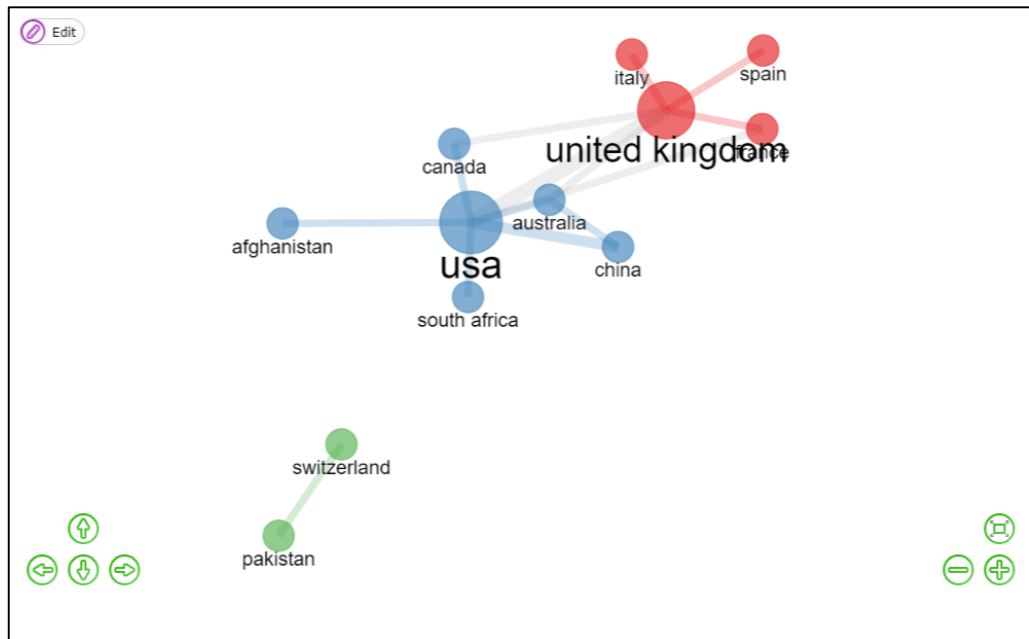
Figure 2.3.13 Country Collaboration analysis

Based on the literature review analysis, governance is deemed to be a means to achieving public sector performance through service delivery. Thus Service delivery is a critical aspect of governance in developing countries, serving as the primary means of interaction between citizens and their governments. When access to public services is limited, or the quality of services is poor, people rightfully conclude that governance is ineffective (Osborne, 2010; Osborne et al., 2021). Governance inadequacies may hinder the functioning of public services and act as an impediment to the implementation of service delivery programs. As such, governance plays a pivotal role in service delivery, both in developed and developing countries. Improved governance is an indispensable component of reforms aimed at enhancing service delivery outcomes, such as better health and education outcomes (Chakraborty, 2009).

Despite the profound influence that governance quality has on service delivery, governments' performance worldwide has come under scrutiny over the past few decades. Governments have been criticized for being inefficient, ineffective, costly, excessively bureaucratic, and unresponsive to the public's service quality expectations (Bracci & Llewellyn, 2012; Holloway et al., 2012; Hoque & Adams, 2011). Almquist et al. (2013) argue that public sector governance concerns itself with accountability for

specific public outcomes, including service delivery and the effects of government policies on citizens' lives. CIPFA (2004) outlines that public sector governance ensures that institutions fulfill their mandates, achieve intended outcomes for service users and citizens, and operate efficiently, effectively, and ethically. IFAC (2014), refers to PSG as encompassing the structures that exist to ensure the achievement of intended outcomes for stakeholders. Decentralization and shared responsibility for service provision are policy measures deemed effective in improving public service delivery, as local governments have a better understanding of their citizens' needs and are likely to be more accountable to them (Deolalikar et al., 2015). Governments across Africa have increasingly delegated power in recent decades, enabling local bodies to bear more of the responsibility for providing essential public services to promote public openness, accountability, and responsiveness. Consequently, it can be concluded that governance is a means to an end, and that end is the provision of services to the public. Thus, it can be hypothesized that improving governance quality is critical to enhancing service delivery outcomes. This forms the basis for this study.

2.4 Bibliometric analysis on Governance and Public Finance Management (Value for Money)

2.4.1   Results of Bibliometric analysis for Governance and Public Finance   Management (Value for Money)

2.4.1.1 Performance analysis using Descriptive Research Statistics

i. Growth in Publication trend

The analysis shows a fluctuating trend in publication of studies conducted in this area. 2018 was the year most publications were made as shown in figure 2.4.1.
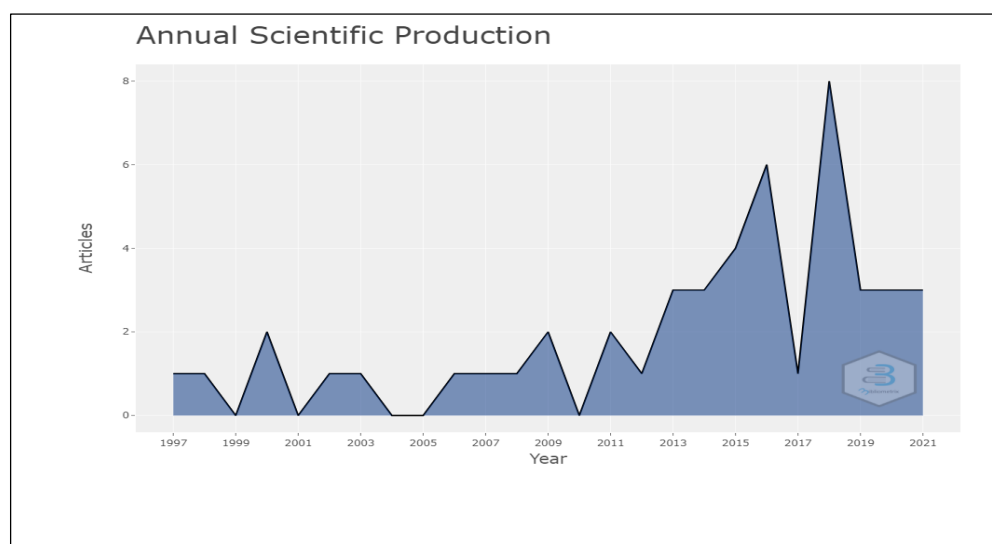
Figure: 2.4.1 Growth in publication trend for research on Governance

ii. Most Relevant Sources

Bibliometric analysis showed that the top 20 most relevant sources for publications for research on governance and public finance management (value for money) were as depicted in figure 2.4.2. BMJ Global Health, Health Technology Assessment and International Journal of Educational Management had the most publications of 2 each. 17 Journal sources had one each.

Further, the source growth analysis reveals that two sources (Research papers in education and audit trends) commence publishing research papers on governance and PFM (value for money) since 1997 and have had a consistent publication trend of one paper. Health Technology assessment commence in 2015 with a consistent publication of two papers each year up to 2021. The analysis noted that there has not been much growth hence the need to do more to cove the gap. This points to the existing opportunity to publishing articles in these sources. Details of source dynamics were as presented in figure 2.4.3.
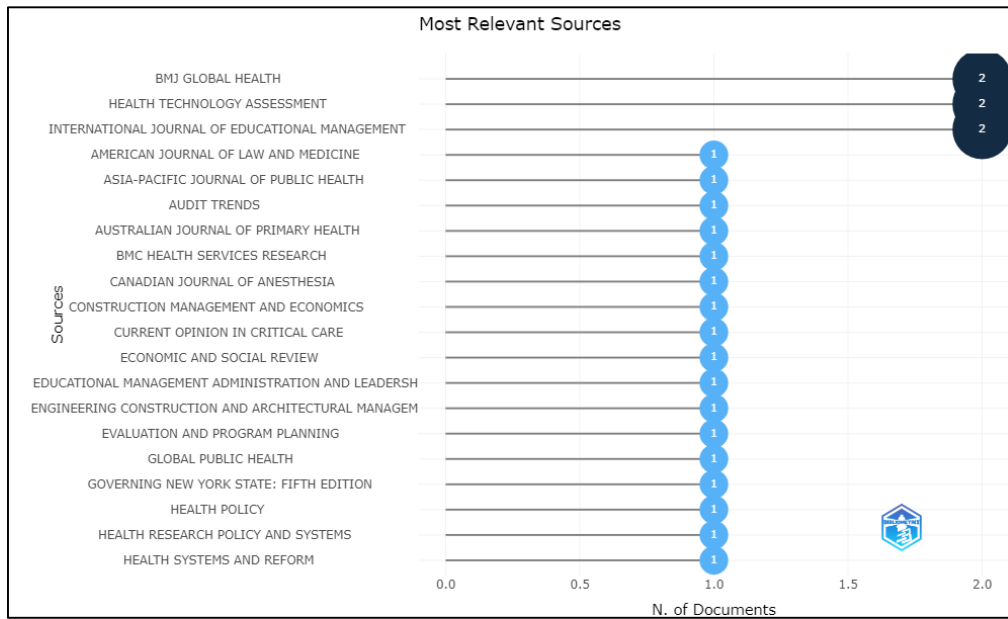
Figure 2.4.2   Biblioshiny analysis of most relevant sources for research on governance and PFM (value for money)
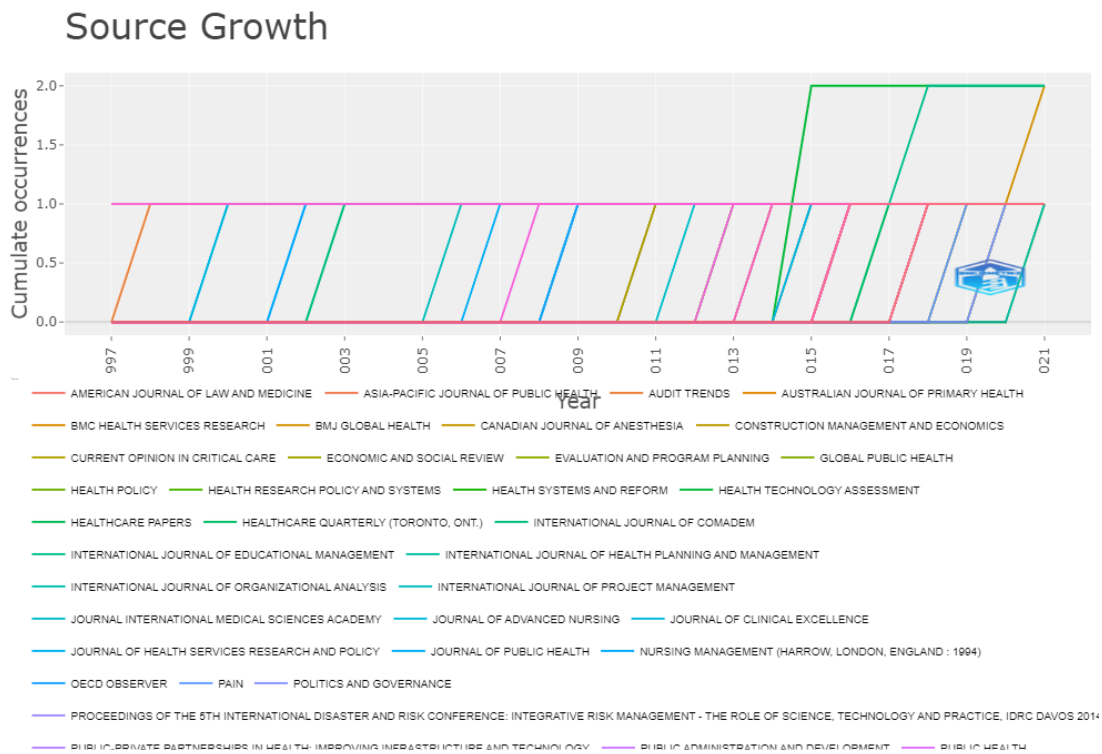
Figure 2.4.3   Biblioshiny analysis of source growth over time for research on governance and PFM (value for money)

Analysis on source impact noted that Health Technology Assessment and
International Journal of Educational Management had the top h-index of 2 and
citations quantity of 31 and 10 respectively as depicted in table 2.4.1.

Table 2.4.1   Impact of Source

Source	h_index	g_index	m_index	TC	NP	PY_start
HEALTH TECHNOLOGY ASSESSMENT	2	2	0.25	31	2	2015
INTERNATIONAL JOURNAL OF EDUCATIONAL MANAGEMENT	2	2	0.285714286	10	2	2016
AMERICAN JOURNAL OF LAW AND MEDICINE	1	1	0.083333333	8	1	2011
AUSTRALIAN JOURNAL OF PRIMARY HEALTH	1	1	0.142857143	11	1	2016
BMC HEALTH SERVICES RESEARCH	1	1	0.25	1	1	2019
BMJ GLOBAL HEALTH	1	1	0.2	10	1	2018
CANADIAN JOURNAL OF ANESTHESIA	1	1	0.1	12	1	2013
CONSTRUCTION MANAGEMENT AND ECONOMICS	1	1	0.25	10	1	2019
CURRENT OPINION IN CRITICAL CARE	1	1	0.125	20	1	2015
ECONOMIC AND SOCIAL REVIEW	1	1	0.083333333	3	1	2011
GLOBAL PUBLIC HEALTH	1	1	0.111111111	74	1	2014
HEALTH POLICY	1	1	0.1	20	1	2013
HEALTH RESEARCH POLICY AND SYSTEMS	1	1	0.2	3	1	2018
HEALTHCARE QUARTERLY (TORONTO, ONT.)	1	1	0.166666667	3	1	2017

INTERNATIONAL JOURNAL OF COMADEM	1	1	0.05	5	1	2003
INTERNATIONAL JOURNAL OF PROJECT MANAGEMENT	1	1	0.058823529	16	1	2006
JOURNAL INTERNATIONAL MEDICAL SCIENCES ACADEMY	1	1	0.090909091	3	1	2012
JOURNAL OF ADVANCED NURSING	1	1	0.043478261	72	1	2000
JOURNAL OF CLINICAL EXCELLENCE	1	1	0.043478261	3	1	2000

iii. Country Scientific production

Out of 18 top country scientific production, the analysis showed that United Kingdom (79), United States of America (77), Australia (48) and India (43) were the frequently contributing counties. Contributions from African countries were still minimal. Table 2.4.2 provides the details.

Table 2.4.2   Top 18 country scientific production and most cited countries

Region	Freq	Total Citations	Average Article Citations
UK	79	255	17.00
USA	77	337	21.06
AUSTRALIA	48	138	15.33
INDIA	43	35	4.38
SOUTH AFRICA	26	70	11.67
ITALY	21	7	7.00
CANADA	20	46	15.33
IRELAND	18	22	11.00
NETHERLANDS	18	277	55.40
SWITZERLAND	18	61	20.33

CHINA	14	20	10.00
KENYA	13	26	8.67
PAKISTAN	12	21	5.25
JAPAN	10	125	62.50
NEW ZEALAND	9	4	2.00
TANZANIA	9	16	8.00
MEXICO	8	2	2.00
ECUADOR	7	5	5.00

iv. Authorship Analysis

Among the top 20 most relevant authors, PROF was the most productive one with 2 papers as depicted in figure 2.4.4. The analysis noted that authors' production of research papers over time on governance and public finance Management (value for money) has been very scanty and not consistent as depicted in figure 2.4.5 signifying the need for more papers to be published by upcoming researchers.
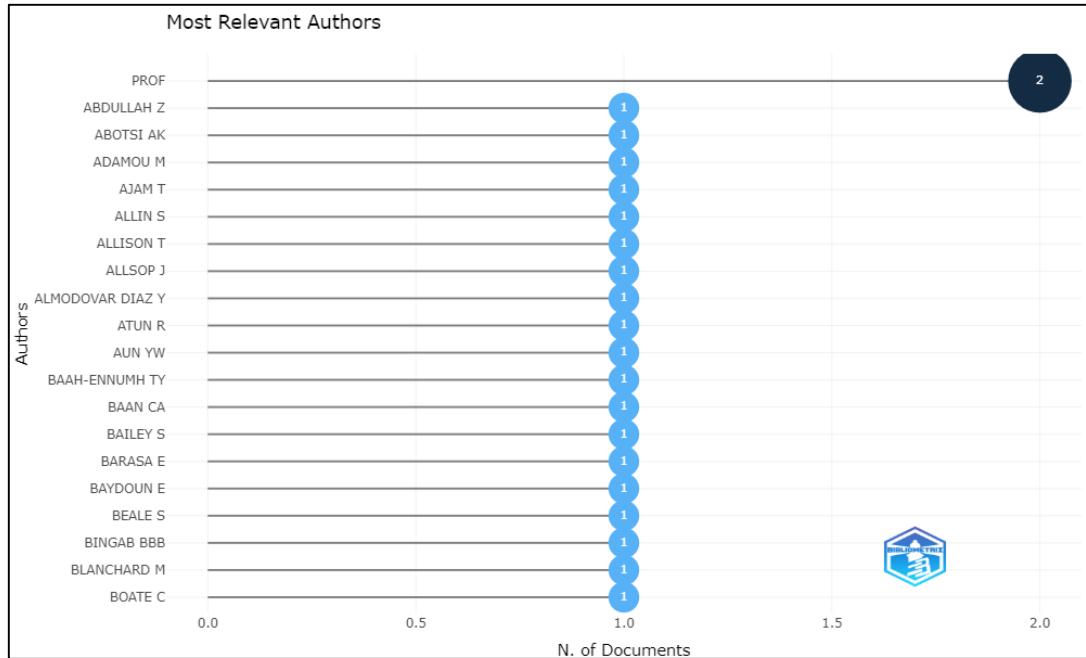
Figure 2.4.4   Most relevant authors for research on Governance and PFM (value for Money)
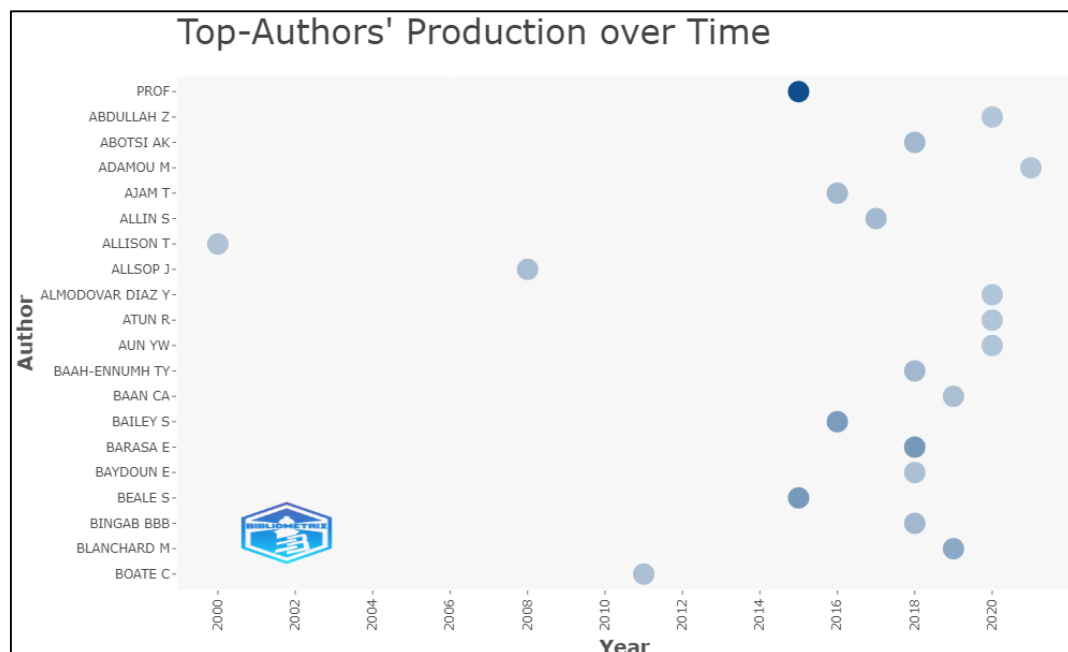
Figure 2.4.5 Biblioshiny Analysis of top authors' production over the time on Governance and PFM (value for money)

v. **Authors' production over time and impact**

Analysis of authors' impact showed that PROF had the topmost h-index and total number of citations for 2 publications as shown in table 2.4.3.

Table 2.4.3   Authors' Impact

Element	h_index	g_index	m_index	TC	NP	PY_start
PROF	2	2	0.25	86	2	2015
ABOTSI AK	1	1	0.2	3	1	2018
AJAM T	1	1	0.143	4	1	2016
ALLIN S	1	1	0.167	4	1	2017
ALLISON T	1	1	0.043	3	1	2000
ALLSOP J	1	1	0.067	5	1	2008
BAAH-ENNUMH TY	1	1	0.2	3	1	2018
BAAN CA	1	1	0.25	1	1	2019
BAILEY S	1	1	0.143	13	1	2016
BARASA E	1	1	0.2	10	1	2018
BAYDOUN E	1	1	0.2	1	1	2018
BEALE S	1	1	0.125	16	1	2015
BINGAB BBB	1	1	0.2	3	1	2018
BLANCHARD M	1	1	0.25	6	1	2019
BOATE C	1	1	0.083	3	1	2011
BOLAND A	1	1	0.125	16	1	2015
BOOTH C	1	1	0.25	6	1	2019

BRENDER N	1	1	0.111	1	1	2014
BUCHAN I	1	1	0.125	15	1	2015
BUCKLEY A	1	1	0.333	4	1	2020

2.4.1.2 Science Mapping

i. Intellectual structure: Citation analysis

The analysis noted that the most cited documents were those authored by Storeng KT, 2014, Tye CC 2000 and Mason A, 2015 as detailed in table 2.4.4.

Table 2.4.4   Most global cited documents

Paper	DOI	Total Citations	TC per Year	Normalized TC
STORENG KT, 2014, GLOBAL PUBLIC HEALTH	10.1080/17441692.2014.940362	74	8.2222	2.96
TYE CC, 2000, J ADV NURS	10.1046/j.1365-2648.2000.01380.x	72	3.1304	1.92
MASON A, 2015, J HEALTH SERV RES POLICY	10.1177/1355819614566832	43	5.375	1.83
NAIMOLI JF, 2009, INT J HEALTH PLANN MANAGE	10.1002/hpm.969	29	2.0714	2.486
DOCHERTY AB, 2015, CURR OPIN CRIT CARE	10.1097/MCC.0000000000000228	20	2.5	0.851
LOPERT R, 2013, HEALTH POLICY	10.1016/j.healthpol.2013.07.019	20	2	2.353
BEALE S, 2015, HEALTH TECHNOL ASSESS	10.3310/hta19460	16	2	0.681

HOLMES J, 2006, INT J PROJ MANAGE	10.1016/j.ijproman.2006.07.004	16	0.9412	2
GRANT SW, 2015, HEALTH TECHNOL ASSESS	10.3310/hta19320	15	1.875	0.638
SANTANDREA M, 2016, PUBLIC POLICY ADM	10.1177/0952076715618003	13	1.8571	2.053
MARTIN J, 2013, CAN J ANESTH	10.1007/s12630-013-9994-7	12	1.2	1.412
LINGARD H, 2019, CONSTR MANAGE ECON	10.1080/01446193.2018.1551617	11	2.75	1.833
GARDNER K, 2016, AUST J PRIM HEALTH	10.1071/PY15148	11	1.5714	1.737
NXUMALO N, 2018, BMJ GLOB HEALTH	10.1136/bmjgh-2018-000842	10	2	3.478
RADNOR HA, 1997, RES PAP EDUC	10.1080/0267152970120206	9	0.3462	1
DURKIN M, 2016, INT J EDUC MANAGE	10.1108/IJEM-11-2014-0150	8	1.1429	1.263
KINNEY ED, 2011, AM J LAW MED	10.1177/009885881103700402	8	0.6667	1.455
MANU P, 2019, ENG CONSTR ARCHIT MANAGE	10.1108/ECAM-11-2017-0240	6	1.5	1
LORD SM, 2019, PAIN	10.1097/j.pain.0000000000001548	6	1.5	1
MESTRY R, 2009, EDUC MANAGE ADM LEADERSH	10.1177/1741143208098166	6	0.4286	0.514

ii.   Authors' keyword analysis

Biblioshiny analysis showed that the top most key relevant authors words used in the study of governance and Public Finance Management were value for money (5), Governance (4) and accountability (2) as presented in figure 2.4.6.
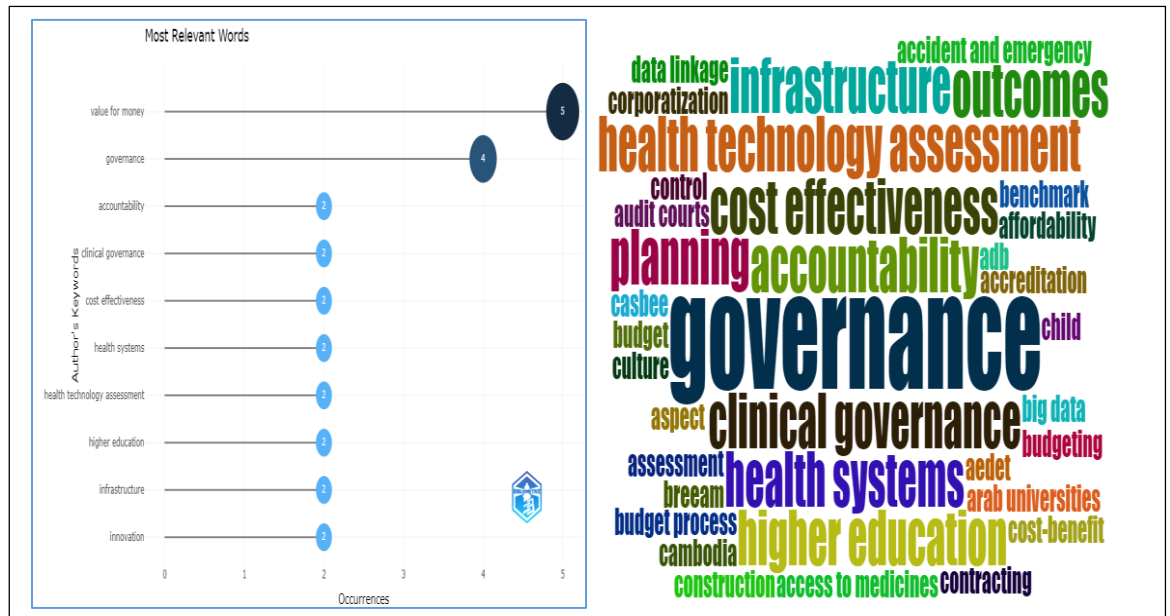
Figure 2.4.6   Biblioshiny Analysis of top most relevant words for research on Governance and PFM (value for money)

Co-occurrence analysis using *Vosviewer* noted that the authors key words mostly used in the studies on governance and public finance management were clustered into 5. Cluster 1 in red included: clinical governance, integrated care, outcomes and policy development; Cluster 2 in green included: accountability, governance and quality assurance; Cluster 3 in blue included: cost effectiveness and health technology assessment; Cluster 4 in yellow included higher education and innovation; while Cluster 5 in purple included: value for money and infrastructure. The clusters are shown in figure 2.4.7.
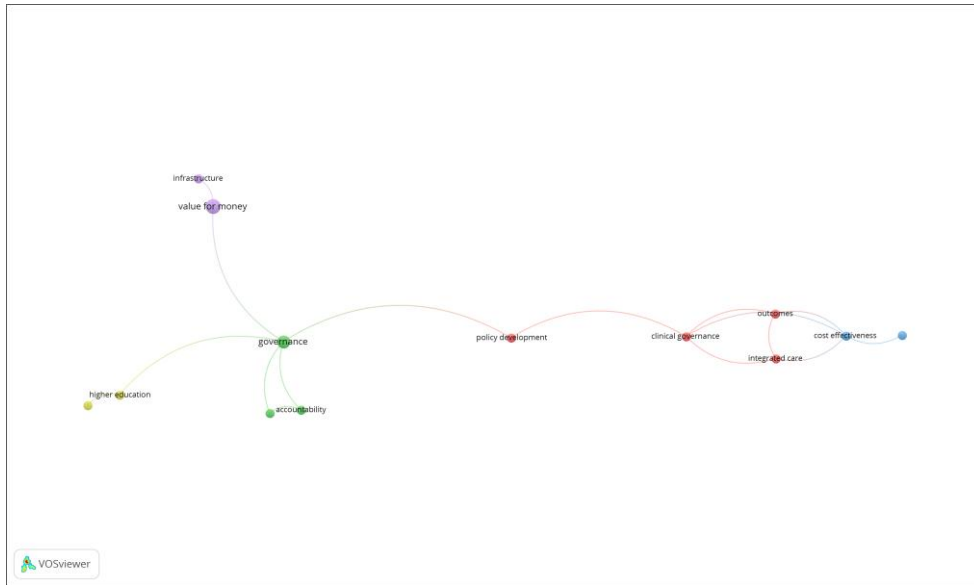
Figure 2.4.7   Vosviewer Analysis of authors' key words mostly used in research on Governance and PFM (value for money)

Word growth in terms of occurrence in research noted that the words like value for money, governance and accountability have gained much focus in recent research from 2019 to 2021 as depicted in figure 2.4.8.
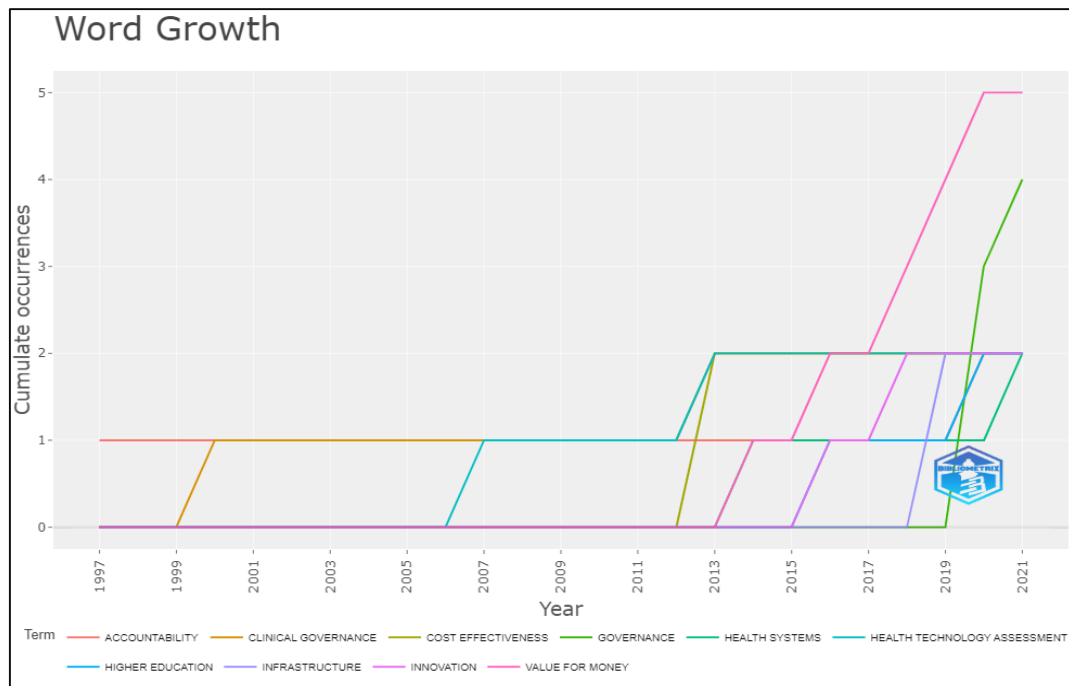
Figure 2.4.8   Biblioshiny Analysis of authors' key words occurrence growth in research on Governance and PFM (value for money)

The analysis further noted that research themes on governance and public finance management were mostly located under motor and basic themes as depicted in figure 2.4.9. The themes that were well developed falling under motor themes included accountability, quality assurance, clinical governance, cost effectiveness, integrated care and outcomes. Those that fell under basic themes which were not well developed included governance, higher education, innovation, value for money and infrastructure. This means an opportunity to further develop themes on governance and value for money exist for this study.
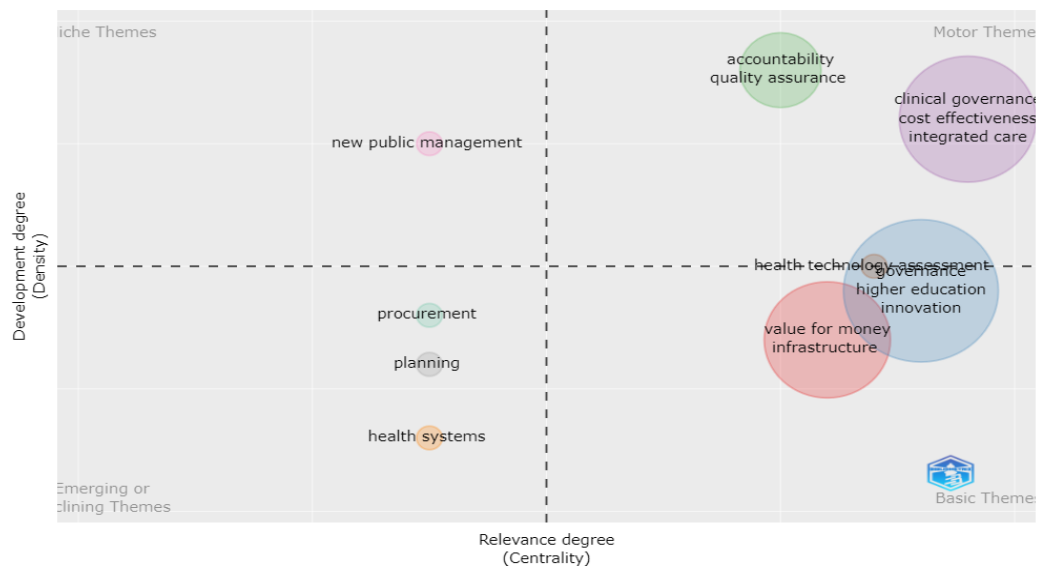
Figure 2.4.9   Biblioshiny thematic map based on authors' key words mostly used in research on Governance and PFM (value for money)

Literature review analysis has depicted that governance plays a critical role in enabling effective management of public resources to achieve development goals (Okaro et al., 2018). For any public financial management system to be effective, the governance institutions must be efficient, serve their purpose, and align with the vision and mission of the government (Siswana, 2007). Although a framework for financial management must incorporate good governance, the relationship between good governance and PFM requires further investigation. Hence, this research aims to strengthen the understanding of the relationship between governance and the quality of PFM systems.

2.5 Literature review and bibliometric analysis on Governance and Public Finance Management (Value for Money), Performance (Service Delivery) and Sustainable Development (Health and Education)

Public Finance Management entails a set of legislations, regulations, arrangements, and practices put in place for resource mobilization, public finance allocation, undertaking public expenditure, accounting for public funds, and oversight through audit results (Lawson, 2015). It is the ability of governments to ably collect revenue and spend it accountably and transparently (Fung, 2012). PFM is deemed to have its focus on prioritization and application of limited public funds and obtaining value for money upon achieving objectives of service delivery to the citizenry, (Cheruiyot et al., 2017; Buger and woods, 2008; Gurazada et.al, 2020).

According to Cheruiyot et al., (2017), PFM is considered to have centered on the prioritizing and application of finite resources and obtaining Value for Money (VFM) upon fulfilling government-mandated service delivery goals. Their research investigated the extent to which PFM practices impact "financial performance" in Kenya. It examined the supply chain and the manner in which financial planning is handled, the procedure for revenue mobilization, and the effect of internal controls in the county's health finances. The study demonstrates that the implementation of decentralization and democratization policies results in the transfer of authority from central government bureaucrats to locally elected councillors. Although it violates the principles of good government and does not promote democratic processes, allowing taxpayers to forego public benefits and political representation in lieu of paying higher taxes. Future research could examine, based on the findings of this study, whether soft factors are the primary drivers of successful public sector reform implementation.

PFM objectives consist of four primary components, including "total fiscal management; operational management; fiduciary risk management; and governance."'" (Welham et.al, 2013; JICA, 2014). Parry, (2010), establishes that the discussions around PFM and financial reporting conceptual frameworks have been limited to the objectives of PFM. Firstly, three objectives of fiscal management have been identified as comprising of total fiscal discipline; long-term expenditure prioritization; and

practical efficiency. Secondly, the three objectives have been identified as strategic planning; management control; and operational control. The approach used to identify the objectives in these two studies focused on the budget which constitutes only a part of the aspects of PFM. Thirdly, the definition of the objectives focused on the perspective of published financial statements. Thus, a financial reporting conceptual framework with two objectives namely accountability and resource distribution. According to the International Public Sector Accounting Board, this method regards PFM as an information system and a purpose system. CIPFA considers PFM as a mechanism by which parts of a public service enterprise are directly governed and affected to promote the attainment of sector objectives. Consequently, the objectives of PFM are considered to be long-term social benefits separated into funder results, public value, community value, and individual value. CIPFA describes the aims of PFM in terms of financial elements, although the target objectives are primarily focused with delivering a variety of advantages to civil society.

According to Parry (2010), PFM objectives may be understood as having four dimensions: aggregate fiscal management, operational management, fiduciary risk management, and governance. In addition, it was clarified that the four dimensions are mirrored in information systems that enable both ex-ante (plans and budgets) and post-ante (accountability and performance) reporting. The dimensions may alternatively be considered subsets of the PFM model in the form of objective targets. Budget, financial reporting, and audit must be evaluated in the context of the broader four-dimensional framework, including their position within the framework. The approach to PFM using the four-dimension framework provides basis for conceptualizing specific areas within the PFM.PFM comprises of comprehensive set of functions and is regarded as having a six phased cycle with key actors involved at every phase. The cycle starts with design of government policies and ending with an oversight function of external audit and evaluation (Simson et.al, 2011; Lawson, 2015). The phases are as presented in figure 2.5.1.
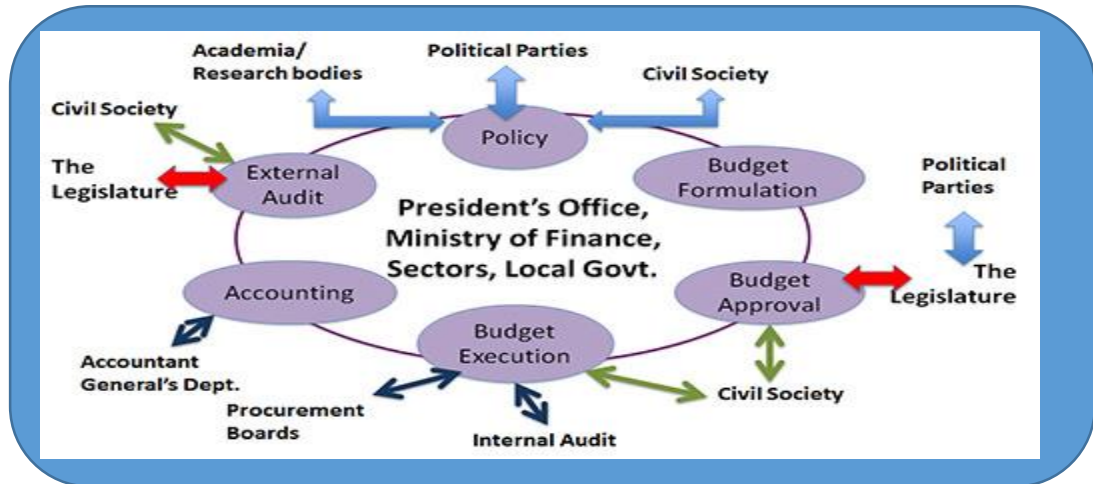
Figure 2.5.1   PFM Cycle and Key Actors Involved

Source: Lawson, (2015)

Effective PFM systems demand for a balance between aggregate revenue and expenditure to ensure sustainability in service delivery (Fünfkirchen and Schneider, 2018). Furthermore, the four dimensions are reflected as an information system that provides for both ex-ante (plans and budgets) and post-ante (accountability and performance) reporting (Parry, 2010). The dimensions could also be viewed as subsets of the PFM model in form of target objectives

PFM is considered to be helpful for countries seeking progress in their economic growth and increase in resources available to pursue national development plans (PEFA, 2016). Public and financial sector institutions have an impact on sustainable economic growth through public policy instruments that strive to achieve both economic and social goals while influencing the level of income and expenditure in a country (Alińska et. al, 2018). Sustainable development is defined as development that helps meet current needs without compromising the ability for meeting the needs of the future generation depending on effective PFM systems that exist in a country. According to Borysivna, (2016), Sustainable development majorly aims at ensuring high standards of living that balance the development of socio-economic and environmental spheres. Thus, strong PFM systems in a country are crucial for effective and sustainable economic management and public service delivery. Countries that have strong, effective,

accountable, and transparent PFM systems tend to effectively and equitably deliver public services making it to be a prerequisite for most developments (Renzio, 2015).

In their study on Public Finance Management in the context of sustainable development, Borysivna, (2016) assesses the role of fiscal policy in promoting sustainable development and defining its priorities in the context of the goals and objectives of the 2030 Agenda. It indicates that the country's financial policy is its purposeful activity in the sphere of formation, Distribution, and use of financial resources for the achievement of set goals. The uniqueness of sustainable development financial policy is reflected in the way that it requires investments that do not pay back soon as it has a futuristic aim; and that it requires large investments, especially in developing countries. It is argued that unsustainable PFM policies may attribute to an imbalance in the country's economic system.

The study suggests that financial policy development for sustainable development needs to be preceded by its impact assessment; comparative analysis of the country's financial capacity for sustainable development with its socio-economic system; identification of areas for achieving stable financial system that ensures the formation of the socially oriented, competitive and environmentally friendly market economy. Sustainable development calls for the need to coordinate the strategic goals of the financial development of the country's socio-economic system. Definition of fiscal policy in line with the SDGs and identifying factors influencing its formation. The critical role of financial support for sustainable development should provide both internal sources of financial resources and direct foreign investments. Success the development and effective implementation of the financial policy for sustainable development are linked with the implementation of public sector reforms. From this study, it can be drawn that there is a need to support the review conclusions with empirical research to provide evidence and recommend to countries to enhance efficiency and end the effective implementation of financial policies for sustainable development. A relationship on the link between effectiveness of PFM systems and achievement of the SDGs could also be ascertained by using correlation or regression analysis methodologies.

PFM, which has been one of the main focus of reforms by most governments, is considered to be complex and its implementation initiatives have faced challenges

especially in developing countries such as Malawi. Development partners including DFID, have prioritized their attention towards PFM systems reforms despite yielding mixed results such as slow progress and elusive benefits. Most governments' unwillingness or inability to engage in genuine reform processes has been attributed as being a cause. Research has attributed the reform performance differences and implications on reforms design and provision of external support to the following prerequisites: Leadership that includes strong political will and technical commitment; Policy space for developing appropriate reforms; and adaptive, iterative and inclusive processes. However, Lawson, (2015) alludes that there has been a gap in research to provide evidence that suggest that interventions from development partners supporting the PFM reforms have mostly ignored the existence and importance of these prerequisites in a particular country. The study proposes that future research should focus on acquiring a better knowledge of the tactics and strategies that will help to avoid the prior failures that have plagued the majority of reform initiatives. In addition, there is a need to evaluate additional literature pertinent to a comprehension of civil service reforms, which is a closely related topic given that weak public administration systems frequently result in weak PFM systems.

The four-dimension framework, being the first draft of the proposed framework, it is envisaged that the scope of some sub components could be refined through further research. The dimensions might require further consideration. Further research and discussion would be vital for refining and development of the framework as an essential analytical tool.

Research concurs that PFM systems' performance with regard to quality and their reforms are influenced by the characteristics of reform processes, characteristics of the state, and the approaches used by donors in supporting the reforms (Hedger and Renzio, 2010). Further, the study suggests that there are three challenges to implementing PFM reforms. These include the ambiguity of country-specific features favourable for PFM reforms; complexity of Institutional, organizational and political factors underpinning PFM reforms; and excessive standardization degree of emerging approaches used for technical advice by developing partners. The study identified two common issues that drive the design and sequence of PFM reforms, thus contextual

factors which are critical and are likely to shape the possibility and probability of PFM reform implementation; and the nature and type of reforms to be implemented which affects their outcomes potential. The study proposed adjustments to be made to the current approaches used for PFM reforms. These include reform space creation; systematic extension of the reform engagements to go beyond concentrated groups of stakeholders at the central government level; distinctively tailored to a country context; and linking domestic policy objectives to those of the development partners. Future research calls for further testing of the hypothesis on longer time series for the assessment of the study area including the gathering of stronger empirical evidence which is based on country-specific context.

Welham et al. (2013) gave a synopsis of the important concerns regarding the relationship between Public Finance Management reforms and four development goals that are commonly anticipated by implementing nations. These include state development, macroeconomic stability, the efficient allocation of resources, and the delivery of services under capacity constraints. The analysis implies that the immediate scope of PFM reform precludes the development objectives of state building, service delivery, and macroeconomic stability. Thus, these objectives can be supported by efficient PFM systems, although enhanced PFM systems would not lead to an immediate improvement in the areas outlined in the development objectives. PFM changes are intended to have a more direct impact on the development objective of efficient resource allocation. The research reveals that the state building development target is considered a consequence of attaining the three other development objectives. It states that the relationship between fiscal sustainability and macroeconomic stability shows that PFM reforms adopted in countries with limited economies might have a favourable impact on macroeconomic stability by improving budget execution control of debts and deficits. In addition, it recognizes that enhanced public financial management systems have a good indirect effect on service delivery. At the same time, it implies that the contribution of the major PFM functions to effective service delivery differs among the various sectors of the public service. Even though there are few research papers on the positive association between PFM improvements and macroeconomic stability improvements in emerging countries, the causal relationship

between PFM improvements and economic growth has not been examined. There is also a lack of study on which specific PFM reforms can be postulated to be crucial for increasing resource allocation effectiveness.

In their study on the relevance of the public sector in sustainable development, Aliska et al. (2018) intended to demonstrate the impact of public and financial sector institutions on sustainable economic growth via public policy instruments. It was also intended to indicate that without mutual alliances, growth would be impossible. The purpose of the study was to determine how governments can encourage economic growth in the pursuit of sustainable development. The study suggests that the public sector within the framework of financial institutions attempts to achieve both economic and social objectives through influencing the amount of a nation's revenue and expenditures. On the basis of these two hypotheses, the Classical Linear Regression Model, CLRM (Ordinary Least Squares Method, OLS) was employed to estimate statistically significant variables in order to determine whether there is a causal relationship between government spending and GDP. Using the econometric analysis of the CLRM and Vector Error Correction Model (VECM), this study examined the relationship between the level of economic growth and the indicators characterizing the situation of the public finance sector and the activity of the banking sector in the performance of their fundamental functions, i.e. the collection of savings and financing of social needs. Second, to determine whether consumer spending is a substantial factor in the expansion of the GDP.

According to the findings of the study, the pillars of GDP growth were the final household consumption expenditure, total government expenditure, and total general government revenue. Through the execution of public policy tools aimed at GDP growth, the study confirmed that the public sector has an impact on sustainable economic growth. According to the findings of the study, total government expenditures explain a little portion of the GDP. However, social spending and fixed investment expenditures played a substantial role in promoting economic growth and were a sizeable proportion of total expenditures. In order to enhance the interaction between public sector institutions and financial institutions, the report advises that governments make adjustments to current policies, such as the adoption of lucrative

public and spending tools. The analysis could be expanded by including the CLRM and VECM models as aggregate indicators of sustainable economic development. Future research could also concentrate on the analysis of national income distribution and the significance of the trade balance with other nations. The High-Level Political Forum (HLPF) conference by the United Nations (UN) held in June 2019 in New York provided insight into the preparedness of the government to implement sustainable development goals. Using performance audit discipline, the assessments that were conducted by various supreme audit institutions looked at five themes including integration of the SDG into countries' policies, strategies plans, and budgets. Further, the assessment focused on assessing the ability to mobilize resources and progress reporting on reaching the goals that ensure the well-being of the citizenry. Drawing from the agreements made in December 2016 at the UN conference held in Abu Dhabi, UAE, the Supreme Audit institution as external auditors for public sector entities were taxed to conduct a value for money and accountability audit so as to provide assurance on the implementation of the SDGs. This has resulted in the development of a PFM reporting framework that will be utilized during audits. The framework is presented in figure 2.5.2. There is a gap in research to ascertain the connection between the effectiveness of Public finance management systems and the achievement of the SDGs.
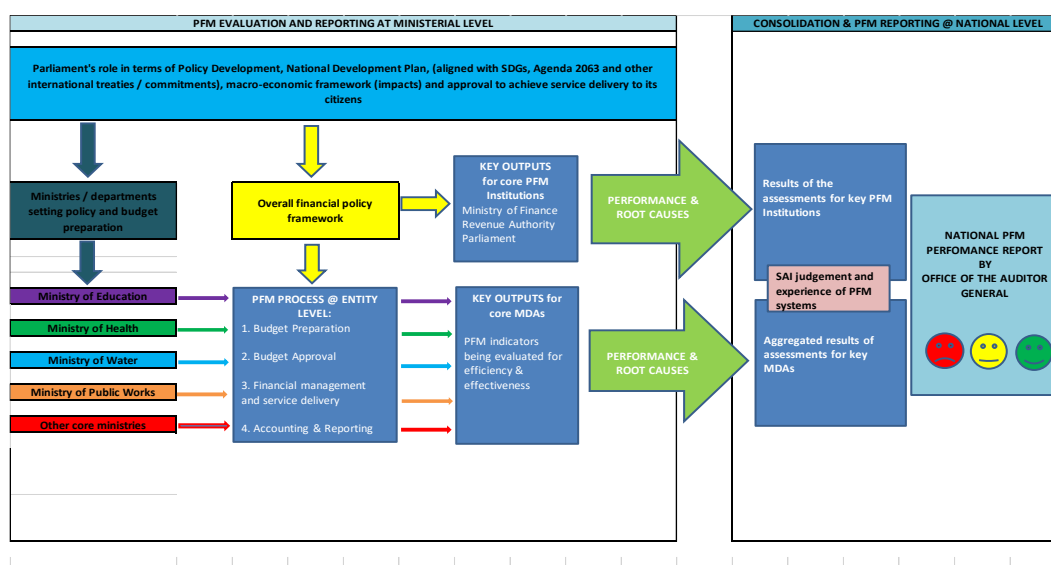
Figure 2.5.2   Public Finance Management Reporting Framework

Source: AFROSAI-E, 2019

2.5.1 Results of Bibliometric analysis for Governance, Public Finance Management (Value for Money), Performance (service delivery) and Sustainable Development (health and education)

2.5.1.1 Performance analysis using Descriptive Research Statistics

i. Growth in Publication trend

Annual Scientific Production

Year	Articles
2021	2
2020	1
2019	1
2018	3
2017	1
2016	3
2015	1
2014	1
2012	1
2002	1
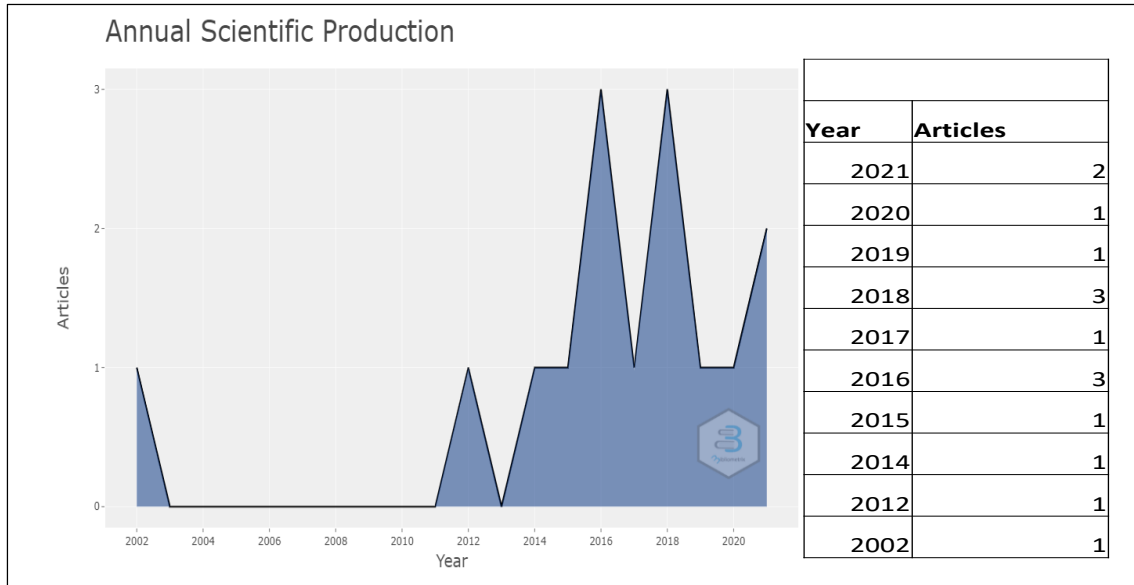
Figure 2.5.3   Biblioshiny Analysis of production trend for research on Governance, PFM (value for money), Performance (service delivery) and sustainable development (health or education)

Bibliometric analysis showed that the top 20 most relevant sources for publications for research on governance, public finance management (value for money), performance (service delivery) and sustainable development (health or education) were as depicted in figure 49 and Figure 2.5.4 with BMJ Global Health publishing 2. The analysis noted that fewer publications in the subject area have been published.
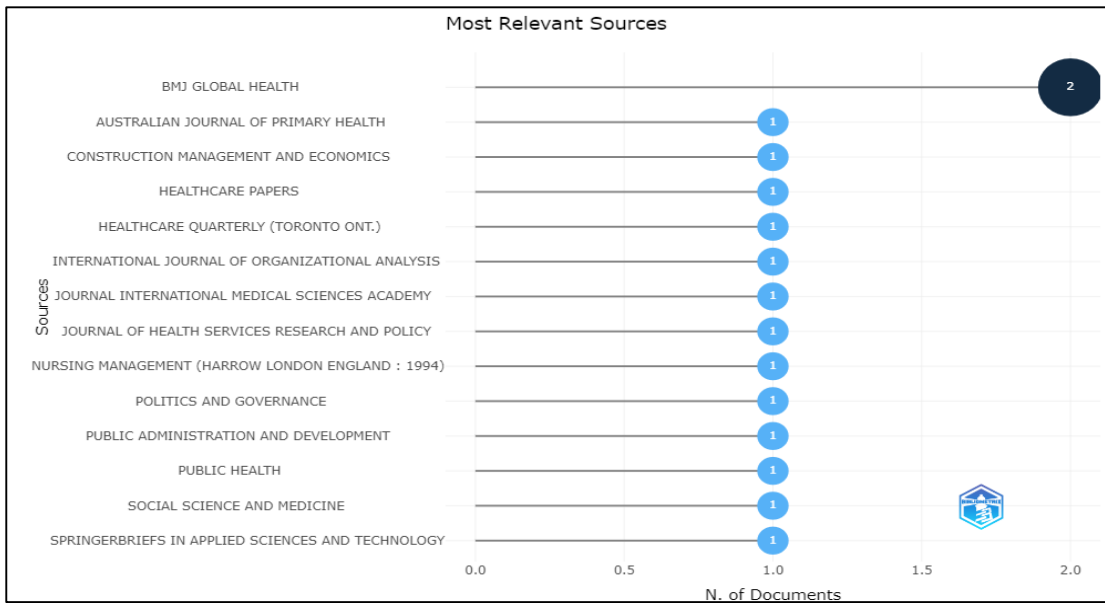
Figure 2.5.4   Biblioshiny Analysis of Relevant Sources for research on Governance, PFM (value for money), Performance (service delivery) and sustainable development (health or education)

Analysis of source growth overtime noted that Nursing Management has been constantly publishing one paper on the subject area since 2002. The 14 sources have been publishing a paper since 2019 as depicted in table 2.5.1.

Table 2.5.1   Source Growth Over time

Year	BMJ GLOBAL HEALTH	AUSTRALIAN JOURNAL OF PRIMARY HEALTH	CONSTRUCTION MANAGEMENT AND ECONOMICS	HEALTHCARE PAPERS	HEALTHCARE QUARTERLY (TORONTO, ONT.)	INTERNATIONAL JOURNAL OF ORGANIZATIONAL ANALYSIS	JOURNAL INTERNATIONAL MEDICAL SCIENCES ACADEMY	JOURNAL OF HEALTH SERVICES RESEARCH AND POLICY	NURSING MANAGEMENT (HARROW, LONDON, ENGLAND : 1994)	POLITICS AND GOVERNANCE	PUBLIC ADMINISTRATION AND DEVELOPMENT	PUBLIC HEALTH	SOCIAL SCIENCE AND MEDICINE	SPRINGERBRIEFS IN APPLIED SCIENCES AND TECHNOLOGY
2021	2	1	1	1	1	1	1	1	1	1	1	1	1	1
2020	1	1	1	1	1	0	1	1	1	1	1	1	1	1
2019	1	1	1	1	1	0	1	1	1	0	1	1	1	1
2018	1	1	0	1	1	0	1	1	1	0	1	1	1	1
2017	0	1	0	0	1	0	1	1	1	0	1	1	0	1
2016	0	1	0	0	0	0	1	1	1	0	1	1	0	1
2015	0	0	0	0	0	0	1	1	1	0	0	0	0	1
2014	0	0	0	0	0	0	1	0	1	0	0	0	0	1
2013	0	0	0	0	0	0	1	0	1	0	0	0	0	0
2012	0	0	0	0	0	0	1	0	1	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	1	0	0	0	0	0

ii. Country Scientific production

Out of the top five country scientific production, the analysis noted that South Africa was the country from African region ranking third on basis of citations.as shown in table 2.5.2.

Table 2.5.2   Top 5 country scientific production and most cited countries

Region	Freq.	Total Citations	Average Article Citations
UK	16	48	12
AUSTRALIA	11	21	10.5
SOUTH AFRICA	5	10	10
INDIA	3	3	1.5
DENMARK	2	4	4

iii. Authorship Analysis
  • **Most relevant authors**

The analysis noted that the most productive author on the subject of governance, performance in terms of service delivery, public finance management (value for money) and sustainable development in health or education sectors was Prof with two publications. In 2015, Mason A., Goddard M., Weatherly H., and Chalkley M. co-authored one of the publications entitled "Integrated financing for health and social care: an evidence review." Most of the authors had one publication. Details in figure 2.5.5.
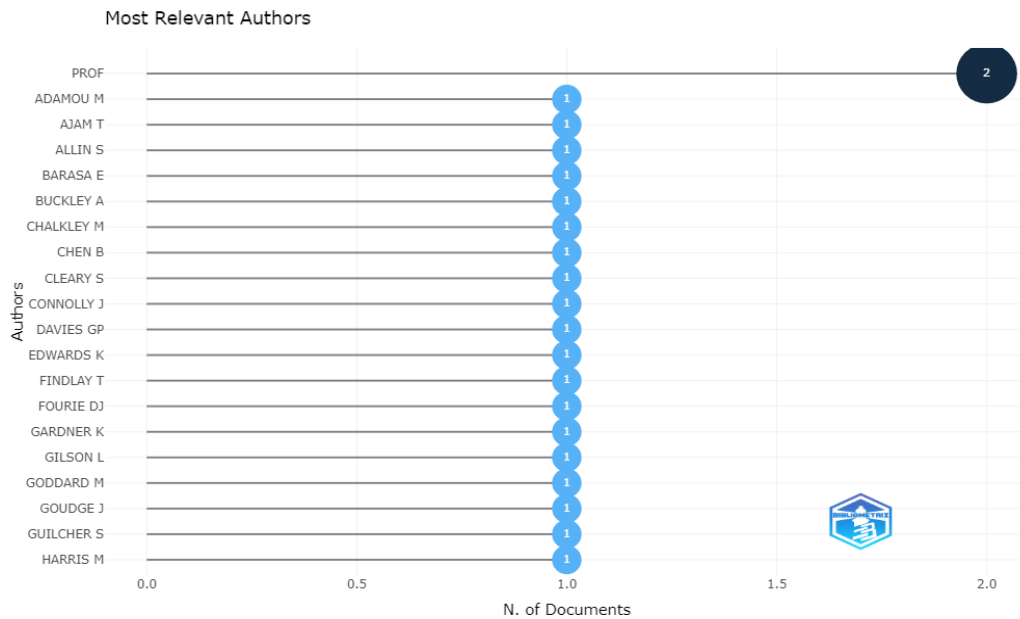
Figure 2.5.5   Top 20 most relevant authors contributing to literature on governance PFM (value for money), Performance (service delivery) and sustainable development (health or education)

The most recent authors in this area were Adamou M. and Connoly J. More publications were published in 2016 as depicted in figure 2.5.6 This shows a gap in literature publication that needs to be filled.
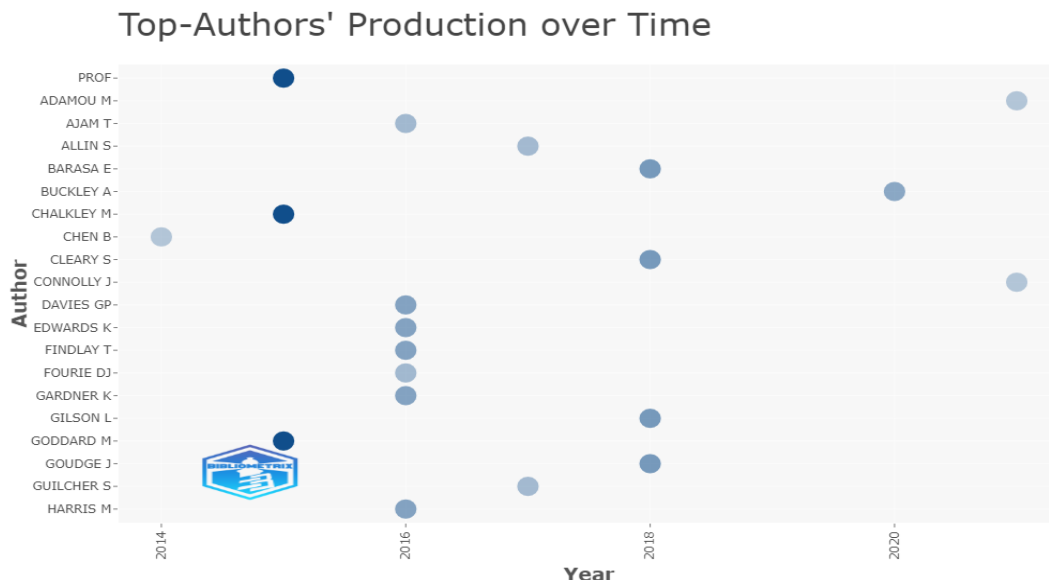
Figure 2.5.6   Top authors production over time on governance PFM (value for money), Performance (service delivery) and sustainable development (health or education)

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iii. Authors' impact

Analysis of authors' impact in this study area noted that Prof also had had the highest H-Index as presented in figure 2.5.7
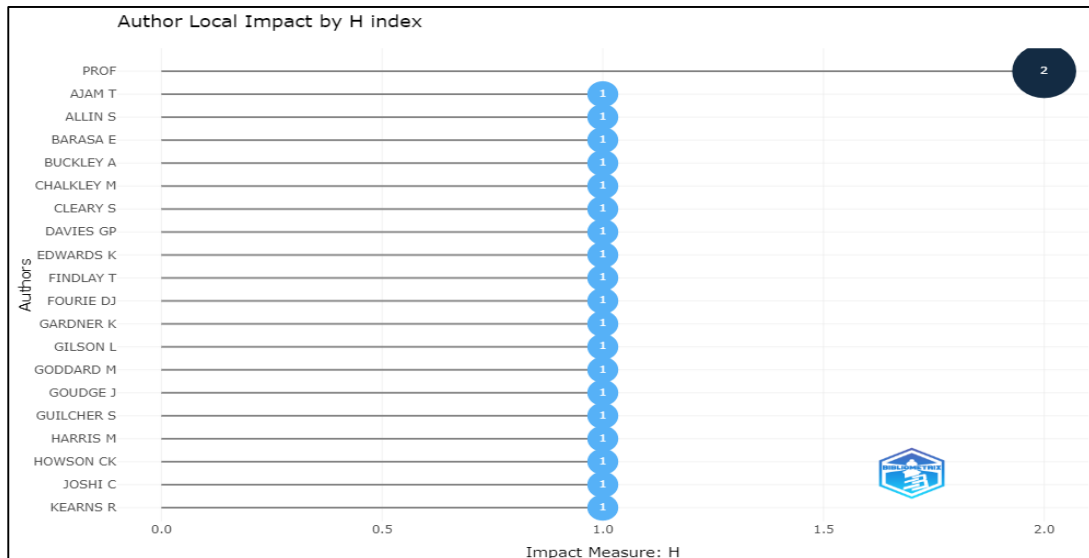
Figure 2.5.7   Authors impact analysis on governance PFM (value for money), Performance (service delivery) and sustainable development (health or education)

2.6 Mediation role of Public Finance Management and Public Sector Performance on the relationship between Governance and Sustainable Development

Governance in the public sector comprises of the existing arrangements that underpins definition and attainment of envisaged outcomes of policies and strategies for public service delivery (IFAC, 2014). It refers to the guidelines and techniques used to guide an organization's courses of actions in order to provide reasonable confidence that objectives are attained and operations are conducted ethically and responsibly. Consequently, governance in the public sector relates to the means by which objectives are developed and attained. It ensures that public sector entities fulfil their purposes as spelt in their mandates, achieve intended outcomes for service users and citizens, and that they operate in an efficient, effective and ethical manner (CIPFA 2004). Further to this, public sector governance is concerned with accountability with regards to specific public outcomes, which go beyond service delivery to also embraces the effect of public

sector guidelines on the lives of the citizens (Almqvist et al., 2013). It encompasses efforts that ensure a government's reputation, establish equitable service delivery, and ensure the proper conduct of government officials, hence lowering the risk of public corruption. Participation, coherence, openness, efficacy, and accountability are the guiding principles of successful public sector governance (The European Union, 2001).

Effective public sector governance is critical to the achievement of sustainable development (Kardos, 2012; Munthali and Nantchouang, 2018), as it entails enhancement of the public sector entities' performance with regards to service delivery. It facilitates efficient management of public resources for sustainable development (Sachiko and Durwood, 2005). Research alludes that Public Sector Governance, through its principles, positively relates directly to achievement of Sustainable Development Goals (SDGs) (Okaro, Ofoegbu, and Okafor, 2018, Kardos, 2012; Munthali and Nantchouang, 2018). This suggest a Structural Equation Model (SEM) known as an inner model specifying a linkage between independent and dependent latent variables (Wong, 2013). A latent variable, or construct, is an underlying variable that cannot be immediately observed. In this case, Public Sector Governance is an independent variable while Sustainable Development is a dependent variable whose relationship is classified as a direct effect of exogenous variable on an endogenous variable (Preacher and Hayes, 2008) and is illustrated as follows:

Public Sector Governance	→	Sustainable Development
Independent Variable		Dependent Variable
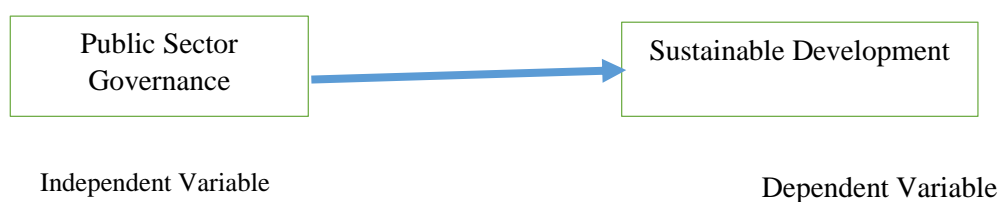
Research indicates that governance uses Public Finance Management (PFM) Systems as a framework for assessing performance of public sector entities with regards to effective service delivery (Martí and Kasperskaya, 2015). As a framework, Public Finance Management system embraces three significant levels of fiscal outcomes namely aggregate fiscal discipline, fiscal resources allocative efficiency, technical or

operational efficiency and governance (World Bank, 1998; Parry, 2010; Lawson, 2015). Literature alludes of origins of PFM are premised in the aspiration to improve governance through provision of transparency and accountability as well as improvement of decision making (Islam, 2006). While underlying all government activities (Simson et al., 2011), PFM entails a set of legislations, regulations, structures and practises put in place for resource mobilization, allocation, undertaking expenditure, accounting for public funds and oversight through audit results (Lawson, 2015). It focuses on prioritization and application of limited finances and obtaining value for money upon achieving targets for service delivery meant for citizenry, (Cheruiyot et al., 2017; Buger and woods, 2008; Gurazada et.al, 2020). PFM describes governments' capabilities to efficiently mobilize resources, transparently account for the expenditures and systematically provide information on public resource management in pursuance of policy objectives (Renzio, 2015; Welham et.al, 2013).

Research has described the link between Public Finance Management and governance as being positively related. Thus, Public Finance Management variables relate positively to three perception measures of governance which include perception relating to voice and accountability; government effectiveness and corruption perception (Martí and Kasperskaya, 2015).

Strong, transparent and effective PFM systems, are vital for better public service delivery and sustainability in economic management (OECD, 2018; Acemoglu & Robinson, 2012). Countries that have strong, effective, accountable and transparent PFM systems tend to effectively and equitably deliver public services making it to be a prerequisite for most developments (Renzio, 2015). Effective PFM systems demand for a balance between aggregate revenue and expenditure to ensure sustainability in service delivery (Fünfkirchen and Schneider, 2018).

Research has alluded that effective Public Finance Management plays a critical mediation role in ensuring achievement of the SDGs (Renzio, 2015) considering that it is essential for successful and sustainable economic administration and delivery of public services (Borysivna, 2016). Mediation in a relationship occurs when a third

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variable known as a mediator intervenes between two other related variables (Baron and Kenny, 1986). This signifies that changes in an output construct cause a change in a mediator variable, which in turn triggers a shift in an endogenous variable and a mediator variable dictates the nature of relationship that exist between an exogenous and endogenous variable (Hair, Hult et al., 2017)

The relationships on governance, PFM and sustainable Development classified as a simple mediation model (Bachl, 2017) or an indirect effect mediation model (Mathews et al., 2018) and can be illustrated as follow:
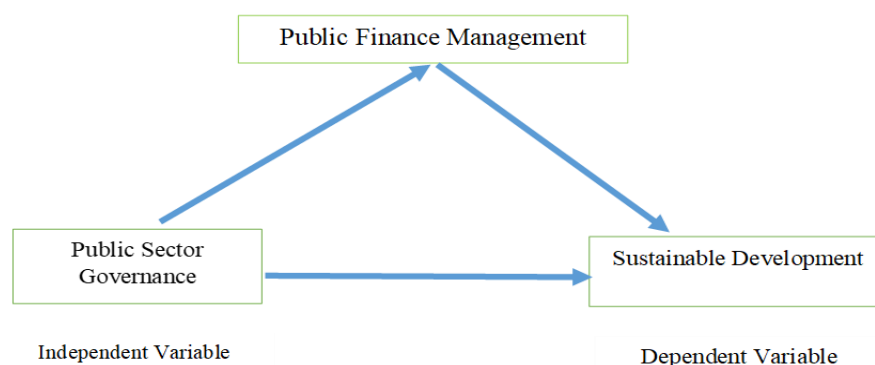
Research has also attached a mediating role to Public Sector Performance for the relationship that exist between Public Sector Governance and achievement of Sustainable Development goals (Sarr, 2015). Public Sector performance is mostly associated with service delivery which in turn translates to achievement of sustainable development (World Bank, 1999). Better governance in public organizations promotes the efficient use of resources, reinforces accountability for the stewardship of those resources, and enhances management and service delivery, so leading to an improvement in the lives of the public. Better public sector governance also serves to strengthen public sector entities' confidence in their ability to effectively achieve their objectives and promote sustainable development. (Parihar, 2012). Literature suggests that governance has a strong influence on an entities' performance as it enhances service delivery (Arora, 2010; Ferry and Ahrens, 2017). It has also been alluded that effective Public Finance Management is crucial ensuring public sector entities performance in terms of service delivery (Renzio, 2015) considering that it focuses on

resource prioritization and attainment of value for money to the citizenry (Cheruiyot et al., 2017; Buger and woods, 2008; Gurazada et.al, 2020). This suggest the existence of a relationship between governance, Public finance management, public sector performance and sustainable development. This kind of relationship is referred to as serial mediation role as it carries on board both PFM and PSP into the direct relationship between PSG and Sustainable development.

Serial mediation also known as multiple mediation is detected where the influence of exogenous constructs on endogenous constructs occurs through more than one mediator (Hair, Hult, et al., 2017). Concurrent analysis of the multiple mediators allows for a comprehensive understanding of their overall effect. Following is an example illustrating the serial mediating effect of PFM and PSP on the connection between Public Sector Governance and Sustainable Development.:
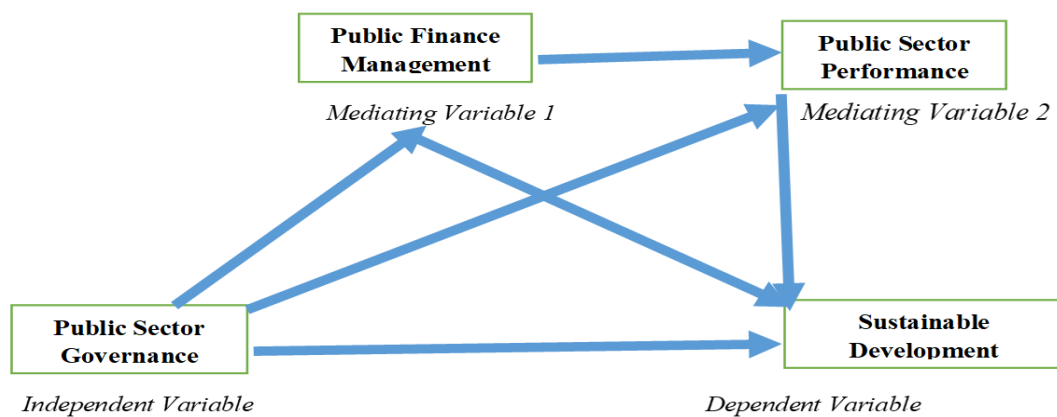
Source: Hayes, (2013)

2.7 Identified research gaps

The literature review identified several gaps that provide basis for this research study as follows:

- With regards to public sector governance and performance, there is a gap that exist between the theoretical expectation of the effectiveness of governance on the performance of public sector entities as evidenced by the inefficient and ineffective

service delivery that has led to failure to improve the lives of the citizens and expected sustainable development.

- Furthermore, considering that less research work has been conducted in the public sector than private sector, there is room to test the effectiveness of public sector governance for the public institutions whose mandate is limited to service provision and not for profit.

- There is need for a radical rethought need to be applied on best practices of governance when relating them to organization performance and use of research paradigms that can take into account for systematic and multi-dimensional influences.

- In relation to Public Finance Management, governance and sustainable development, further research and discussion would be vital for refining and development of the four-dimension PFM framework as an essential analytical tool while placing importance of the concept of PFM as being an information and purposeful system among several dimensions and objectives.

- The causal relationship that shows PFM improvements promote economic growth has not been examined, despite the fact that there are a small number of studies that find a positive correlation between PFM improvements and macroeconomic stability in emerging nations.

- There is a gap in research to ascertain the link between effectiveness of PFM systems and achievement of the SDGs. Future research could explore the link between governance and sustainable development with an emphasis on public sector.

CHAPTER 3: RESEARCH METHODOLOGY.

This chapter outlines the conceptual framework for the study, objectives of the study, methods, and approaches applied in order to address the gaps identified through review of the literature. Methods of data collection have been outlined including criteria used for selecting survey respondents, description of the population, sampling methods followed by methodology used for data analysis which provides validity and reliability of the perceptions of the survey respondents.

3.1 Conceptual framework for the study

Based on the explanations from the reviewed literature, model 6 of Hayes, (2013) conceptual framework template has been adopted. It is a serial mediation model having two mediators. The review of literature has discussed the variables under the identified constructs for the study. The identified constructs include Public Sector Governance (PSG); Public Finance Management (PFM); Public Sector Performance (PSP); and Sustainable Development (SD). This conceptual framework was hypothesized through Vosviewer as per visualization in Figure 3.1.1.
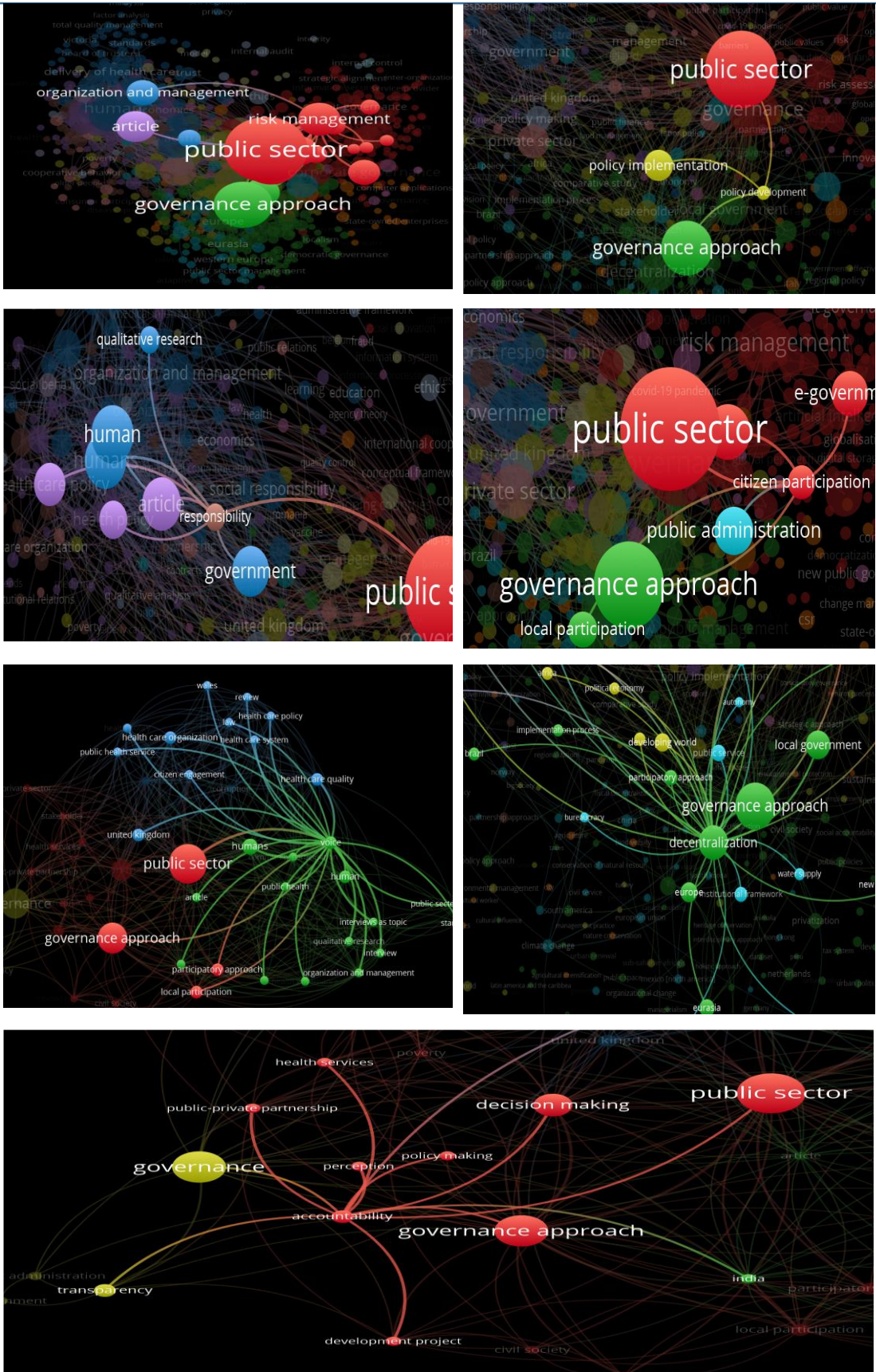
Figure 3.1.1   Hypothesized relationships through Vosviewer Source

In this study Public Sector Governance (PSG) is the independent variable while the dependent variable is Sustainable Development (SD). The framework also has two mediating variables which surface between the independent and dependent variable. In this study, Public Finance Management (PFM) and Public Sector Performance (PSP) are deemed to be the mediating variable. This translate to say that through strong Public Finance Management systems and improved Public Sector Performance, Sustainable Development (SD) is achieved. Thus, Public Finance Management and Public Sector Performance have a bearing on the achievement of Sustainable Development. Figure 3.1.2. presents the conceptual framework.
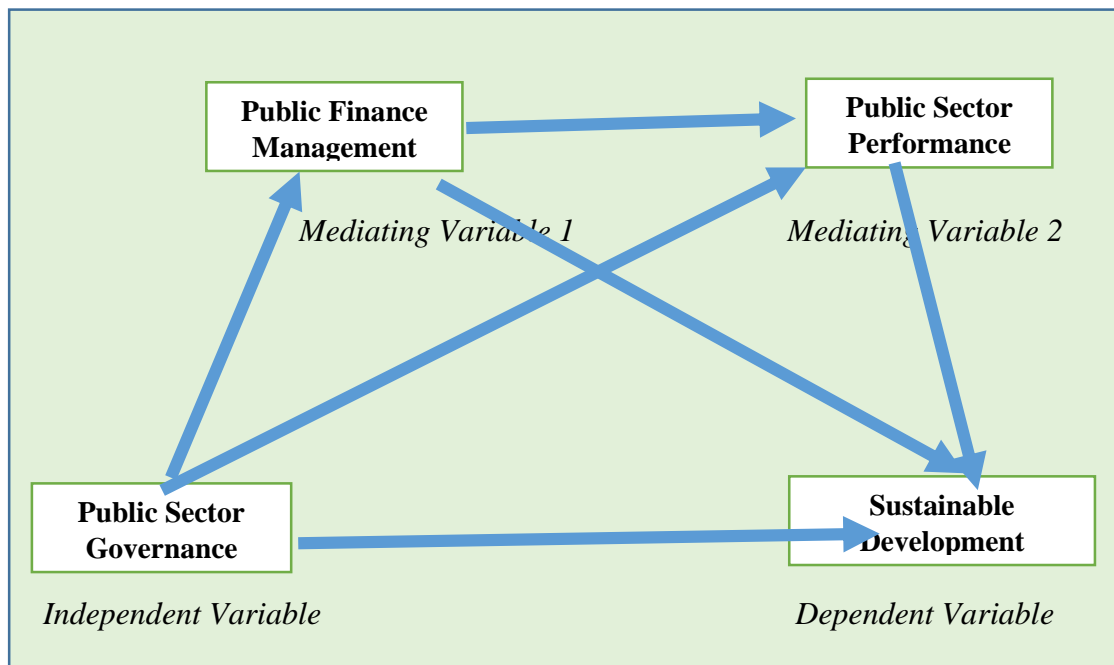
Figure 3.1.2   Conceptual Framework for the study

3.2   Research Questions, Objectives and Hypothesis

Building on the review of literature and the identified research gaps, the focus of this research was on governance and sustainable Development, particularly in health and education sectors of Malawi, while taking into account the mediating roles of performance of the public sector entities and public finance management. The study mainly was premised at developing framework to be applied in exploring the relationship that exist between public sector governance and achievement of sustainable development goals having regard to the serial mediation role of functioning public

finance management system and performance of public sector entities. This was further broken into three objectives which were also aligned to the research questions.

The questions used included:

1. What are the governance practices that exist in Malawi health and education sector?
2. To what extent does good governance relate to sustainable development?
3. Does Public Finance Management and Public Sector Performance play a mediation role on the linkage between governance and sustainable development goals?

Objectives included:

1. **To compare the existing governance practices in Health and Education sector in Malawi and the performance of the two sectors**; This objective sought to establish the existing governance practices applied in the Malawi public sectors of health and education followed by a comparative analysis to determine whether the practices are the same and yielding the same results in helping the sectors attain their respective sustainable development goals. This objective was achieved through confirmation of the hypothesis using content analysis of the reports.

2. **To examine the linkage between PSG and SDGs in Health and Education sectors**; This objective sought to examine whether there is a correlation between PSG and attainment of the SDGs. Empirically, determination of this relationship was done through literature review using bibliometric analysis with an aid of Vosviewer and Biblioshiny softwares. The antecedents for public sector governance were drawn from the review of literature which were used to test a hypothesis by applying Structural Equation Modelling (SEM) analysis with an aid of Smart-PLS software. These antecedents included: Shared responsibility (SR); Government Effectiveness (GE), Voice and Accountability (VA). Risk Management (RM) and Citizen Participation (CP).

3. **To investigate the serial mediation role of Public finance management systems and Public Sector performance in the relationship between**

Governance and sustainable development in the Health and Education sector: This aim of this objective was to investigate whether both Public Finance Management (PFM) and Public Sector Performance (PSP) play a mediation role in the relationship that exist between public sector governance and achievement of sustainable development goals. As such, the study examines the kind of relationship that exist among governance, Public Finance Management and Sustainable Development. It also examined the relationship among governance, public sector performance and sustainable development. It further examined the higher order relationship that exist among the four constructs, thus governance, Public Finance Management, Public sector performance and achievement of the sustainable development goals. This was fulfilled through review of literature and SEM analysis.

The following hypothesis were drawn based on the theory to support the research objectives:

a) Governance is aligned as a means for establishing and accomplishing goals and is deemed to be critical towards achievement of sustainable development goals (IFAC, 2014; CIPFA, 2004; Kardos, 2012; Munthali and Nantchouang, 2018). It essential in facilitating efficient public resources management with an aim to achieve sustainable development (Sachiko and Durwood, 2005). Thus, governance has a direct link to sustainable development (Okaro, Ofoegbu, and Okafor, 2018, Kardos, 2012; Munthali and Nantchouang, 2018). Thus, a hypothesis formulated based on this elaboration is:

H$_1$: Governance is positively related to the achievement of SDGs

b) PFM originated with an aim to improve governance through transparency, accountability and improved decision making (Simson et al., 2011). It focuses on public resources prioritization and utilization while ensuring that value for money is obtained in achieving service delivery objectives that translates to sustainable development to the citizenry (Cheruiyot et al., 2017; Buger and woods, 2008; Gurazada et.al, 2020). PFM directly relates to governance

perception measures of voice and accountability; government effectiveness and corruption perception (Martí and Kasperskaya, 2015). Further, it facilitates achievement of SDGs (Renzio, 2015; Borysivna, 2016). Thus, the following hypothesis can be drawn from this elaboration:

H$_{2a}$: Governance is positively related to PFM

H$_{2b}$: PFM is positively related to SDG

H$_{2c}$: Public financial management mediates the relationship between Governance and SDG

c) The link between governance and achievement of SDGs is also facilitated by public sector performance through service delivery (Sarr. 2015; World Bank, 1999). On the other hand, governance enhances performance (service delivery) translating to an existence of a direct link between them (Parihar, 2012; Arora, 2010; Ferry and Ahrens, 2017). Thus, the following hypothesis can be drawn:

H$_{3a}$: Governance is positively related to Service Delivery (SD)

H$_{3b}$: Service Delivery is positively related to achievement of SDGs.

H$_{3c}$: Service Delivery mediates the relationship between Governance and SDG.

d) PFM is essential for effective service delivery due to it focus on resource prioritization and utilization (Renzio, 2015; Cheruiyot et al., 2017; Buger and woods, 2008; Gurazada et.al, 2020), suggesting an existence of a direct link between them. Further, since both PFM and service delivery facilitate the link between governance and achievement of SDGs then a serial mediation role is suggested. Thus the following hypothesis can be drawn:

H$_4$: PFM is positively related to Service Delivery

H$_5$: PFM and SD sequentially mediate the relationship between Governance and SDGs.

3.3 Interrelated Research design

Combined research designs that were interrelated in their stages that are continuous were used to obtain the results of the study (Churchill and Iacobucci, 2005). Thus, both qualitative and quantitative methods were applied. The study followed a positivist approach that assumes that issues can be studies as hard facts and where relationships can be ascertained. Exploratory research, as a first step in the study was conducted through an extensive review of literature in order to formulate theoretical framework of the study. This led to formulation of hypothesis to be tested. This study was executed as cross-sectional descriptive research where relationships between variables were ascertained using factor analysis (Exploratory Factor Analysis) through Smart-PLS software. Both inductive and deductive approach were used to test the theories deduced from the formulated hypothesis based on the exploration and description of the theories. The descriptive design was applied to test the hypothesis.

3.3.1 Research Strategy

Exploratory, explanatory, and descriptive research apply numerous study designs (Yin, 2003). The research approach is the methodological framework for answering the research questions and accomplishing the aims of the study. One term for the methods used in scientific investigation is "modes of observation" (Babbie, 2004). Research strategies are determined by a number of factors, including the study question(s), the research objectives, the researcher's philosophic orientation, the available time and resources, and the existing body of knowledge (Saunders et al., 2007). It is important to remember that no research strategy is intrinsically better or worse than another. Each has particular advantages and disadvantages depending on the study circumstance. Additionally, any research endeavour can employ a combination of research methodologies or use them independently.

Some common research methodologies include experiments, case studies, action research, grounded theories, actor-network theories, discourse analyses, ethnographies, narrative analyses, and surveys. Survey research methodology utilized in this work is justified. For researchers interested in gathering original data to describe a population that is too vast to observe first-hand, a survey is typically the favoured

study technique. Carefully crafted standardized questionnaires offer data from all respondents in the same format, and rigorous probability sampling yields a sample of respondents whose attributes can match those of the larger community (Babbie, 2004). In addition, it is feasible to produce conclusions typically meant for the entire population at a lesser cost than collecting data for the same by using a survey technique, which gives researchers more control over the study process (Saunders et al., 2007). Due to the importance of this research technique, it is imperative that questionnaire design and sampling processes be thoroughly evaluated. Findings and generalizations from research improve with higher response and question quality. However, a questionnaire isn't the only tool in the survey research strategy's toolbox for gathering information. Although the questionnaire is still the most prevalent method of data collection in surveys, organized observation and interviews are also viable options.

However, there are more types of research methodologies used in various research projects besides the ones highlighted above. According to Babbie (2004), there are many types of observation depending on how much control the researcher has over the subject of their study. Unobtrusive research is a method of observing social behaviour that does not interfere with the observer. An unobtrusive research strategy employs three techniques: content analysis, the study of old statistics, and historical/comparative analysis (Babbie, 2004). The study of recorded human conversation is known as content analysis (like books, websites, and paintings). Existing statistics analysis is the process of using statistical data that is already in existence to respond to a specific research issue. This approach is similar to secondary data analysis. The method of existing statistics analysis looks at ways of using the data analyses that others have already done. Therefore, this study reviewed Public Finance Management reports, Public Expenditure Financial Accountability (PEFA) reports Performance contract reports, Annual Economic reports, Annual activity reports, Performance Audit Reports and Annual Auditor Generals reports on government accounts.

3.3.2 Sampling Design

The study sample frame is defined as a source list from which a sample could be drawn (Babbie, 2020). In this study the sample frame composed of the list of employees from ministry of health and education as well as list of teachers and health workers in schools and health facilities in Malawi. Thus, responses to the questionnaires were collected from officers at Ministry headquarters and health facility level for the health sector; and Ministry headquarters and district level for the education sector. The study involved Ministry officials (heads of departments), teachers (Primary, secondary and tertiary) and health workers (Primary, Secondary and Tertiary)

3.3.3 Study Population:

Study population refers to total number of items to be subjected to a study within a sampling unit. In this study two ministries (health and Education) were targeted in Malawi. The total population for educations officers is 87, 633 and total population for health workers is 30,211. Data was collected with a national wide perspective covering the 3 geographical regions. Thus, Ministry of Education has a total of 8 divisions while Ministry of Health also has 5 Zonal Offices with 606 government health facilities.

3.3.4 Sample unit:

A sample unit can be determined geographically which can either be a state, district, or village. The study focused on Malawi as a sampling unit from which the population and sample were determined.

3.3.5 Determination of sample size

In order to find the appropriate sample size for the study, probability sampling technique was used where all items have equal chances of being selected. Stratified random sampling was applied as a type of probability sampling considering that the sample frame for the study was divided into sub-groups also known as strata which were based on the education divisions and health zones and further at school and health facility level.

After taking into account the following, we decided to employ this method:

- The list of the sample frame encompassed a wide geographical area, including all three regions in Malawi.
- The sampling frame was divided into strata based on school and health facility level
- The study's sample size was large enough to ensure a statistically significant result.

Raosoft sample calculator was used to determine the sample size of the study. The software took into account the margin of error, confidence level and response distribution. In this analysis, we assumed a 95% confidence interval, a 50% response rate, and a 5% margin of error. F. Further, Cochran's sampling size formula was used to determine the final sample to be used in this study. The formula is as follows:

$$n_0 = \frac{z^2 * p * q}{e^2}$$

Where: z^2 represents area within the acceptable expanse in a normal distribution (1-α), e represents the ideal level of accuracy, p represents the estimated percentage of an element that is present in the populace and q is 1-p. considering that the pilot survey sample was smaller, the formula was adjusted to modified Cochran's formula for small populations as follows:

$$n = \frac{n_0}{[1 + \{\frac{(n_0 - 1)}{N}\}]}$$

Further, an item-adjusted representative sample size for the survey was used. According to the convention, there should be at least 10 participants per scale item, or a 10:1 ratio between respondents and items (Nunnally, 1978). Thus, the number of items was multiplied by 10 to decide the magnitude of the sample used. Hence the sample magnitude used was 53*10=530 for the health and education sectors respectively. For scale development, Comrey and Lee (1992) propose a grading of sample sizes: 100 = poor, 200 = acceptable, 300 = good, 500 = very good, and 1,000 = excellent.

Data was collected from the 2 ministries, 20 ministry officials, 6 officers from the 6 education divisions, and 8 officers from the 8 health zone offices. Data was collected from 10 district hospitals and 30 health centres. Details in table 3.3.1.

Table 3.3.1   The sampling area

Sector	Region	Zone/Division	Schools/Health Facilities
Education	Northern	Northern Region Education Division (NRED)	Mzuzu and Nkhata Bay
	Central	Central West Education Division (CWED)	Mchinji, Lilongwe Urban and Dedza
		Central East Education Division (CEED)	Salima and Nkhotakota
	South	South West Education Division (SWED)	Blantyre Urban and Chikwawa
		South East Education Division (SEED)	Zomba Urban and Machinga
		Shire Highlands Education Division (SHED)	Mulanje and Chiradzulu
Health	North	North Zone Support Office	• 1 Central Hospital (Mzuzu Central Hospital) • 2 District Hospital (Nkhata Bay and Mzimba) • 6 Health Centers (Mzuzu Health Center, Chintheche Rural Hospital
	Central	Central West Zone Office	• 1 Central Hospital (Kamuzu Central Hospital) • 2 District Hospitals (Mchinji District Hospital and Dedza District Hospital) • 6 Health Centers
		Central East Zone Office	• 2 District Hospitals (Salima District Hospital and Nkhotakota District Hospital) • 6 Health Centers

	South	South East Zone Office	• 2 District Hospitals (Machinga District Hospital and Zomba Urban District Hospital) • 6 Health Centers
		South West Zone Office	• 2 District Hospitals (Blantyre District Hospital and Chikwawa District Hospitals • 6 Health Centres

Table 3.3.2   Sample Size.

MINISTRY OF EDUCATION NUMBER OF STAFF			
CATEGORY	NUMBER OF STAFF	SAMPLED POPULATION FOR THE RESEARCH – Raosoft calculator	Item-Adjusted Sample
Ministry Headquarters	218	140	26
Northern Division (NED)	1283	296	55
Central Western Division (CWED)	1841	318	59
Central Eastern Division (CEED)	912	271	51
South Western Division (SWED)	1135	288	54
South Eastern Division (SEED)	905	270	50
Shire Highlands Division (SHED)	712	250	47
Training Colleges	691	248	46
Secondary school teachers	2365	331	62
Education Management Infrastructure Unit (EMIU)	25	24	4
Supplies Unit	23	22	4
Primary school teachers	77523	383	71
TOTAL	87633	2841	530
MINISTRY OF HEALTH STAFF			
CATEGORY	NUMBER OF STAFF	SAMPLED POPULATION FOR THE RESEARCH – Raosoft calculator	Item-Adjusted Sample
Ministry Headquarters	504	219	122
Central Hospitals	4481	354	197

District Hospitals	25226	379	211
TOTAL	30211	952	530

3.4 Conceptual Measurement Process of items and scale development

Scale development process guidelines were adhered to in order to further develop the measurement tool (Hinkin, 1995; Schwab, 1980; and DeVellis, 2003). The process includes three categories: generation of items – 'the identifying a pool items for each construct', Scale development – 'the way in which items are pooled to form scales', and appraisal of scale – 'the psychometric appraisal of scales with regards to reliability and validity'. The statements were identified based on the broad framework and presented in scales ranging from 'strongly disagree' to 'strongly agree.' All the constructs were identified from scratch because there was no scale was available for use to appraise the study concepts. The statements measuring concepts within the Governance context are shown in Table 3.4.1. Thus, Governance context included: Shared Responsibility (SR); Effective Decentralisation (DEC); Government Effectiveness (GE): Voice and Accountability (VA); Risk Management (RM); Citizen Participation (CP); Value for Money (VFM); Service Delivery (SD).

In terms of governance constructs (refer table 3.4.1), thirteen (13) items were applied to measure Shared responsibility based on Daniell and Kay, 2017; Duprè, 2018; Shivakoti et. al, 2019; Seabright, 1996; Porto and Porto, 2000; Kaufmann et al., 2019; Fisman and Gatti, 2000; and de Mello and Barenstein, 2001 with regards to continuous negotiations among levels government (Marks, 1993), power devolution (Mitchinson, 2003), existence of policy dthe esign multi-level mechanism (Stein and Turkeitsh, 2008), recognition of meta governance (Jessop, 2004), adequate clarity of interconnected systems for policy dispersal (Swanson, 2017), adequate dispersion of authority (Bache and Flinders, 2004), promotion of shared responsibility (Bache and Flinders, 2004), power decentralization and stakeholder participation in policy delivery at all government levels (Daniell and Kay, 2017; Daniell and Barreteau 2014).

Eleven (11) measurement items were used for Government Effectiveness based on Liou, 2017 with regards to the quality of government objectives' implementation, inclusiveness in the implementation of government objectives, adequate quality of policy formulation, inclusiveness in the policy formulation process, adequate quality of policy implementation, the credibility of the commitment to policy and quality of public service delivery. Voice and Accountability (VA) had seven (7) measurement items based on (Liou, 2017; Kock and Gaskins, 2014; Kaufmann et al., 2019; Grzeszczak, 2015; Chigudu, 2018), in relation to existence of formal and informal enabling institutions (Grzeszczak, 2015; Chigudu, 2018), effective vertical and horizontal responsiveness (Grzeszczak, 2015; Chigudu, 2018), greater accountability for resource utilization (Rajkumar and Swaroop, 2008; Holmberg and Rothstein, 2011; Hu and Mendoza, 2013) and implementation of MTEF as an accountability device (Brumby et al., 2013).

Risk Management (RM) had five (5) items based on (Juiz et al., 2014: Ghita, 2008) with regards sectors having functioning risk committees, strong financial management system and implementation strategies for managing emerging risks. Citizen Participation (CP) had four (4) items based on (Grzeszczak, 2015; Chigudu, 2018) with regards to CP leading to increased public awareness of the SDGs, partnerships between central and local government being facilitated through Stakeholder engagement and implementation of community-based monitoring for the sectors monitoring (Bjorkman and Svensson, 2007)

Table 3.4.1   Governance Construct Conceptual Measurements (Public sector governance (PSG) –Public interest oriented)

Variables	Statements	Measurement scale
Promotion of shared responsibility across multi-levels of government (Daniell and Kay, 2017; Duprè, 2018; Shivakoti et. al, 2019)	1. Continuous negotiations are encouraged among nested governments at territorial levels (Marks, 1993)	Seven -point Likert-interval type scale (1 for strongly disagree & 7 for strongly agree)
	2. A multi-level mechanism exists for policy design and implementation (Stein and Turkeitsh, 2008)	
	3. Devolution of power and responsibility is adequate at all levels	
	4. There is less influence of others from those in higher power in the sector	

	5. Meta -governance is recognized as an important component of multi-level governance (Jessop, 2004)	
	6. integration of policies, programs and targets is projected at all levels of governance	
	7. There is adequate clarity of interconnected system for policy dispersal/goal/targets at all levels. (Swanson, 2017)	
	8. The institutional coordinating mechanisms is adequate to foster partnership/coordination and all levels.	
Effective Decentralization (Seabright, 1996; Porto and Porto, 2000; Kaufmann et al., 2019; Fisman and Gatti, 2000; de Mello and Barenstein, 2001)	1 There is adequate dispersion of authority at all levels of government (Bache and Flinders, 2004)	Seven -point Likert-interval type scale (1 for strongly disagree & 7 for strongly agree)
	2 Shared responsibility is promoted across multi-levels of government (Bache and Flinders, 2004)	
	3 Power has been decentralized to local government. (Mitchinson, 2003)	
	4 There is financial/fiscal decentralization in the sector	
	5 Stakeholder participation is encouraged for delivering policies effectively at all levels (Daniell and Kay, 2017; Daniell and Barreteau 2014)	
Government Effectiveness (Liou, 2017)	1 The quality of government objectives' implementation is adequate (Liou, 2017)	Seven -point Likert-interval type scale (1 for strongly disagree & 7 for strongly agree)
	2 There is inclusiveness in the implementation of government objectives	
	3 The quality of policy formulation is adequate	
	4 There is inclusiveness in the in policy formulation process	
	5 The quality of policy implementation is adequate (Liou, 2017)	
	6 The credibility of commitment to policy is good (Liou, 2017)	
	7 The quality of public service delivery is good (Liou, 2017; Fiszbein et al., 2011)	
	8 The quality of civil service is high	
	9 The independence of civil service from political interference is high (Liou, 2017)	
	10 Resource allocation by government is appropriate	
	11 Resource utilization by government is appropriate (Liou, 2017)	
Voice and Accountability, (Liou,	1. Civil Society Organizations are allowed to contribute to policy decisions in the	

2017; Kock and Gaskins, 2014; Kaufmann et al., 2019; Grzeszczak, 2015; Chigudu, 2018)	sector through a deliberative process (Liou, 2017; Kock and Gaskins, 2014)	Seven -point Likert-interval type scale (1 for strongly disagree & 7 for strongly agree)
	2. Voice and accountability provisions are included in the sector's legislative documents (Kaufmann et al., 2019)	
	3. Formal and informal institutions exist in the sector to provide an enabling environment for voice and accountability (Grzeszczak, 2015; Chigudu, 2018)	
	4. Effective vertical and horizontal accountability dimensions exist in the sector (Grzeszczak, 2015; Chigudu, 2018)	
	5. Effective vertical and horizontal responsiveness exist in the sector (Grzeszczak, 2015; Chigudu, 2018)	
	6. The sector has a greater accountability for resource utilization (Rajkumar and Swaroop, 2008; Holmberg and Rothstein, 2011; Hu and Mendoza, 2013)	
	7. The sectors have effectively implemented MTEF as an accountability device (Brumby et al., 2013)	
Risk management and performance through robust internal control and strong PFM (Juiz et al., 2014: Ghita, (2008)	1. The sector has a robust internal control and risk management system (Juiz et al., 2014: Ghita, (2008)	Seven -point Likert-interval type scale (1 for strongly disagree & 7 for strongly agree)
	2. The sector has a functioning risk committee/audit committee (Juiz et al., 2014: Ghita, (2008)	
	3. The sector has an effective performance management system (Juiz et al., 2014: Ghita, (2008)	
	4. The sectors financial management system is strong (Juiz et al., 2014: Ghita, (2008)	
	5. The sectors have implemented strategies for managing emerging risks (Juiz et al., 2014: Ghita, (2008)	
Citizen participation (Grzeszczak, 2015; Chigudu, 2018)	1. There is increased Citizen participation in sector's policy formulation (Grzeszczak, 2015; Chigudu, 2018; Ho et al., 2015)	Seven -point Likert-interval type scale (1 for strongly disagree & 7 for strongly agree)
	2. Citizen engagement has led to increased public awareness of the SDGs (Grzeszczak, 2015; Chigudu, 2018)	
	3. Stakeholder engagement has facilitated partnerships between central and local government (Grzeszczak, 2015; Chigudu, 2018)	
	4. The sector implements community-based monitoring (Bjorkman and Svensson, 2007)	

In terms of PFM (Value for Money) construct, eight (8) measurement items were used based on (Cheruiyot et al., 2017; Buger and woods, 2008; Gurazada et.al, 2020; Postula and Raczkowski, 2020; Pretorius and Pretorius, 2016; Allen and Tommasi, 2001; Akazili et. al, 2008; Tropina, 2016; Schwartz et al., 2002; Ogorodnikova, 2020; Welham et al., 2013). The items related to budget reliability and credibility, transparent and participatory budget process, effective public spending controls (Fonchamnyo and Sama, 2016), improved operational efficiency (Fritz et al., 2014), well-designed PFM systems' institutional capacities (Filmer and Pritchett, 1999; Fukuda-Parr et al., 2011; Cabezon and Prakash, 2008), and realistic and timely budget execution (Correia et al., 2003; Gauthier and Wane, 2009). Table 3.4.2 shows one construct within PFM including value for money and the conceptual measurements.

Table 3.4.2   Conceptual measurement within the Public Financial Management context

Variables	Statements	Measurement scale
PFM: Value for Money in service delivery (Cheruiyot et al., 2017; Buger and woods, 2008; Gurazada et.al, 2020; Postula and Raczkowski, 2020; Pretorius and Pretorius, 2016; Allen and Tommasi, 2001; Akazili et. al, 2008; Tropina, 2016; Schwartz et al., 2002; Ogorodnikova, 2020; Welham et al., 2013)	1. The budget process in the sector's is credible, reliable and efficient (Cabezon and Prakash, 2008; Andrews et al., 2014) 2. The budget process in the sector is transparent and participatory (Goryakin et al., 2017; Rajkumar and Swaroop, 2008), 3. The sector has an effective control of public spending (Fonchamnyo and Sama, 2016) 4. Allocation of Resources are aligned with the sectors public priorities (Fonchamnyo and Sama, 2016) 5. There is improved operational efficiency in the sector (Fritz et al., 2014)	Seven -point Likert-interval type scale (1 for strongly disagree & 7 for strongly agree)

	6. The sector's PFM systems (Institutional capacities) are well designed (Filmer and Pritchett, 1999; Fukuda-Parr et al., 2011; Cabezon and Prakash, 2008;)	
	7. There are insignificant resource leakages in the sector (Correia et al., 2003; Gauthier and Wane, 2009)	
	8. The budgets are realistic and are executed timely (Correia et al., 2003; Gauthier and Wane, 2009)	

Public Sector Performance (Service Delivery) construct had five measurement items as presented in table 3.4.3, based on (Kaufmann et al., 2002; Renzio, 2015; Allen and Tommasi, 2001; Maw, 2019) with regards to existence of effective mechanism for measuring service delivery in the sector (Lopes et al., 2017), intended use of allocated resources (Allen and Tommasi, 2001), effective and equitable service delivery (Renzio, 2015), existence of appropriate incentives for service delivery and service delivery improvement (Fiszbein et al., 2011).

Table 3.4.3   Conceptual measurement for Public Sector Performance (Service Delivery)

Variables	Statements	Measurement scale
PSP: Service Delivery (quality, quantity and accessibility) (Kaufmann et al., 2002; Renzio, 2015; Allen and Tommasi, 2001; Maw, 2019)	1. There is an effective mechanism for measuring service delivery in the sector (Lopes et al., 2017)	Seven -point Likert-interval type scale (1 for strongly disagree & 7 for strongly agree)
	2. Allocated resources are utilized for the intended purpose (; Allen and Tommasi, 2001)	
	3. Service delivery in the sectors is effective and equitable (Renzio, 2015)	
	4. There are appropriate incentives for service	

	delivery (Fiszbein et al., 2011)	
	5. Service quality in the sector is improved9 (Fiszbein et al., 2011)	

The questions measuring concepts within the Sustainable Development goals context are presented in table 3.4.3. There were two constructs measured by four sub-dimensions each. SDG 4 construct had four measurement items based on target 4.1 (free and equitable education), target 4.2 (access to education), target 4a (teaching and learning facilities) and target 4c (teacher supply). SDG 3 construct had four measurement items (table 3.4.4) based on target 3.1 (maternal mortality), target 3.3 (end pandemics of HIV, malaria and TB), target 3.8 (universal access to health services) and target 3c (health resourcing).

Table 3.4.4   Conceptual measurement within the SDG (Health) context

Variables	Statements	Measurement scale
Health sector (SDG targets 3.1)	1. Secondary data on the country's maternal mortality ratio for period 2017-2020	Seven -point Likert-interval type scale (1 for strongly disagree & 7 for strongly agree)
	2. Secondary data on proportion of births attended by skilled health personnel for period 2017-2020	
Health sector (SDG targets 3.3)	3. Secondary data on the number of new HIV infections for period 2017-2020	Seven -point Likert-interval type scale (1 for strongly disagree & 7 for strongly agree)
	4. Secondary data on the number of tuberculosis incidences for period 2017-2020	
	5. Secondary data on the number of malaria incidences for period 2017-2020	
Health sector (SDG targets 3.8)	6. Secondary data on Construction of health facilities to improved access to essential health services for period 2017-2020 (Masefield et l., 2020; National Health Policy II, 2017)	Seven -point Likert-interval type scale (1 for strongly disagree & 7 for strongly agree)
	7. Secondary data on ambulatory services to improve access to essential health services for period 2017-2020	

	8. Secondary data on provision of financial risk protection for accessing health services (Masefield et l., 2020; National Health Policy II, 2017)	
	9. Secondary data on access to safe, effective, quality and affordable medicines for all for period 2017-2020 (Masefield et l., 2020; National Health Policy II, 2017)	
Health sector (SDG targets 3c)	10. Secondary data health financing for period 2017-2020 (Masefield et l., 2020; National Health Policy II, 2017)	Seven -point Likert-interval type scale (1 for strongly disagree & 7 for strongly agree)
	11. Secondary data on recruitment of health workers for period 2017-2020 (Masefield et l., 2020; National Health Policy II, 2017)	
	12. Secondary data on health worker density and distribution for period 2017-2020 (Masefield et l., 2020; National Health Policy II, 2017)	
	13. Secondary data on development and training of health workers for period 2017-2020 (Masefield et l., 2020; National Health Policy II, 2017)	
Education Sector (SDG targets 4.1)	1. Secondary data on Free, equitable and quality primary education for period 2017-2020	Seven -point Likert-interval type scale (1 for strongly disagree & 7 for strongly agree)
	2. Secondary data on Free, equitable and quality secondary education for period 2017-2020	
	3. Secondary data on drop-out rate for primary education for period 2017-2020	
Education Sector (SDG targets 4.2)	4. Secondary data on Boys and girls access to quality early childhood development and care for period 2017-2020	Seven -point Likert-interval type scale (1 for strongly disagree & 7 for strongly agree)
	5. Secondary data on provision of Teaching and learning materials for primary education for period 2017-2020	
Education Sector (SDG targets 4a)	6. Secondary data on Primary education facilities built and upgraded for period 2017-2020	Seven -point Likert-interval type scale (1 for strongly disagree & 7 for strongly agree)
	7. Secondary data on Schools access to electricity and drinking water for period 2017-2020	
	8. Secondary data on Schools having basic hand washing facilities for period 2017-2020	

Education Sector (SDG targets 4c)	9.Secondary data on pupil-teacher ratio for primary education for period 2017-2020	Seven -point Likert-interval type scale (1 for strongly disagree & 7 for strongly agree)
	10. Secondary data on Teachers receiving at least minimum organized training for period 2017-2020	

3.5 Questionnaire Development

A theoretically grounded tool for measuring the constructs and variables identified in the conceptual framework was developed and validated. Based on authors' work in previous studies, four (4) constructs and their measurements were identified. These were face and content validated in the two sectors of health and education by experts drawn from the Ministries of education, health and finance, Universities and Supreme Audit Institution (SAI) of Malawi. These were selected considering the role they play in the study area as implementers, researchers and oversight providers. The developed theoretically grounded and empirically measured tool contributed to the existing literature on governance and sustainable development. The measurement tool in considered as new since it broadens the scope of research in the study area and allows for assessment of a number of relationships including the serial mediation role drawn from higher order constructs.

3.6 Validity of questionnaire

Questionnaire validation determines the ability of measurement statements to achieve the intended purpose. Thus, the conclusions and inferences made on their basis (test scores) should be valid. When validating the questionnaire two main validation types are applied including construct and content validity.

3.6.1 Expert validation of Constructs, Variables and Questionnaire Statements

The questionnaire instrument was subjected to both face and content validity. Content validation was conducted to establish the degree to which the elements in the statements were relevant to the targeted constructs and variables. The validity evidence

was represented using Content Validity Index (CVI). The following content validation procedure was adopted:

- Preparation of a content validation form: Statements/Items were drafted to be measured using a 4-point Likert scale of relevance where:
    - 1= element is not relevant to the measured domain
    - 2= element is somewhat relevant to the measured domain
    - 3= Element is quite relevant to the measured domain
    - 4= Element is highly relevant to the measured domain
- Selection of a review panel of experts: 17 experts were selected from the academia and the relevant fields of governance, public finance management, sustainable development, and health and education sectors. 10 out of the 17 provided the feedback used for the validation whose list is as provided in table 3.6.1

Table 3.6.1   List of the expert panel for face and content validity of questionnaire

No.	Name	Designation
1.	Dr. Sanderson Kuyeli	Deputy Director, Planning, Ministry of Health
2.	Mrs. Monasile Mhango	Director PFEM, Ministry of Finance
3.	Dr. Kennedy Machira	Project Coordinator, Evidence based research on PFM Malawi, Lilongwe University of Agriculture and Natural Resources (Academician)
4.	Mr. John Kolove	Performance Audits, National Audit Office of Malawi
5.	Mr. Duncan Chipekwe	Performance Audits, National Audit Office of Malawi
6.	Ms Victoria Boaz	Performance Audits, National Audit Office of Malawi
7.	Ms Grace Tione	PFM Coordinator (Luanar)
8	Dr. Gerald Manthalu	Deputy Director Planning Ministry of health
9.	Dr. Mathews Mtumbuka	Chief Executive Officer (CEO) at UbuntuNet Alliance (Academician)
10	Dr. Dzimpita	Director of Education, Ministry of Education

Source: Researchers selection.
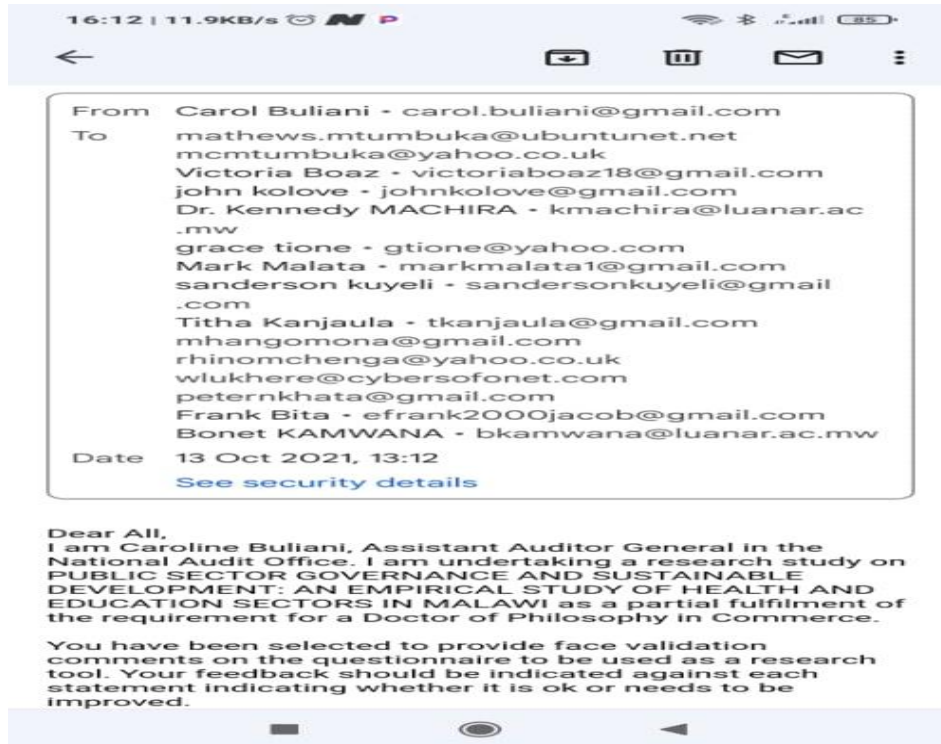
Conducting the content validation: An online validation form was sent to the ten experts in order to obtain acceptable CVI values of at least 0.78 (Lynn, 1986) which was obtained using formula presented in table 3.6.2.

Table 3.6.2   The definitions and formula of I-CVI, S-CVI/Ave and S-CVI/UA

The CVI Indices	Definition	Formula
I-CVI (Item-level content validity index)	The proportion of content experts giving item a relevant rating of 3 or 4	I-CVI = (agreed item)/ (Number of experts)
S-CVI/Ave (scale-level content validity index based on average method)	The average of the I-CVI scores for all items on the scale or the average of proportion relevance judged by all experts. The proportion relevant is the average of the relevance rating by individual expert	S-CVI/Ave = (sum of I-CVI scores)/ (number of items) S-CVI/Ave = (sum of proportion relevance rating)/(number of experts)
S-CVI/UA (scale-level	The proportion of items on the scale that achieve a relevance	S-CVI/UA = (sum of UA

content validity index based on the universal agreement method)	scale of 3 or 4 by all Experts. Universal agreement (UA) score is given as 1 when the item achieved 100% experts in agreement, otherwise the UA score is given as 0.	scores)/(number of item)

Source: Yusoff, (2019); 'The definition and formula were based on the recommendations by Lynn (1986), Davis (1992), Polit & Beck (2006) and Polit et al. (2007)

The results of the experts' views are presented in Appendix 1.

3.7 Pilot Test of the questionnaire

Pilot testing of questionnaire in a survey design research is critical as it plays an important role when conducting large-scale surveys in order to increase validity, reliability and practicality of questionnaire instrument (Cohen et al., 2013). Pilot testing ensures that the correct wording of questions and success of their application (Cohen, Manion, and Morrison, 2013). Guidelines for pilot testing questionnaires require that the researcher to determine how the pilot would be conducted and to whom the questionnaires would be floated. Pilot testing involves administration of questionnaires to a selected number of respondents that represent the target sample of the study, after which, statistical analysis is applied and feedback is obtained to help reducing the number of questionnaire items to a manageable size. Analysis of data obtained from pilot test is conducted to determine the following statistical aspects: 1) Collinearity; 2) Reliability; 3) factor analysis and 4) multiple regression (Cohen et al., 2013).

In this study pilot testing the questionnaire was eminent considering that the constructs and statements were drawn on the basis of the results from previous research studies. As such, the questionnaire was pilot tested including the performance of normality, reliability and factorability tests. The questionnaire pilot survey was conducted in the month of February and March 2022 to a sample of 100 respondents drawn from both education and health sectors. A hybrid method was used to collect responses for the pilot study. Questionnaire google form was sent through emails and

WhatsApp groups. Due to the challenge of access to internet, hard copy questionnaires were floated to teachers and facility health officers. The pilot was conducted in order to ascertain possibilities of improvements to the questionnaire, examine the internal consistency in terms of reliability of the responses and examine possibility of adding more relevant questionnaire statements. There were delays in obtaining consent from the Ministries Controlling Officers to allow health and education officers respond to the questionnaire due to bureaucratic office procedures.

The questionnaire used a 7 point Likert Scale. Thus 1= strongly disagree; 2= disagree; 3= somewhat disagree; 4= Neutral; 5 = somewhat Agree; 6 = agree and 7 = strongly agree.

3.7.1 Normality test using descriptive statistics

Descriptive statistics, such as mean, skewness and standard deviation refer to summarized information used for describing observations in a research study. They summarize in simple terms the research samples and their measures (Bland, 2015; Sundaram et al., 2014). Descriptive statistics are majorly classified into three:

- Measures of central tendency such as mean, mode and median. A mean is a most common technique used and it refers to a mathematical average for a data set, calculated as a summation of observation divided by the number of the observations.

- Measures of variation or dispersion such as standard deviation, variance, standard errors, ranges and coefficient of variation. Measures of dispersion measure the variation of a data set. For instance, standard deviation, symbolized as sigma (σ), measures the degree of spread out for a value from its calculated mean value. Variance, symbolized as σ^2, refers to the average of squared difference from the calculated mean. It is a square of the standard deviation. Standard error refers to an approximate difference between population mean and sample mean. It is denoted as: Standard error = sample SD/$\sqrt{}$sample size.

Measures of central tendency are critical as the form a basis for statistical analysis based on other techniques such as skewness, measures of dispersion, correlation, ANOVA and t-tests. Statistical techniques assume normality of continuous

data in order to draw conclusions from the analyzed data. Different methods are used to test normality and the include both numerical and graphical (Bland, 2015). Standard normal distribution is the commonly used technique for testing normality. It has a density curve that is bell shaped and described by its mean and standards deviation where extreme values within the data set do not have an impact on the mean value. When continuous data follows a normal distribution, its value becomes the mean which can be used for comparison between and among groups of data sets in order to calculate significance level also known as p-value. Other methods for testing normality of continuous data include:

- Shapiro-Wilk test: This is a most relevant technique used for testing normality of continuous data with small samples data set such as equal to or less than 50 samples. It can also be used for larger samples. Kolmogorov-Smirnov test: This is a most relevant technique used for testing normality of continuous data with large samples data set such as equal to or greater than 50 samples. The null hypothesis for these tests indicates that data is taken from a normally distributed population. Thus when the p-value is greater than 0.05, the data is considered to be normally distributed and the null hypothesis is accepted.

- Skewness is a symmetric measure of the distribution while Kurtosis is a measure that shows peakedness of the distribution. A distribution is referred to as symmetric when it appears to be the same to the right and left from the center point. That is a point where the mean, mode and median coincide, both skewness and kurtosis are equal to zero. When the kurtosis and skewness of data is between -1 and +1, the distribution is referred to be approximate normal and at times this is less reliable where small to moderate samples are involved (i.e. $n < 300$) since the standard error cannot be adjusted in this case (the larger the sample size the lesser the standard error). Where skewness and kurtosis are involved, application of z-test is used for testing normality. The z-score is obtained by dividing the value of skewness or kurtosis with their standard errors. Z-value for samples of <50 is taken as ±1.96 (Ghasemi and Zahediasl, 2012) while for samples of ($50 \leq n < 300$) the z-value is ±3.29 (Kim, 2013).

3.7.2 Exploratory factor analysis:

Factor analysis is conducted to determine main constructs and dimensions in the data set (Kline, 1994). On the other hand, reliability analysis is used for measuring the constructs' performance. Having exposed the survey data set to univariate and multivariate normality, the data set was further examined using Reliability analysis and Exploratory Factor Analysis (EFA).

Five methodological steps for conducting EFA (Fabrigar et al, 1999), were applied. Included in the process is a chain of interconnected iterative steps. Factor analysis based on principal components was used to extract the greatest possible range of variance from the data. The Varimax rotation criterion was used to flip the effects. The results of factor analysis based on each person's unique situation are shown in Table 3.7.2. There were only five factors found that could account for 79.39% of the overall variance. According to the data in Table 3.7.2, all items loaded stronger on their linked factor than on any other factor, with loaded values greater than 0.50. This translates to the fact that convergent and discriminant validity of scales evaluating aspects of governance, Public finance Management (value for Money), Public sector performance (service delivery) and sustainable development (SDG 3 and 4) were demonstrated. The eigenvalues of the first eight factors are shown in Table 3.7.1. There were eight distinct factors, and their combined eigenvalue was more than 1 (the Kaiser cut-off for factor retention). If you follow the Kaiser Criteria to the letter, you only need to hold on to 8 of the original elements. However, research by (Jolliffe, 1986) referenced by Field, (2009) found that the Kaiser Criterion was overly strict and advocated for the retention of factors with eigenvalues as low as 0.70. This study discards all except 8 factors according to the Kaiser's Factor Discarding Criterion. The total variances are explained in table 3.7.1.

Table 3.7.1   Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.024	29.012	29.012	11.024	29.012	29.012	4.725	12.433	12.433

2	3.234	8.509	37.521	3.234	8.509	37.521	3.800	9.999	22.432
3	2.236	5.884	43.405	2.236	5.884	43.405	3.370	8.868	31.300
4	2.054	5.404	48.809	2.054	5.404	48.809	2.839	7.472	38.772
5	1.908	5.020	53.829	1.908	5.020	53.829	2.820	7.422	46.193
6	1.722	4.532	58.361	1.722	4.532	58.361	2.600	6.843	53.036
7	1.592	4.189	62.550	1.592	4.189	62.550	2.248	5.915	58.952
8	1.407	3.702	66.252	1.407	3.702	66.252	2.081	5.476	64.428
9	1.383	3.641	69.893	1.383	3.641	69.893	2.077	5.466	69.893

The interpretation and labelling of the retained factors is the last step in the factor analysis procedure. To represent the theoretical or conceptual meaning that the supplied component is intended to communicate, the process involves giving it a name (Taherdoost, Sahibuddin, and Jalaliyoon, 2014). The questionnaire items and their loadings on the extracted components are displayed in Table 3.7.2.

Table 3.7.2   Construct validity analysis for individual context

	Component								
	VFM	SD	DEC	VA	GEF	SR	RM	GEI	CP
SR6						0.772			
SR7						0.755			
SR10						0.742			
SR12						0.723			
DEC1			0.776						
DEC2			0.77						
DEC3			0.87						
DEC4			0.755						
DEC5			0.638						
GE1					0.76				
GE2					0.801				
GE3					0.779				
GE4					0.783				
GE5								0.775	
GE6								0.782	

	F1	F2	F3	F4	F5	F6	F7	F8
GE7							0.777	
VA3				0.791				
VA5				0.75				
VA6				0.774				
VA7				0.839				
RM2						0.794		
RM4						0.842		
RM5						0.826		
CP2								0.757
CP3								0.785
CP4								0.778
VFM1	0.766							
VFM2	0.773							
VFM3	0.773							
VFM4	0.777							
VFM5	0.762							
VFM6	0.737							
VFM8	0.744							
SD1		0.797						
SD2		0.795						
SD3		0.813						
SD4		0.825						
SD5		0.816						
Extraction Method: Principal Component Analysis.								
Rotation Method: Varimax with Kaiser Normalization.								

As shown in Table 3.7.2, the items that loaded highly on factor 1 Shared responsibility, labelled as SR, were four (4) statements that expressed respondents' perceptions on encouragement of continuous negotiations among nested governments; existence of multi-level mechanisms for policy design and implementation, adequate clarity of interconnected system for policy dispersal and recognition of meta governance. Five (5) items loaded highly on factor 2 of Decentralization, labelled as DE, and they related to adequate dispersion of authority, promotion of shared

responsibility at all government levels, participation of stakeholders towards effective policy delivery, fiscal and power decentralization. Factor 3 for Government effectiveness labelled as GE, had seven (7) items that loaded highly on it. The items were in respect to a question that sought the respondents' perception on both government effectiveness on implementation of government objectives and adequacy of policy formulation.

The fourth factor, Voice and accountability, labelled as VA, had seven items that highly loaded and constituted questions that sought the respondent's perception on existence of an enabling environment for Voice and accountability, effective horizontal and vertical responsiveness, accountability in resource utilization and implementation of Mid-Term Expenditure Framework (MTEF) as an accountability device. Factor number 5, Risk Management labelled as RM had three (3) items highly loaded on it and they related to existence of functioning risk committees, strong financial management systems and implementation of strategies for emerging risks. The items that load on factor seven, Citizen Participation, labelled as CP, had three items highly loaded on it and the related to awareness of the SDGs trough citizen engagement, facilitation of partnerships through stakeholder engagement and implementation of community based monitoring. Factor 6, Value for Money, labelled as VFM, had eight items that highly loaded on it and related to budget process credibility, reliability and efficiency; participatory and transparent budget process, effective control of public spending; alignment of allocated resources to public sector priorities, improved sectors' operational efficiency; design of PFM systems and realistic and timely execution of budgets.

Factor 7, Service Delivery, labelled as SD, had 5 items that highly loaded on it and the related to existence of effective measurement mechanism for service delivery, utilization of allocated resources on intended purpose, existence of an effective and equitable service delivery, appropriate incentives for service delivery and improved quality of service delivery. Factor 8, Sustainable development goals (SDG) for health and Education labelled as SDG 3 and SDG 4 had 5 items highly loaded on each of them. These related to provision of services in the sector, efficiency of service delivery in

terms of service provider and students/patients, means of implementation with regards to financing and availability of human resources in terms of teachers and health workers, and enabling infrastructures.

Table 3.7.1. further shows that the loaded factor ranged from a lowest value 0.638 related to DE5 factor to a highest of 0.870 related to DE3 factor. Similarly, all the observed Sum of Square Loadings (Eigenvalues), came out high (1.383- 11.024) indicating that the factors are adequately clarified by the loaded items (Field, 1999).

3.7.3   Reliability Analysis

Following the determination of discriminant and convergent validity of the constructs for the study using EFA, the structure of data was determined by establishing the number of retained factors. Having undergone this process, it is recommended that the reliability of the construct items be examined for purposes of establishing the validity of questionnaire scales. In this study the questionnaire items reliability was assessed through a computation of coefficient scores for Cronbach's alpha. The results were as presented in table 3.7.3.

Table 3.7.3   Results of reliability test

Construct	Cronbach's Alpha	Number of Items		Retained statements	Final Label
		Pretesting	Final Scale		
Shared Responsibility (SR)	0.812	13	4	6,7,10,12	Shared Responsibility (SR)
	0.868		5	1,2,3,4,5	Decentralisation (DEC)
Government Effectiveness (GE)	0.856	11	4	1,2,3,4	Government Effectiveness (GEF): Formulation of Policy and Objectives
	0.791		3	5,6,7	Government Effectiveness (GEI):

					Implementation of policy and Objectives
Voice and Accountability (VA)	0.847	7	4	3,5,6,7	Voice and Accountability (VA)
Risk Management (RM)	0.820	5	3	2,4,5	Risk Management (RM)
Citizen Participation (CP)	0.792	4	3	2,3,4	Citizen Participation (CP)
Value for Money (VFM)	0.907	8	7	1,2,3,4,5,6,8	Value for Money (VFM)
Service Delivery (SD)	0.936	5	5	1,2,3,4,5	Service Delivery (SD)

Using a rule of thumb of the applied reliability test, Cronbach's alpha of above 0.70 was considered acceptable. However, Hair et al., 2010 indicated that a score of 0.60 can also be acceptable for studies that are at exploratory phase. Table 3.7.3 shows that the results of alpha values ranged from 0.791 to 0.936 which were above the required scores of 0.70 as per the rule of thumb (Nunnally, 1978). Therefore, all scales were found to be reliable. Service delivery scale had the highest Cronbach's Alpha score value (α= 0.936) followed by Value for Money scale (α= 0.907). the lowest score was reported on Government Effectiveness (α= 0.791). Generally, the conclusion was that the questionnaire scales were found to be reliable and could be used in measuring the intended study measurements. The pilot survey was useful in determining the internal consistency of reliability of responses. The Cronbach alpha of the different constructs was found to be greater than 0.70 indicating the presence of reliability in the responses. A number of statements were dropped on the basis of high disagreements. As such they were found not to be reliable after the pilot survey.

3.7.4 Questionnaire revision

Based on the reliability test, the questionnaire was revised and it is presented in Appendix 2.

3.7.5 Discussion and Conclusion on Pilot Study

The study checked if the pilot data was normal, valid, factorable, and reliable. All data within the +/- 2 range for skewness and kurtosis in the pilot survey were found to have a normal distribution. Cronbach's alpha coefficients for the 9 constructs tested all fell 'Between' 0.791 and 0.936, much above the 0.790 cut-off for reliability. This proved the validity of the research across its nine constructs. All of the constructs were found to have Eigen values larger than 1, indicating that they each explained more than 50% of the variation in the study, and they all had good factor loading as measured by Exploratory Factor analysis.

Results from the pilot survey were used to fix broken sections of the survey and get rid of irrelevant questions to provide a more accurate picture of the study's setting. In light of this finding, the pre-existing questionnaire template underwent changes. Research participants came up with nine factors, which they labelled as follows: (1) Shared Responsibility; (2) Decentralization; (3) Government Effectiveness in Policy Formulation; (4) Government Effectiveness in Policy Implementation; (5) Voice and Accountability; (6) Risk Management; (7) Citizen Participation; (8) Value for Money; and (9) Service Delivery. A conceptual model, represented in Figure 3.2, is constructed to evaluate the connection between governance and sustainable development, taking into account the serial moderation role of public finance management and public sector performance. It is recommended that Structural Equation Modelling (SEM) be used in future studies as a confirmatory method to examine both the measurement model and the path model concurrently.

3.8 Structural Equation Modelling

Partial least squares have been used in the analysis, which was done using variance-based SEM (Rigdon et al., 2017) utilizing the Smart-PLS software. Partial least squares structural equation modelling (PLS-SEM) has been progressively more prevalent in recent years across a wide range of academic fields (Sarstedt et. al., 2019). Authors have chosen PLS-SEM above other applied approaches for a number of

reasons. PLS-SEM initially enables the analysis of complicated models that contain numerous components, indicators, and interactions (Ringle, et. al., 2018). Second, the most recent recommendations for using PLS-SEM have shown its dominance over other methods for the evaluation of mediation analysis (Hair et al., 2019). Third, because Governance and Sustainable Development Goals are second-order components, PSL-SEM is a preferable option for addressing models with higher-order constructs (Hair et al., 2019). The fourth point is that PLS-SEM has superior "statistical power" (Ringle, et. al., 2019). Finally, it is thought to be equally effective for research that focuses on prediction and exploration (Hair et. al., 2016). The study analysed the outcomes of PLS-SEM using a two-stage methodology that involved measurement model assessment as well as structural model assessment (Henseler et al., 2009).

Composite-based modelling techniques for intricate interactions between observable and latent variables are currently quite popular (Hwang and Takane, 2014). Investigators are increasingly transitioning from comparatively simple and focused frameworks (Sharma et al., 2019) to more complex model designs, like higher-order structures (Ringle et al., 2019) with an increase in the usage of PLS-SEM. The model under consideration in the study is a complex model design including higher order structures.

The study, therefore, goes beyond the confines of conventional constructs conceptualisations, that often rest on a solitary degree of abstraction due to numerous advantages offered by the higher-order constructions. For instance, higher-order constructions contribute to reducing the number of variables to simulate parsimony in path model relationships (Polites et al., 2012). Another benefit is that higher-order constructs assist in overcoming the bandwidth-dependability conundrum, which holds that there is a swap (Cronbach and Gleser, 1965, p. 100) "between a variety of information (bandwidth) and thoroughness of testing to obtain more certain information (fidelity)." Last but not least, higher-order conceptions provide a method for reordering signals and constructs over diverse tangible sub-dimensions of an added abstraction, therefore decreasing covariance amongst formative constructs (Hair et al., 2018).

The study has made an effort to overcome at least three issues in order to gain from higher-order structures. First, the conceptualisation and definition of the higher-

order constructs (government and SDG) are based on established measurement theory. This stage was still difficult and time-consuming because it led to the creation of new measurements (Relling et al., 2016). In particular, the study decided on (1) the measurement framework description of the lower-order constructs (CP, RM, SR, DEC, VA, GEF, and GEI) and (2) the association of the higher with its lower-order components (Wetzels et al., 2009). As a result, reflective-formative higher-order structures have been used in the study (Cheah et al., 2019) Previous research on higher-order constructs reveals that reflective-formative higher-level frameworks are prevalent in a number of areas (Cheah et al., 2019). A reflective-formative model has formative dimensions in the second level while having reflective indications in the first order.

The specification of higher-order constructions is the second problem that is discussed. Multiple methods have been put forth by researchers to specify and estimate second-order components in PLS-SEM. Using a two-stage technique, the higher-order construct has been identified (Hair et al., 2018). Path model pathways leading (1) from the constructs which are exogenic to the higher-order construct and (2) from the higher-order construct to the construct which is endogenic exhibit superior parameter recovery when using the two-stage technique (Becker et. al.,2019). However, in the initial stage of the embedded two-stage strategy, the study preserves the scores of all model constructions and adds these in the role of newly created variables to the data rather than interpreting the model estimates. The higher-order construct's measuring technique uses the constructs scores as indicators in stage two.

The majority of authors don't evaluate the validity and reliability of both lower and higher-order components. This study covers the third issue by evaluating the reliability and validity of both lower and higher-order components.

The same model evaluation criteria used for PLS-SEM analyses have been applied to higher-order models as well (Chin, 2010b). However, two more measurement models have been taken into consideration for higher-order constructs, for which the assessment criteria are applicable:

(1) The measurement models for the lower-order component, and

(2) The linkage of the higher-order component with its lower-order components, which provides the measurement model for the higher-order construct.

The standard model, which establishes direct links between the constructs, serves as the foundation for the estimate and measurement model assessment for the lower-order components in stage one. The PLS route model excludes the higher-order component. The latent variable scores from the stage one results are then used in stage two to create and estimate the model. HOC's formative measurement approach is used as the initial step in evaluating the results of stage two. The outcome confirms the higher-order construct's convergent validity when the path coefficient is not significantly different from the 0.7 threshold (Hair et al., 2017). Second, it is confirmed that collinearity has no detrimental effects on the HOC measurement model and then the VIF of LOCs for the HOCs is evaluated. Third, the Outer Loading, Weights, and their importance were assessed. Thereafter, all findings from the structural model evaluation (such as the importance and applicability of path coefficients, Q2, and PLS predict) were confirmed. Therefore, this study has identified, estimated, and verified higher-order constructs such as governance and SDG using PLS-SEM to address all these challenges. Details in Table 3.8.1

Table 3.8.1   Measurement and Assessment specifications

Measurement specification of the lower-order constructs:		Results assessment of higher-order constructs through Structural modelling
Lower-Order Construct	*Higher-Order Construct*	*Collinearity between constructs*
Internal consistency (Cronbach's alpha, composite reliability)	Convergent validity	Significance and relevance of the path coefficients
Convergent validity (indicator reliability, average variance extracted)	Collinearity between indicators	Explanatory (R 2) and predictive power (PLS-predict)

Discriminant validity	Significance and relevance of outer weights	

Source: Becker et al., 2019

The Anderson and Gerbing, (1988) two-step analytical methodology was applied in this investigation. By appraising the pathways connecting the constructs of GSDG model's, evaluating the importance of path linkages, the structural model was evaluated. The reliability and validity evaluations of individual model's statements were initially used to assess the measurement model.

3.9 Research methodology as per objectives

The following table 3.9.1 presents the research methodologies to be used to address the objectives.

Table 3.9.1 Objective wise Research methodology

Objective	Method of data collection	Data Type	Method of data analysis
To compare the existing governance practices in Health and Education sector in Malawi and the performance of the two sectors;	Interview ministry compliance and internal auditors' officers	Primary data Qualitative data	Factor analysis (EFA and CFA)
To examine the relationship between governance and sustainable development in Health and Education sectors;	Interviews with heads of departments	Primary data Qualitative data	Structural Equation Modelling
To investigate the serial mediation role of Public finance management systems and Public Sector performance in the linkage between PSG and SDGs in the	Questionnaires	Secondary data, qualitative and quantitative data	Structural Equation Modelling

Health and Education sector.			

CHAPTER 4: GOVERNANCE STRUCTURES IN HEALTH AND EDUCATION SECTORS OF MALAWI AND DESCRIPTIVE STATISTICS RESULTS

This chapter presents the existing governance practices in Malawi's sectors for education and health. It outlines the structures of the governance framework of the two sectors. It further provides a comparative analysis of the governance structures in the two sectors and their performance. The comparative analysis determines the similarities and differences of the governance practices and their link to yield results in helping the sectors attain their respective sustainable development goals. The chapter also presents the descriptive analysis results for governance antecedents to aid the comparative analysis. Furthermore, descriptive statistical analysis results for PFM, service delivery and SDGs are presented in this chapter.

4.1 Governance Framework in Health and Education Sector

4.1.1 Health Sector Governance Structures

Good governance for health represents the development of pro-health frameworks including legislation for implementing policies and providing monitoring, guidance, social accountability and systems (WHO, 2010). Thus good health sector governance calls for maintenance of the policy development and implementation strategic direction; health system monitoring and detection of adverse trends in efficiency; national development health advocacy; regulation of stakeholders' behaviour in the sector, and establishment of transparent and effective social accountability mechanisms. Health sector governance harnesses effective service delivery in the sector (Roncarolo et al., 2017; Reich et al., 2016). In Malawi, there are designated governance arrangements at central and local level.

4.1.1.1 Health PSG structures at central level

Malawi's Ministry of Health (MoH) as a government-designated, agency drives the health agenda in liaison with various stakeholders in the sector. It is charged with the responsibility for health sector policy development, review, and enforcement; regulation of both public and private health services provision; developing and review

of health service delivery norms, standards, and management protocols and that are supposed to be disseminated to lower level health facilities; advancing health sector reforms; planning, mobilization, allocation and management of health resources (HSSP 1, 2011-2016). It also plays an advisory role on other Ministries, Departments and Agencies (MDAs) on issues relating to health. It provides technical support for research coordination supervision, monitoring and evaluation of health service delivery. Five health zonal offices were established by the MoH to technically provide health managers in the districts for planning, monitoring and delivery of health services and facilitating supervision at central level of the facilities in the districts.

Governance in the health sector at central level is structured as presented in figure 4.1.1.
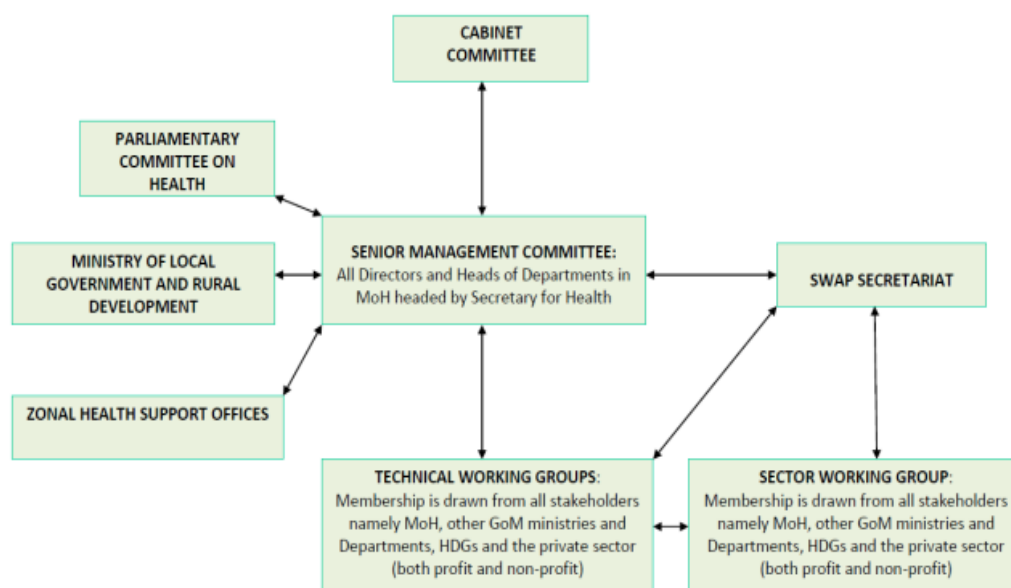
Figure 4.1.1   Governance Structure for health sector in Malawi at national level

        Source: HSSP 1, 2011-2016

Cabinet Committee on Health works closely with the MoH, and is responsible   for providing overall health sector's policy and political direction in the country. It ensures development and implementation of health interventions aimed at achieving the country's set objectives as outlined in the National development plan known as the Malawi Growth and Development Strategy (MGDS), the Health Sector Strategic Plan (HSSP) and the National Health Policy (NHP).

Parliamentary Committee on Health interacts closely with the MoH's Senior Management Committee. It lobbies and advocates for the health sector issues in Parliament. Health Sector Working Group (HSWG), mandated by Government of Malawi (GoM), acts as an overall coordinator for the sector. Membership of this working group includes: MoH and other ministries and departments, local government, Health training institutions, regulatory bodies, CSOs, research institutions, the private sector (including CHAM) and Health Development Partners. The group ensures consultations and maintaining a well-informed membership on health issues. It endorses the health budget, its annual Implementation Plan (AIP) and provides oversight for the implementation of the Health Sector Strategic Plan (HSSP) and AIP. It also recommends policy directions that are discussed buy the Senior Management Committee.

Senior Management Committee comprises of all the Directors and Heads of Departments in the MoH. This committee is chaired by the Secretary for Health and holds meetings every fortnight in order to approve plans and policies meant for providing technical advice to the HSWG. The governance structure includes eleven (11) Technical Working Groups (TWG) in the health sector. They include: Hospital Reform; Procurement and Finance; Human Resources (HR); Public Private Partnerships (PPP); Health Promotion; Essential Health Package (EHP); Health Infrastructure; Quality Assurance; Essential Medicines and Supplies (EMS); Laboratories; and Monitoring, Evaluation and Research. The guidelines produced by the Office of the President & Cabinet (OPC) guide the work of TWGs as they provide guidance to the Senior Management Committee following up on agreed milestones. The five Zonal Health Support Offices (ZHSO), namely North, Central East, Central West, South, and South East, act as technical extension offices MoH. They provide supportive supervision to District Health Management Teams in the implementation of the AIP (HSSP 1, 2011-2016).

4.1.1.2 Health Governance Structures at District level

The health sector in Malawi has been decentralized to allow for district level governance. Guided by National Decentralization Policy (1998) and the Local Government Act, the health sector was among the earliest implementers of decentralization. The health devolution guidelines were developed in 2004 and took into account the existing policy framework, legislations and local capacities available for implementing the decentralization process. Guidelines for the Management of Devolved Health Service Delivery" were developed in 2005 which spelt out the District Councils' autonomy for managing the health sector at district level and achieve improved health outcomes. Decentralization in the health sector is challenged with weak coordination at national (central) level, underfunding of the District Implementation Plans, health sector staff movements and inadequate capacities within the districts which has affected district level health service delivery.

Health sector governance structures at district level are as presented in figure 4.1.2. It includes: District Executive Committee (DEC) which, in line with decentralization, has the responsibility for developing the district overall policy including that of the health sector. DEC is also responsible for setting interventions priorities to be implemented, and approving of all district expenditures. The District Commissioner (DC) chairs the committee while the District Health Officer (DHO) sits as a member of this committee. The DEC has a Health Sub-Committee responsible for responding to district health needs and interacting with the DEC members. Other parts of the governance structure at district level that are responsible for identification of health development issues at the respective levels include the Area Development Committee (ADC), Hospital Advisory Committee (HAC) and the Village Development Committees (VDC). Community members constitute the membership of the ADCs and VDCs
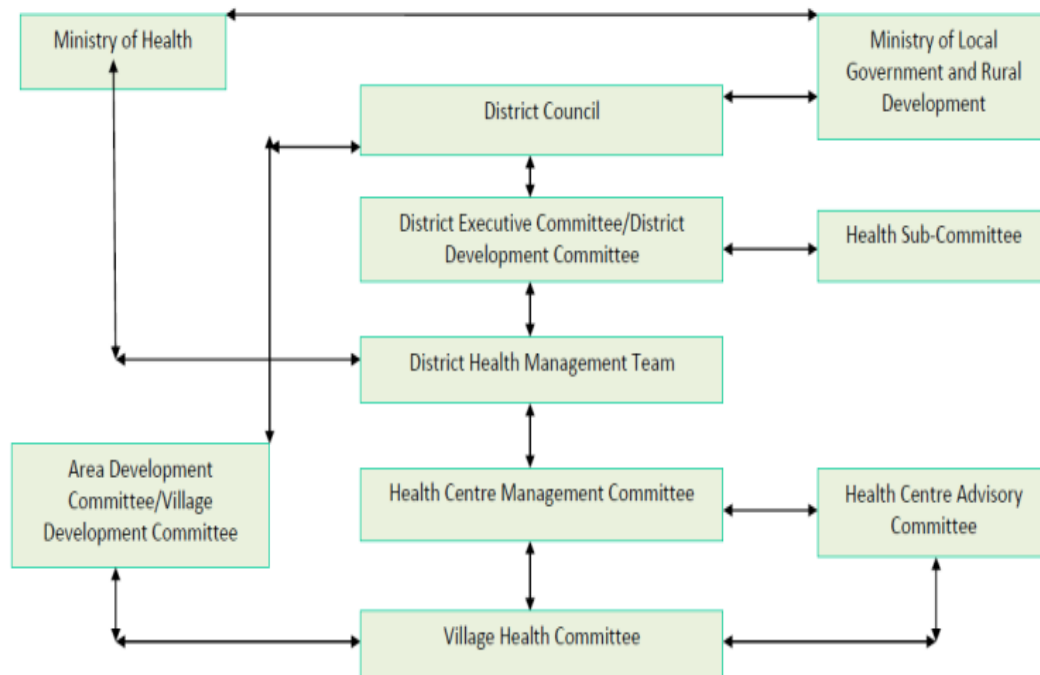
Figure 4.1.2   Health Governance structures at district level
Source: HSSP 1, 2011-2016

At each health centre facility, a Health Centre Management Committee exists and oversees the health services planning and implementation in line with the prevailing policies and legislations. There is also a Health Centre Advisory Committee whose membership constitutes health center health workers and community. Furthermore, Village Health Committees that are supervised by Health Surveillance Assistants exist at village level. VHCs promote Primary Health Care activities through community participation. They work in collaboration with HSAs to deliver promotive and preventive health care services such as hygiene and sanitation. Village action plans which include those for health services delivery are developed at village level and they feed into the District Development Plan (DDP). The MoH engages with the MoLGRD in order to strengthen the inclusiveness of the public in planning and monitoring health services at all levels, through the VHCs and VDCs.

4.1.2   Governance Framework in Education Sector

Governance in education sector is regarded critical for improved learning outcomes and extending education access to larger population (Education Sector Performance Report 2016). According to the Malawi Education Sector Analysis report (2019), Governance of the Malawi education sector over the years, has become complex and accompanied by inadequate effective communication and clarity. Ministry of Education (MoE) is a government institution mandated as a policy bearer for providing education in Malawi in collaboration with other stakeholders. The MoE programmes for education are guided by the National Education Sector Plan, National Education Standards and National Education Policy among others. Following the approval of the decentralization policy in 1998, the education sector embarked on the decentralization process of the various levels of education including kindergarten, primary and adult learning to the local government (District Councils) using the particulars laid in the 'guidelines for the management of devolution of the education services. These guidelines only extend the sector's decentralization of autonomy and authority up to district level and not school level. Consequently, District Education Managers were established as links between the MoE and District councils. The implementation of the policy commenced in 2002 despite the delayed dispersal of authority to the local government and the continuing control by the central government (Jager et al., 2014). The delays for implementing effective decentralization were attributed to capacity constraints with regards to skills and financial resources.

In 2013, the Education Act provided clarification on the provisions for decentralization of primary education as being the responsibility of local government authorities leaving the responsibility for formulating and implementing education policies with the MoE at central government level

4.1.2.1 Education Sector Governance Structures at district levels

At local government/District Council level, District Education Managers are supervised by the District Commissioners in developing education plans, resources management, organization and coordination of primary and adult education, policy dissemination and assisting coordination and implementation of the various education projects and programmes as laid down in the district development plan. A school management committee is established at every district council with the responsibility to ensure teachers' punctuality and attendance, conduct maintenance checks, advise on recruitments, guarantee compliance through inspection reports, and ensure school operations are consistent with community interests among others. The governance structure for education sector at district level is as presented in figure 4.1.3.
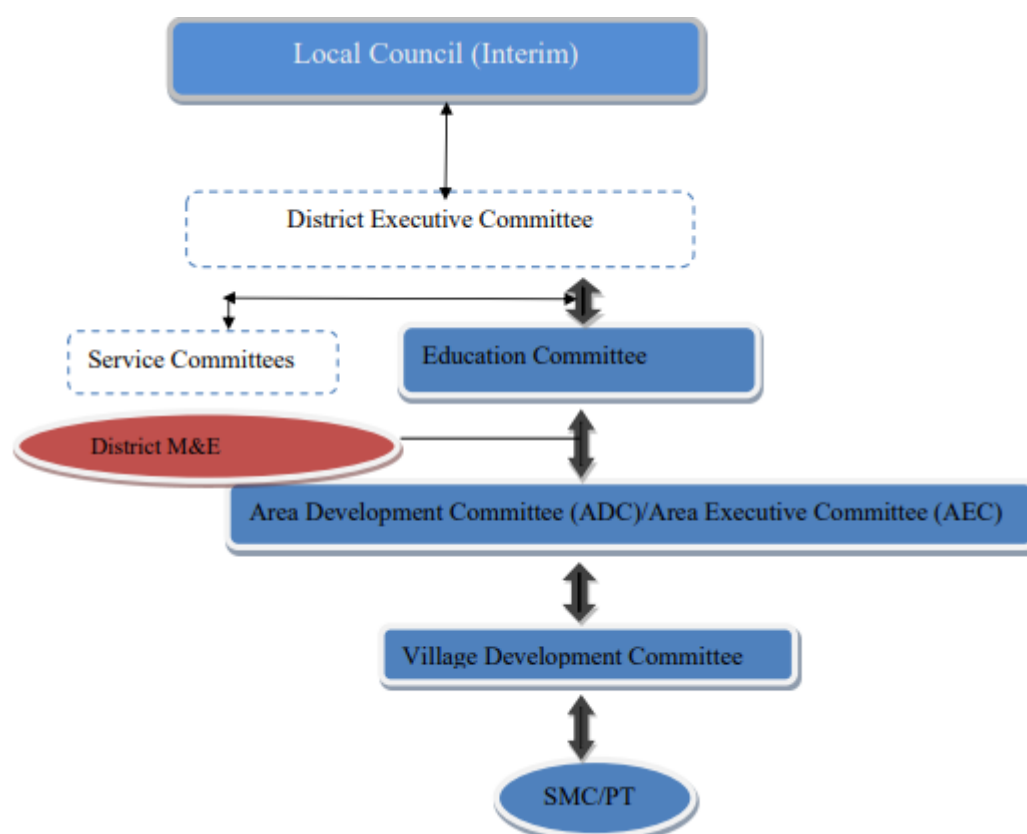
Figure 4.1.3   Malawi's Education governance structure at district level

Source: National Education Sector Investment Plan (NESIP), 2020-2030

4.2 Comparative analysis of the governance structures using Descriptive Statistics and evaluation of respondents' perceptions in health and education sectors

4.2.1 Awareness of governance structures in the health and education sectors

The study noted that 71% of the 496 respondents drawn from MoH headquarters, District Health Offices and the various health facilities including Central Hospitals, District Hospitals and Health Centres, were aware of the governance structures that exist in the health sector as presented in figure 4.2.1
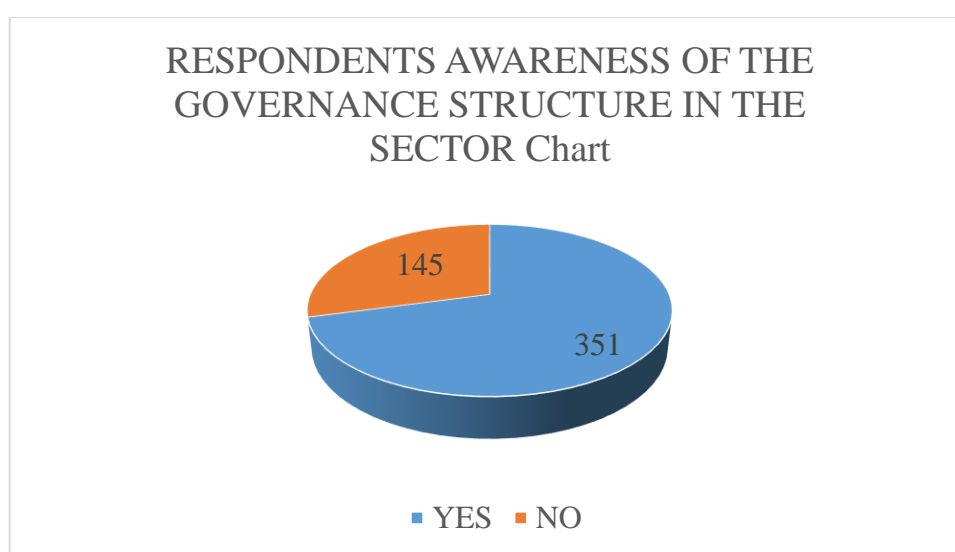
Figure 4.2.1   Number of respondents with awareness of governance structures in health sector

Source: Study data analysis

The further analysis noted that even at facility level most respondents were aware of the existing governance structures in the health sector as presented in figure 4.2.2. the results of this study confirms the observation made through the study by Lipunga et al, (2022) where they also noted that most of their respondents displayed knowledge of the existing governance structures in the health sector despite failing to clearly affirm the roles of each player in the structure.
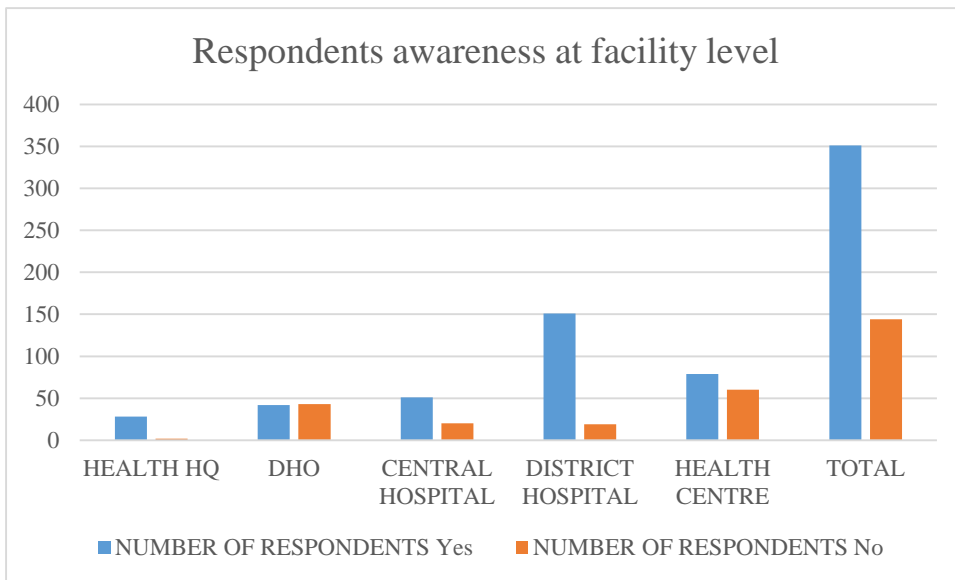
Figure 4.2.2   Respondents' awareness of governance structures at facility level

Source: Study data analysis

In education sector, the results showed that most respondents in the education sector were aware of the governance structures that exist in the sector as depicted in figure 4.2.3.
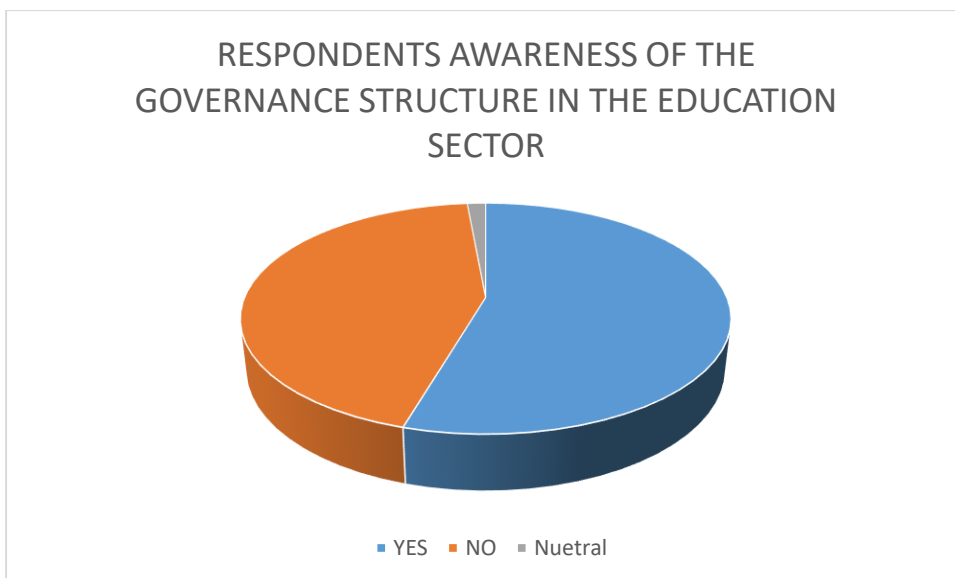
Figure 4.2.3   Number of respondents with awareness of governance structure in the education sector.

Further analysis of the results noted that most education officers at headquarters, DEM and secondary school were aware of the existing governance structures in the sector unlike those from the basic education as depicted in figure 4.2.4.
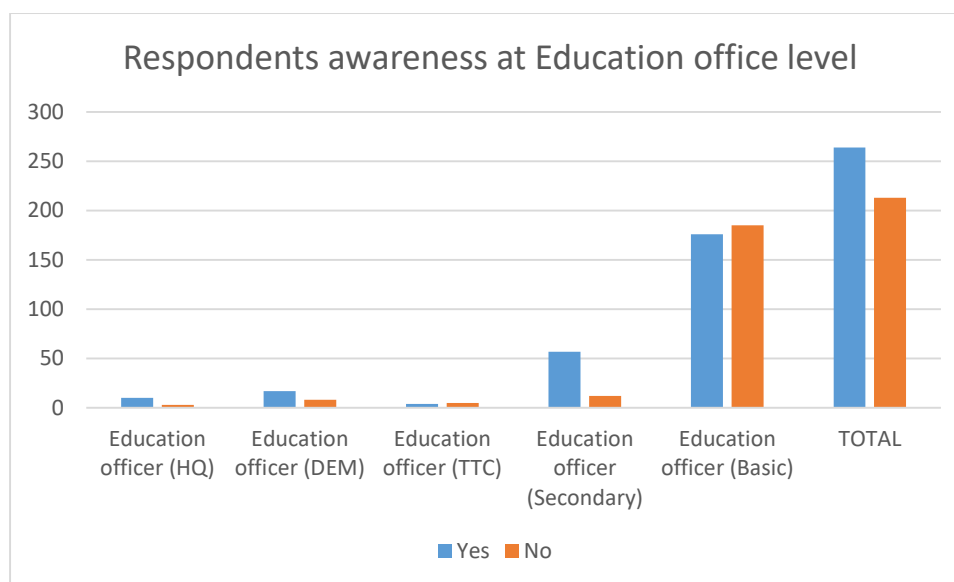
Figure 4.2.4   Respondents awareness of governance structures at education office level

4.2.2   Descriptive Statistics Antecedents for Public Sector Governance in Health and Education Sector

The study noted that the governance structure in the health sector reflects the antecedents used for the assessment of public sector governance in this study. The antecedents include Shared responsibility, Government effectiveness, Voice and Accountability, Risk Management, and Citizen Participation. Based on the perceptions of the respondents, the study revealed the following:

4.2.2.1 Descriptive Statistics and Respondents' perception on the existence of shared responsibility and decentralization in health sector

The promotion of shared responsibility across multi-levels of government is one of the key principles for public sector governance. It is also called multi-level governance, a system where authority is dispersed upwards, downwards as well as sideways between government levels (local, regional, national) even across sectors and

spheres. The Malawi education and health sectors are characterised with governance structures that run across multi-level government at central and local government. Effective governance requires coordination and continuous negotiations across these multiple levels. Shared responsibility is evidenced when continuous negotiations are encouraged horizontally and vertically among government levels (SR6). Where multi-level mechanisms for policy design and implementation exist (SR7), recognition of the importance of meta government (SR10) and existence of adequate clarity of interconnected system for policy dispersal/goal/targets at all levels (SR12).

The results of the study showed that on average 347 out 498 respondents, representing 70%, perceived that shared responsibility including decentralization was being embraced in the health sector as an element of good public sector govenance as presented in figure 4.2.5.
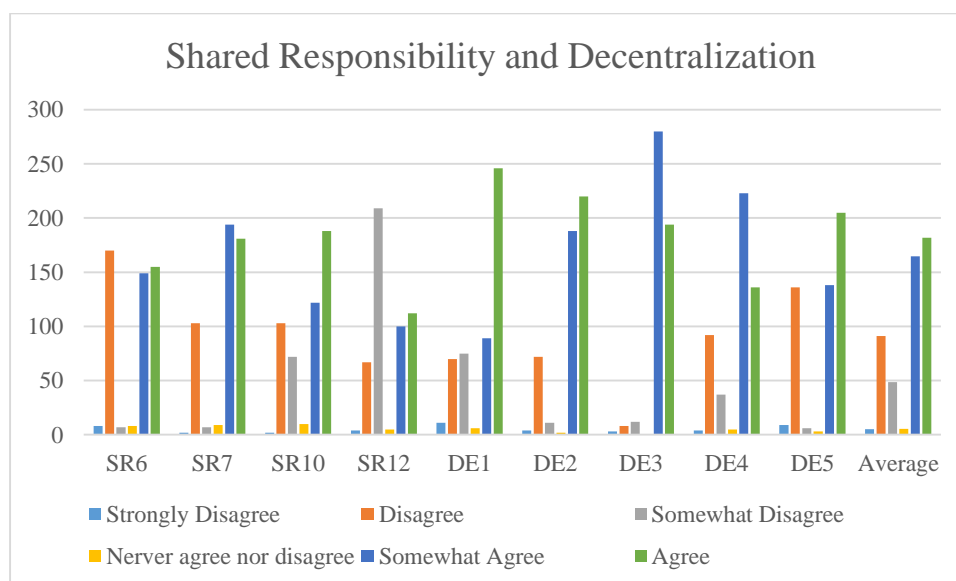
Figure 4.2.5   Respondents' perceptions on existence of shared responsibility and decentralization in the health sector

Source: Study data analysis

This perception might have beed based on the governance structures that are in place without assessing their effectiveness. This observation is explained through the analysis of the results which have noted that most respondents percived that power and fiscal decentralization exists in the sector as presented by the responses to statements DE3 and DE4. These results agree with those noted by Masefield et al., 2020, whose

study established that implementation of partial decentralization has attributed to poor governance in the health sector. This due to the fact that devolvement of power from central gevernment to local councils has been challenges with budgetary constraints and limited government policy disemination.

In the health sector, descriptive statistics for most statements representing shared responsibility depicted a mean score of greater than 4 in the scale of 1 to 7 as most respondents moderately agreed to the statements. Unlike in the education sector encouragement for continuous negotiations among the levels of government had a higher mean score in the health sector. This is due to the fact that negotiation systems represent a form of flexible and adaptive governance where formal and informal structures can be developed to engage stakeholders from a variety of appropriate levels and spheres of influence for the negotiated development of mutually acceptable, collectively analysed and implementable policies (Daniell and Barreteau 2014).This required in the health sector considering that there are many stakeholders playing different roles to ensure effective service delivery.

The standard deviation of the respondents was also greater than 1 in the health sector depicting the variation of the responses. The test for normality in the descriptive analysis of the responses from the study on these parameters from the health sector showed a normal distribution. Scores for excess kurtosis and skewness fell with the -1 and +1 as presented in table 4.2.1. This signifies that shared responsibility is one of the critical principles of public sector governance in the health sector.

Table 4.2.1   Descriptive analysis- Shared Responsibility (Health)

Statements	Mean	SD	Kurtosis	Skewness
SR6: Continuous negotiations are encouraged among nested governments at territorial levels	4.187	1.982	-1.229	-0.09
SR7: A multi-level mechanism exists for policy design and implementation	4.193	1.966	-1.204	-0.12

SR10: Meta -governance is recognized as an important component of multi-level governance	4.153	1.972	-1.213	-0.09
SR12: There is adequate clarity of the interconnected system for policy dispersal/goal/targets at all levels	4.171	1.973	-1.215	-0.1

The results for the descriptive analysis of all the statements representing decentralization in the health sector noted a mean score of greater than 4 on a scale of 1 to 7. This meant that most respondents moderately agreed to the statements. Most respondents agreed that power has been decentralized to local government in the health sector and that there is adequate dispersion of authority with mean scores of 4.287 and 4.265 respectively. The standard deviation of the responses for all the statements was greater than 1 depicting their variation. Greater variation was depicted on the response relating to stakeholder participation being encouraged for effective delivery of policies with a standard deviation of 1.994. The distribution of the responses was fond to be near normal on all the statements as their skewness and kurtosis results were less than 1.

Table 4.2.2   Descriptive analysis- Decentralization (Health)

Statements	Mean	SD	Kurtosis	Skewness
DEC1: There is adequate dispersion of authority at all levels of government?	4.265	1.936	-1.137	-0.19
DEC2: Shared responsibility is promoted across central and local government	4.257	1.939	-1.13	-0.192
DEC3: Power has been decentralized to local government.	4.287	1.929	-1.118	-0.204
DEC4: There is financial/fiscal decentralization in the sector	4.257	1.929	-1.144	-0.186
DEC5: Stakeholder participation is encouraged for delivering policies effectively at all levels	4.235	1.994	-1.228	-0.168

In the education sector, the results of the study noted that most respondents perceived that shared responsibility and decentralization has been embraced as depicted in figure 4.2.6.
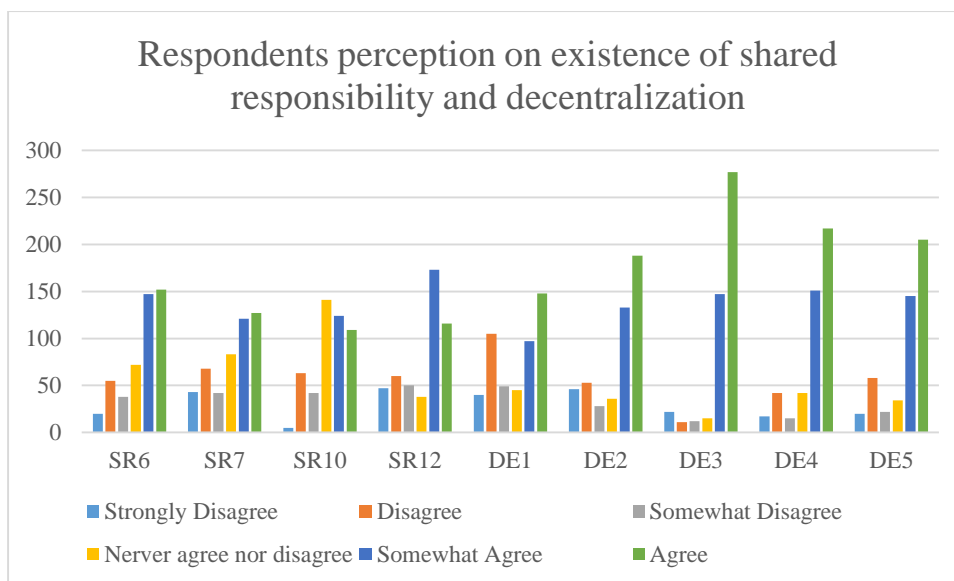
Figure 4.2.6   Respondents perception on existence of shared responsibility and decentralization in education sector

Further, the descriptive analysis results depict that the mean score of the statements for shared responsibility (SR) were greater than 4 in the scale of 1 to 7 in the education sector, which suggest that most respondents moderately agreed with the SR statements. Recognition of meta-governance as an integral component of multi-level governance had a highest mean score of 4.253. Further, most respondents agreed to the existence of adequate clarity of interconnected system for policy dispersal/goals/ targets at all levels of government from the Ministry Headquarters down to the teachers in the districts. Details in table 4.2.3

Table 4.2.3   Descriptive analysis- Shared Responsibility (Education)

Statement	Mean	SD	Kurtosis	Skewness
SR6: Continuous negotiations are encouraged among nested governments at territorial levels	4.241	1.956	-1.158	-0.169
SR7: A multi-level mechanism exists for policy design and implementation	4.243	1.958	-1.143	-0.192
SR10: Meta -governance is recognized as an important component of multi-level governance	4.253	1.948	-1.132	-0.207
SR12: There is adequate clarity of interconnected system for policy dispersal/goal/targets at all levels	4.249	1.952	-1.173	-0.162

The standard deviation of the respondents in all the statements was greater than 1 depicting their variation in responses. The test for normality in the descriptive analysis of the responses from the study on these parameters from the education sector showed a normal distribution. Scores for excess kurtosis and skewness fell with the -1 and +1 as presented in table 4.2.3. This signifies that shared responsibility is one of the critical principles of public sector governance in the education sector.

Descriptive statistical analysis also showed that the mean score for the statements used for decentralization was greater than 4 on the scale of 1 to 7 suggesting that most respondents in the education sector moderately agreed to the statements. Most respondents agreed that shared responsibility was promoted across central and local government with a mean score of 4.357 and that power has been decentralised to the local government with a mean score of 4.355. Despite having a standard deviation of greater than 1 in statement respondents, the results showed greater variation in responses with regards to financial and fiscal decentralization in the education sector with a standard deviation of 1.884. The distribution of the responses was near normal as their kurtosis and skewness were less than 1. Details in table 4.2.4

Table 4.2.4   Descriptive Analysis- Decentralization (Education)

Statements	Mean	SD	Kurtosis	Skewness
DEC1: There is adequate dispersion of authority at all levels of government?	4.337	1.882	-1.07	-0.246
DEC2: Shared responsibility is promoted across central and local government	4.357	1.87	-1.009	-0.282
DEC3: Power has been decentralized to local government.	4.355	1.871	-1.092	-0.236
DEC4: There is financial/fiscal decentralization in the sector	4.331	1.884	-1.08	-0.239
DEC5: Stakeholder participation is encouraged for delivering policies effectively at all levels	4.339	1.879	-1.072	-0.243

4.2.2.2 Descriptive statistics and Respondents' perception on government effectiveness in health and education sectors

In the health sector The results showed on overall the respondents percieved that there is government effectiveness in relation to policy formulation. However, there is less effectiveness with regards credibility of commitment towards policy and quality of service delivery as reflected in figuge 4.2.7 unnder GEI6 and GEI7. This was in line with the study of Masefield et al., (2020) who also observed that there is chaos in the health sector due to systems ineffectiveness which is worsened by the inability of leadership to understand the importance of functional systems outlined in the policies and their potential on saving resources.
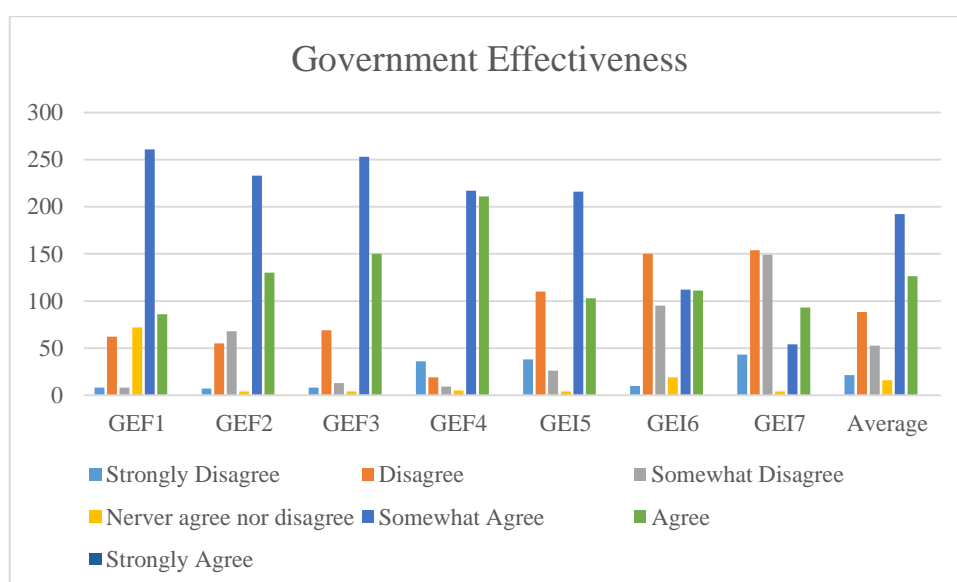
Figure 4.2.7   Respondents' perceptions on government effectiveness in health sector

Source: study data analysis

Descriptive statistical analysis of the results for all the statements representing government effectiveness showed a mean score of greater than 4 on a scale of 1 to 7 in health sector suggesting that most respondents moderately agreed to the statements. Most respondents agreed that the quality of policy formulation was adequate in the health sector with a mean score of 4.225 unlike in the education sector where it scored 4.133. The lowest mean score of 4.153 was noted on statement relating to inclusiveness

in policy formulation process which also had greater variation in responses as depicted by the highest standard deviation of 1.968. All the responses to the statements have a standard deviation of greater than 1 and their distribution was near normal based on the results of their skewness and kurtosis which were both less than 1.

Table 4.2.5   Descriptive analysis- Government Effectiveness (Health)

Statements	Mean	SD	Kurtosis	Skewness
GEF1: The quality of government objectives' implementation is adequate	4.179	1.965	-1.16	-0.149
GEF2: There is inclusiveness in the implementation of government objectives	4.199	1.955	-1.164	-0.154
GEF3: The quality of policy formulation is adequate	4.225	1.949	-1.161	-0.163
GEF4: There is inclusiveness in the in policy formulation process	4.153	1.968	-1.175	-0.133
GEI5: The quality of policy implementation is adequate	4.165	1.958	-1.206	-0.117
GEI6: The credibility of commitment to policy is good	4.173	1.955	-1.191	-0.132
GEI7: The quality of public service delivery is good	4.167	1.956	-1.187	-0.13

In the education sector, the results of the study noted that most respondents perceived that government is effective in relation to policy, objectives and outcomes formulation. However, most respondents perceived that government is less effective in terms of implementation as depicted in figure 4.2.8 on responses to GEI6 and GEI 7 regarding credibility of commitment to policy and delivery of quality education services.
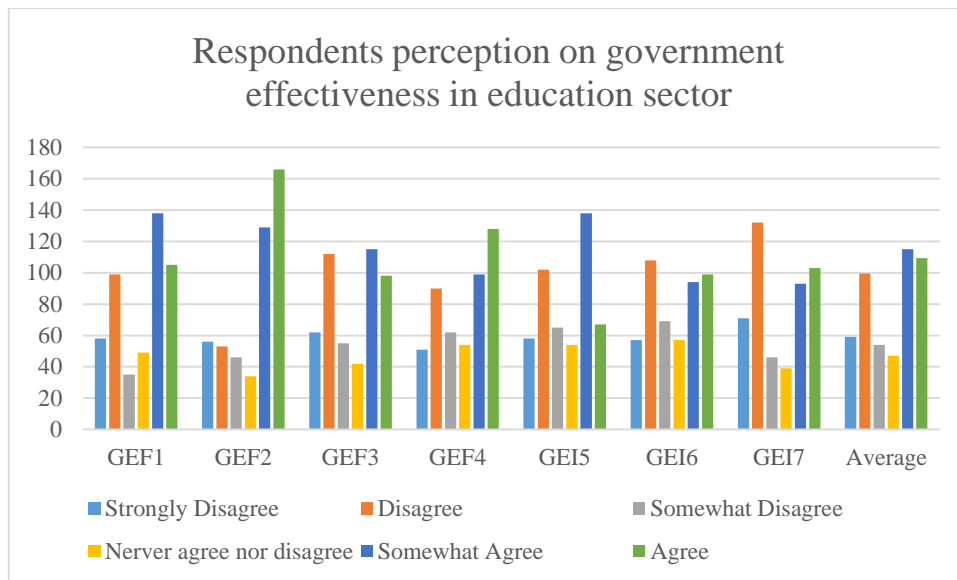
Figure 4.2.8   Respondents perception on government effectiveness in education sector

Descriptive analysis results showed that the mean scores for all the statements representing Government Effectiveness (GE) were greater than 4 on a scale of 1 to 7 suggesting that most respondents in the education sector moderately agreed to the statements. Most respondents agreed that the quality of public service was good with a mean score of 4.197. The results also showed that most respondents agreed that there is inclusiveness in implementing government objective with a mean score of 4.179. lower mean score was noted on the responses to the statement that there is inclusiveness in the policy formulation process. The standard deviation for all the statements was greater than 1 and the distribution of the responses for all the statements was near normal as their skewness and kurtosis were less than 1.

Table 4.2.6   Descriptive analysis- Government Effectiveness (Education)

Statements	Mean	SD	Kurtosis	Skewness
GEF1: The quality of government objectives' implementation is adequate	4.171	1.974	-1.209	-0.114
GEF2: There is inclusiveness in the implementation of government objectives	4.179	1.98	-1.207	-0.142
GEF3: The quality of policy formulation is adequate	4.133	1.99	-1.227	-0.113

GEF4: There is inclusiveness in the in policy formulation process	4.108	1.988	-1.207	-0.103
GEI5: The quality of policy implementation is adequate	4.139	1.997	-1.244	-0.119
GEI6: The credibility of commitment to policy is good	4.177	1.975	-1.194	-0.14
GEI7: The quality of public service delivery is good	4.197	1.986	-1.221	-0.152

4.2.2.3 Descriptive Statistics and Respondents' perception on voice and accountability in health and education sectors

Voice and accountability refer to the degree to which citizens participate in governance. Greater levels of voice and accountability help reduce corruption in government. An enabling environment need to exist in order to facilitate greater levels of voice and accountability.

Results from the health sector noted that respondents perceived that voice and accountability is embraced with regards to existence of both formal and informal institutions that provide an enabling environment for voice and accountability and effective vertical and horizontal responsiveness as depicted in figure 4.2.9. For instance, hospital ombudsman was introduced as a new role to foster improved service delivery that allows for social accountability between the communities and facilities through improved connections between the service providers and users. On the other hand, respondents agreed on the sector having less accountability for resource utilization and inability to effectively implement the Mid-Term Expenditure Framework as an accountability device. This contributes to inefficient governance in the health sector. This observation confirms the conclusion made by Mhango and Chirwa, 2018.
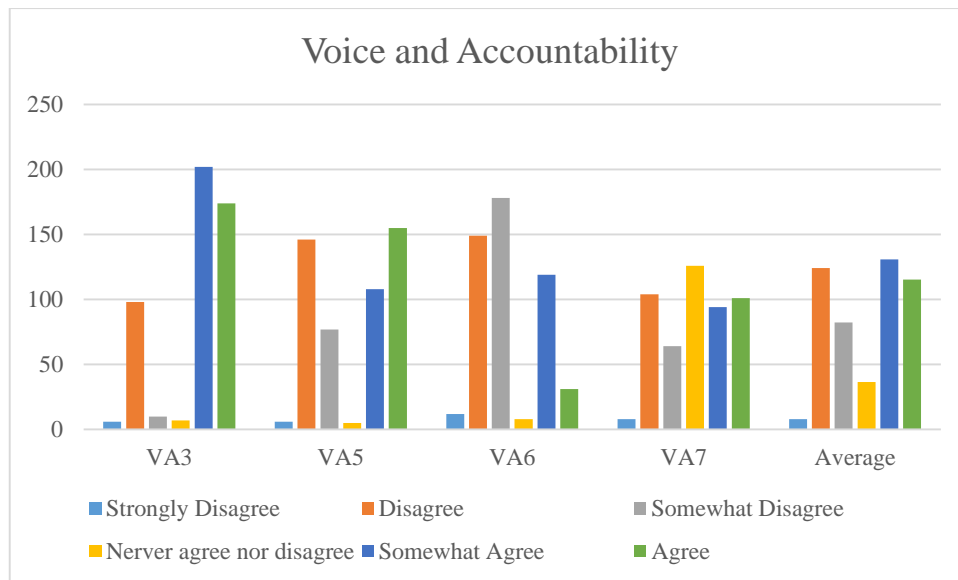
Figure 4.2.9 Respondents' perception on voice and accountability in health sector

Descriptive statistical analysis results in the health sector showed that mean scores for the statements describing voice and accountability were greater than 4 on a scale of 1 to 7 suggesting moderate agreement of the respondents to the statements. The mean score in the health sector were found to be lower than those observed in the education sector. Higher mean score of 4.177 was noted against the responses to the statement relating to existence of effective vertical and horizontal responsiveness. The lower mean score of 4.114 was noted against the responses relating to effective implementation of MTEF as an accountability device in the health sector just as in the education sector. Scores for the standard deviation on all responses to the statements were greater than 1 with a near normal distribution as skewness and excess kurtosis scores were less than 1.

Table 4.2.7 Descriptive analysis- Voice and Accountability (Health)

Statements	Mean	SD	Kurtosis	Skewness
VA3: Formal and informal institutions exist in the sector to provide an enabling environment for voice and accountability	4.161	1.976	-1.217	-0.116
VA5: Effective vertical and horizontal responsiveness exist in the sector	4.177	1.962	-1.202	-0.131

175

VA6: The sector has a greater accountability for resource utilization	4.155	1.965	-1.217	-0.099
VA7: The sectors have effectively implemented MTEF as an accountability device	4.114	1.974	-1.219	-0.087

In the education sector the results noted that most respondents perceived that voice and accountability was being embraced as depicted in figure 4.2.10. However, most respondents perceived that implementation of MTEF as accountability device was less effective in the sector as per responses to VA7.
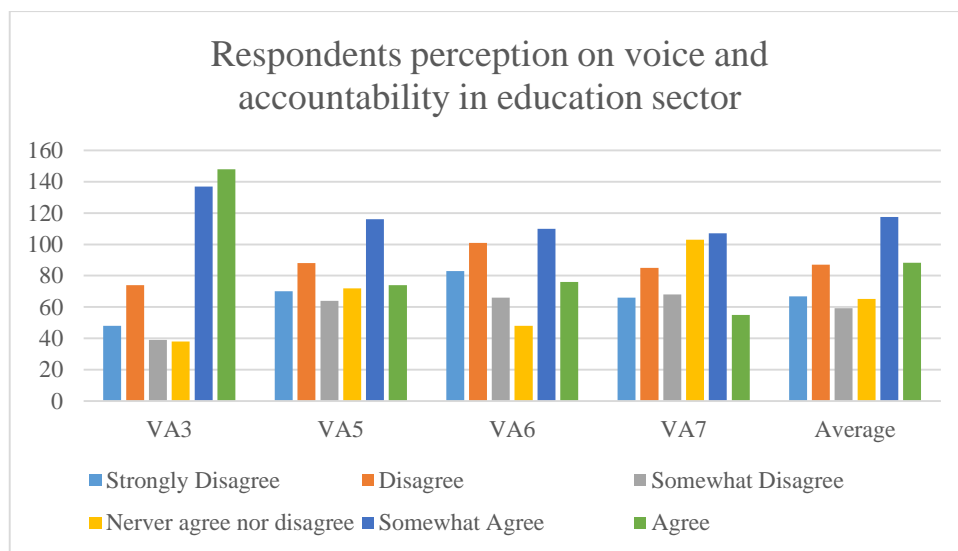
Figure 4.2.10 Respondents perception on voice and accountability in education sector

In the education sector, descriptive statistical analysis results of the analysis showed that mean scores for most of the statements representing voice and accountability were greater 4 on a scale of 1 to 7 which suggested that most respondents moderately agreed to these statements. Higher mean score of 4.297 was noted on statement that related to existence of effective horizontal and vertical responsiveness. Lower mean score of 4.241 was noted with regards responses on effective implementation of Medium-Term Expenditure Framework (MTEF) as an accountability device. The standard deviation for the respondents to all the statements was greater than 1 with the highest being 1.966 for the responses relating to existence of formal and informal institutions that provide an enabling environment for voice and

accountability. The distribution of the responses was near normal with kurtosis and skewness values of less than 1.

Table 4.2.8   Descriptive analysis- Voice and Accountability (Education)

Statements	Mean	SD	Excess Kurtosis	Skewness
VA3: Formal and informal institutions exist in the sector to provide an enabling environment for voice and accountability	4.249	1.966	-1.19	-0.18
VA5: Effective vertical and horizontal responsiveness exist in the sector	4.297	1.947	-1.134	-0.229
VA6: The sector has a greater accountability for resource utilization	4.257	1.962	-1.166	-0.19
VA7: The sectors have effectively implemented MTEF as an accountability device	4.241	1.956	-1.169	-0.176

4.2.2.4 Descriptive statistics and Respondents' perception on risk management in health and education sectors

The results showed that risk management is inadequate in the health sector considering that there no functioning risk management committees including audit committees. Further the sector' financial management system is weak and no strategies exist for managing emerging risks as depicted in figure 4.2.11.
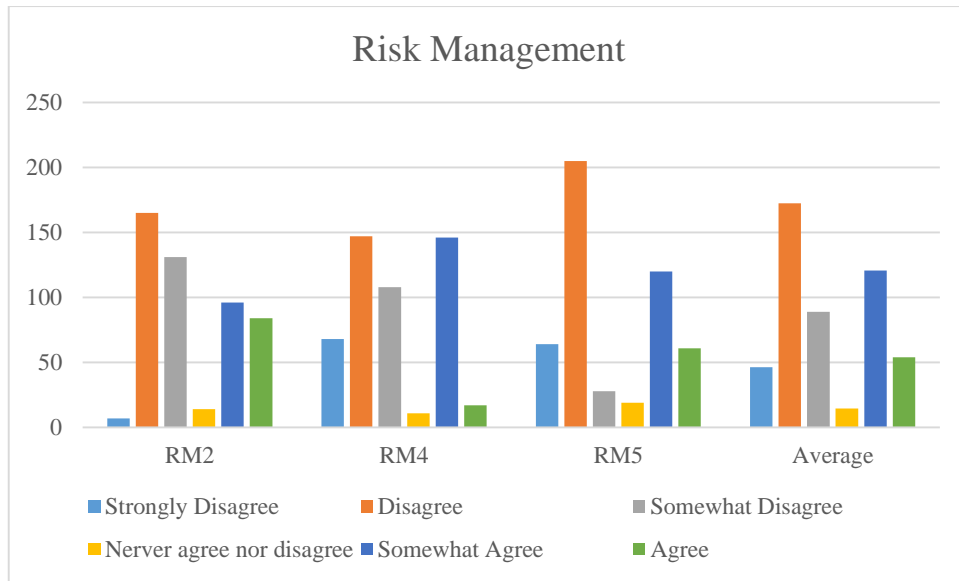
Figure 4.2.11 Respondents perception on risk management in health sector

The results noted mixed perceptions among respondents on existence of risk management strategies exist and their implementation in the education sector as depicted in figure 4.2.12. thus most respondents perceived the existence of a functional risk/audit committee in the sector. Most respondents perceived that the financial management system in the sector is weak and that there is less implementation of strategies for managing emerging risks.
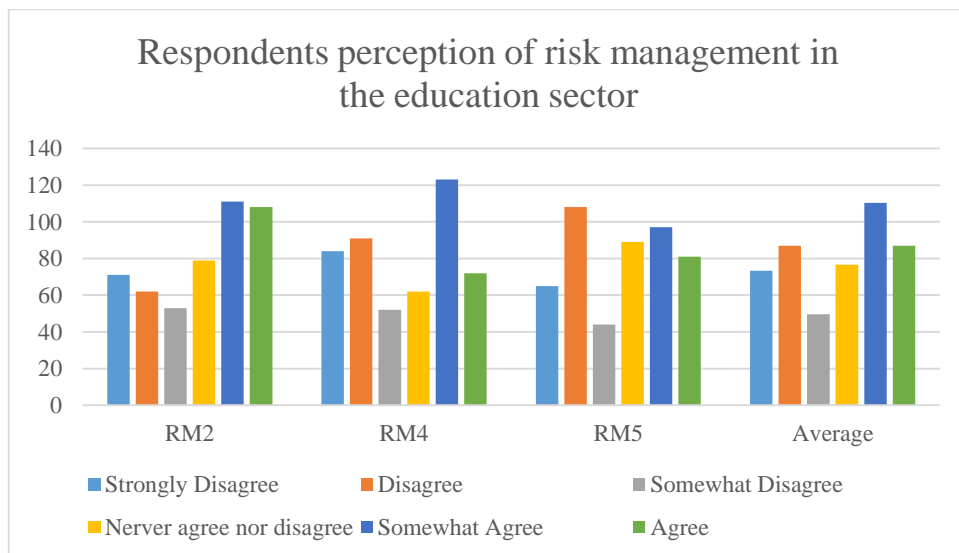
Figure 4.2.12 Respondents perception of risk management in the education sector

Descriptive statistical analysis results in both education and health sectors showed mean scores for the statements representing risk management and robust internal control were greater than 4 on a scale of 1 to 7 suggesting that respondents moderately agreed to these statements. Most respondents from both sectors agreed that the sectors have implemented strategies for managing emerging risks with mean scores of 4.271 and 4.315 in education and health respectively. High variation in responses were noted with regards the sectors having functioning risk and audit committees with standard deviation of 1.956 and 1.94 in education and health sectors respectively. The respondents' distribution was near normality as the skewness and kurtosis were both less than 1.

Table 4.2.9   Descriptive analysis- Risk Management (Education)

Statements	Mean	SD	Kurtosis	Skewness
RM2: The sector has a functioning risk committee/audit committee	4.229	1.956	-1.164	-0.176
RM4: The sectors financial management system is strong	4.257	1.947	-1.13	-0.209
RM5: The sectors have implemented strategies for managing emerging risks	4.271	1.951	-1.141	-0.195

Table 4.2.10   Descriptive analysis- Risk Management (Health)

Statements	Mean	SD	Kurtosis	Skewness
RM2: The sector has a functioning risk committee/audit committee	4.215	1.94	-1.216	-0.13
RM4: The sectors financial management system is strong	4.255	1.925	-1.205	-0.152
RM5: The sectors have implemented strategies for managing emerging risks	4.315	1.9	-1.188	-0.183

4.2.2.5 Descriptive statistics and Respondents perception on citizen participation in health and education sectors

In the health sector, the study noted that most respondents agreed that stakeholder engagement has facilitated partnerships between central and local government and that the sector implements community based monitoring. However,

they disagreed with the fact that Citizen engagement has led to increased public awareness of the SDGs as depicted in figure 4.2.13. this also confirms the observations by Masefield et al, 2020.
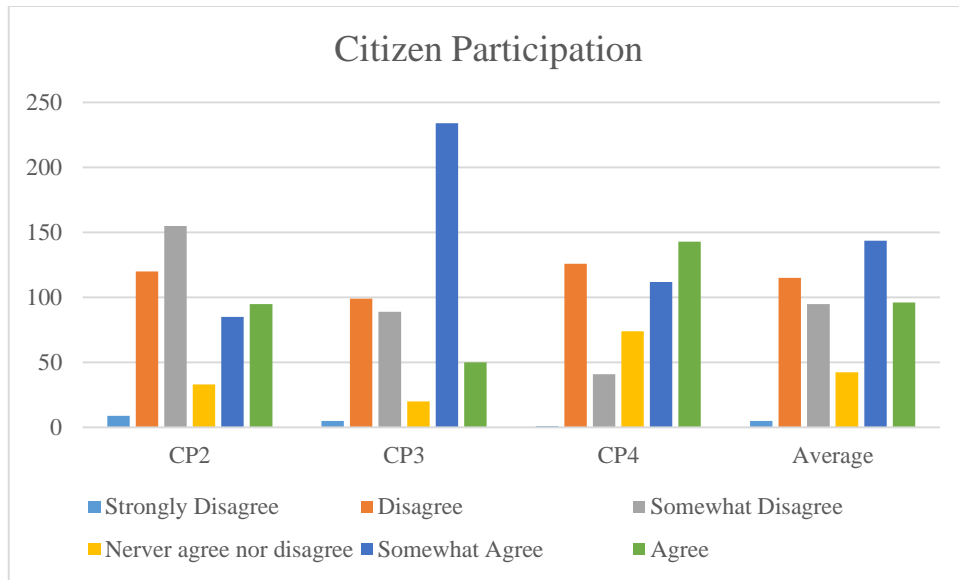
Figure 4.2.13 **Respondents perception on citizen participation in health sector**

The results noted that citizen engagement is embraced in the education sector as depicted in figure 4.2.14. This could be attributed to the involvement of community monitoring and the Parent and Teachers Association that meets regularly to ensure citizens interests are taken on board.
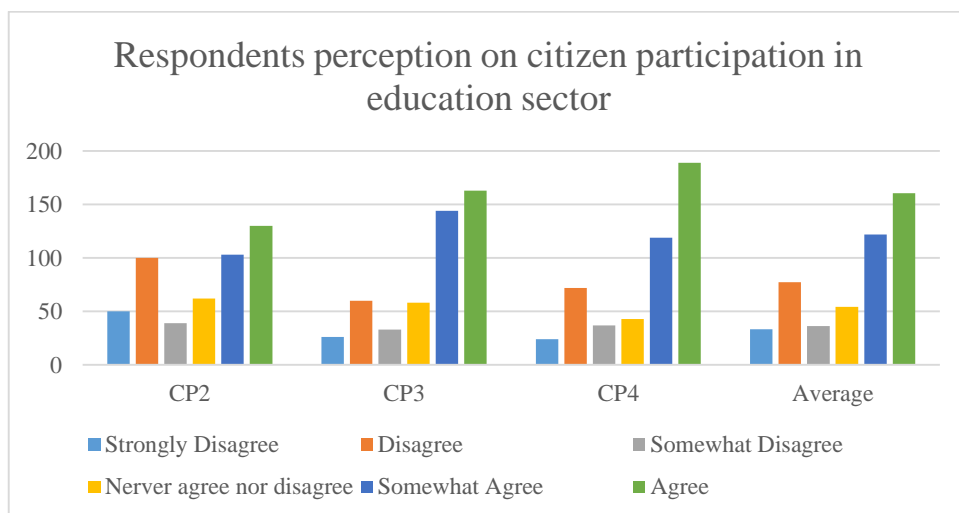
Figure 4.2.14 **Respondents perception on citizen participation in education sector**

Results showed that the mean scores for the statements representing Citizen Participation were greater than 4 on a scale of 1 to 7 in both education and health sectors, suggesting that most respondents moderately agreed to the statements. Higher mean scores were reported on the statement relating to citizen engagement leading to increased awareness of the SDGs in both sectors with mean scores of 4.331 and 4.439 in education and health sectors respectively. Greater variation in respondents to all statements were noted in both sectors as the standard deviation was greater than 1 with the highest being 1.975 and 1.978 in education and health respectively for the statement relating to stakeholder engagement facilitating partnerships between central and local governments. The distribution of respondents was near normality with skewness and kurtosis scores of less than 1 in all statements.

Table 4.2.11   Descriptive analysis- Citizen Participation (Education)

Statements	Mean	SD	Kurtosis	Skewness
CP2: Citizen engagement has led to increased public awareness of the SDGs	4.331	1.962	-1.139	-0.182
CP3: Stakeholder engagement has facilitated partnerships between central and local government	4.261	1.975	-1.165	-0.15
CP4: The sector implements community-based monitoring	4.289	1.965	-1.132	-0.182

Table 4.2.12   Descriptive analysis- Citizen Participation (Health)

Statements	Mean	SD	Kurtosis	Skewness
CP2: Citizen engagement has led to increased public awareness of the SDGs	4.438	1.965	-1.14	-0.23
CP3: Stakeholder engagement has facilitated partnerships between central and local government	4.191	1.978	-1.175	-0.14
CP4: The sector implements community-based monitoring	4.414	1.797	-0.959	-0.188

4.2.3 Assessment of Significance and Relevance of Indicator Weights in health and education sectors

4.2.3.1 Assessment of Significance and Relevance of Indicator Weights in health sector

The descriptive statistical analysis that was conducted in order to get an inference of health sector's respondents' perceptions on the statements describing the governance construct. This was supported with Structural Equation Modelling (SEM) results to find the weight and significance of the indicators on how relevant one is as compared to another. The study utilized Structural Equation Modelling (SEM) for data analysis since it may statistically compare prior theoretical assumptions with empirical data. SEM evaluates the qualities of the scales used to measure theoretical constructs and estimates the hypothesized relationships between those constructs (Barclay et al., 1995; Chin et al., 2003; Westland, 2007). Consequently, SEM is able to address a collection of interrelated research questions concurrently by utilizing both a measuring model and a structural model.

This observation made using the descriptive analysis was supported with evidence from an evaluation of significant and relevant indicator weights drawn from Smart PLS-SEM as presented in figure 4.2.15 and with the results of the tests in table 4.2.13. The relative relevance of a construct is revealed by the weighted significance of each indicator. In order to investigate the importance and applicability of the weights of these indicators the study utilized Smart PLS (Ringle et al., 2015). It further employed the bootstrapping method with 996 samples to evaluate the relevance of the formative indicator weights. For an indicator to be significant and relevant, Lohmöller, (1989) suggested a weight that is greater than 0.1 to be achieved. The findings in this study show that the indicator weights were higher than the suggested level of 0.1.
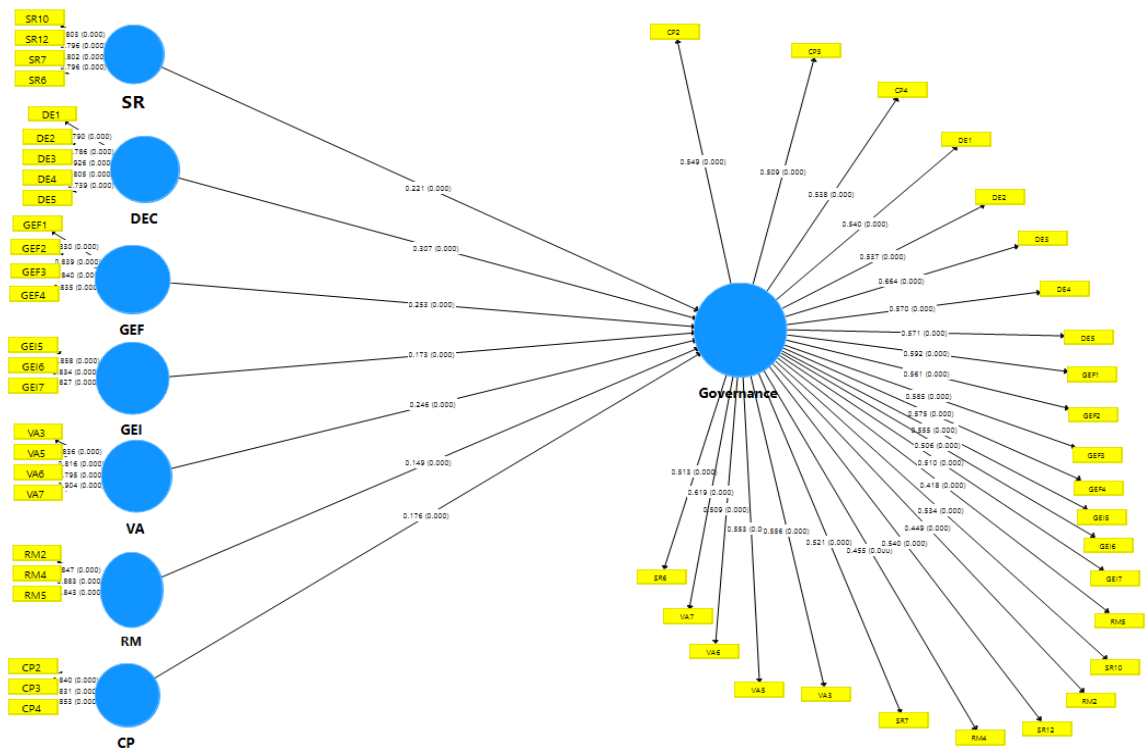
Figure 4.2.15 Evaluation of Significance and Relevance of Indicator Weights

Table 4.2.13   Testing of Significance of Weights

Second Order Construct	Path	Original Sample (O)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	CI	
						2.5%	97.5%
Governance (GOV)	**CP -> GOV**	0.176	0.010	17.351	**0.000**	0.155	0.197
	DEC -> GOV	0.307	0.017	18.262	**0.000**	0.276	0.339
	GEF -> GOV	0.253	0.012	20.292	**0.000**	0.227	0.277
	GEI -> GOV	0.173	0.011	16.061	**0.000**	0.150	0.194
	RM -> GOV	0.149	0.013	11.669	**0.000**	0.119	0.172
	SR -> GOV	0.221	0.014	16.348	**0.000**	0.193	0.246
	VA -> GOV	0.246	0.014	17.460	**0.000**	0.219	0.272

Table 4.2.13 and Figure 4.2.15 demonstrate that all formative indicator weights had significant t-values, hence giving empirical support for retaining all formative indicators (Hair et al., 2011). In addition, Table 4.2.13 includes the confidence interval and t values for formative indicators that have supplied additional evidence about the relevance of weights because 0 did not occur between the upper and lower confidence interval values. Based on this evaluation, the study confirms that decentralisation was perceived to be a relatively important variable in explaining the Governance Framework, in the health sector, with the highest significance β) value of 0.307

followed by government effectiveness in policy formulation β) value of 0253. The lowest relevance and significance was observed on risk management with β) value of 0.149.

4.2.3.2 Assessment of Significance and Relevance of Indicator Weights in Education sector

Descriptive statistical analysis was conducted in order to get an inference of education sector's respondents' perceptions on the statements describing the governance construct. Again, the observations made using the descriptive analysis were supported with evidence from an evaluation of significant and relevant indicator weights drawn from Smart PLS-SEM in order to find the weight and significance of the indicators on how relevant one is as compared to another. as presented in figure 4.2.16 and with the results of the tests in table 4.2.14. The findings in this study for the education sector show that the indicator weights were higher than the suggested level of 0.1.
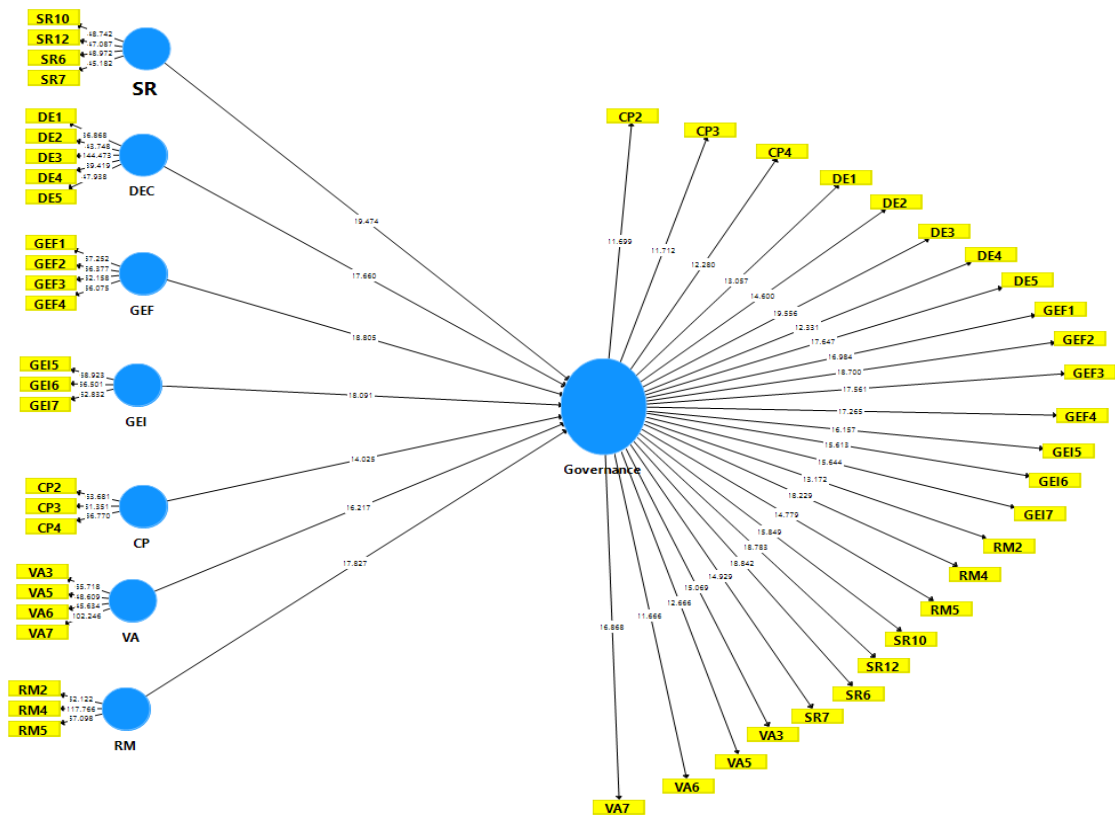
Figure 4.2.16 Evaluation of Significance and Relevance of Indicator Weights in Education

Table 4.2.14   Testing of Significance of Weights

Second Order Construct	Path	Original Sample	Standard Deviation	T Statistics	P Values	Confidence Interval	
						2.5%	97.5%
Governance (GOV)	CP -> GOV	0.156	0.011	13.903	**0.000**	0.132	0.177
	DEC -> GOV	0.290	0.017	16.860	**0.000**	0.251	0.320
	GEF -> GOV	0.252	0.013	19.641	**0.000**	0.226	0.274
	GEI -> GOV	0.181	0.010	17.837	**0.000**	0.161	0.200
	RM -> GOV	0.181	0.011	16.176	**0.000**	0.158	0.202
	SR -> GOV	0.230	0.012	19.823	**0.000**	0.206	0.252
	VA -> GOV	0.234	0.015	15.249	**0.000**	0.202	0.265

Table 4.2.14 and Figure 4.2.16 demonstrate that all weights of formative indicators had significant t-values, providing empirical support for retaining all formative indicators (Hair et al., 2011). In addition, Table 4.2.14 includes the confidence interval and t values for formative indicators that have supplied additional evidence indicating the relevance of weights because 0 did not occur between the upper and lower confidence interval values. Based on this evaluation, the study confirms that decentralisation was perceived to be a relatively important variable in explaining the Governance Framework, in the health sector, with the highest significance β) value of 0.290 followed by government effectiveness in policy formulation β) value of 0252. The lowest relevance and significance was observed on Voice and accountability with β) value of 0.156. However, all the variables have been significantly and positively perceived by the respondents.

4.3 Comparative analysis of the governance structures in education and health sectors:

In conclusion, the study has revealed that governance structure in the health and education sectors exist and are capable of enabling the implementation of a number of variables that describe governance such as shared responsibility, government effectiveness, voice and accountability, risk management and citizen engagement or participation. Despite the existence of these structures the sectors continue facing challenges of inefficient governance due to poor ineffective implementation of decentralization policy, weak financial management systems that have affected service delivery.

The study noted that the governance structure in the sectors of health and education are similar in Malawi. Both have structures at central and local government level. Decentralization in both sectors was challenged with issues of capacity and resource constraints. In both sectors executive control continued for a long time despite making some strides toward implementation of the decentralization policy. For the respondents' perceptions in this study, it has been noted that the perception in a number of antecedents underpinning governance were similar. For instance, in both

sectors respondents perceived that there are weak financial management systems and that risk management has not been well-embraced.

The SEM results on Significance Evaluation and Indicator Weights Relevance from both health and education sectors also noted that decentralization had the highest relevance and significance in explaining the governance construct and was followed by government effectiveness in policy formulation. However, the difference was noted on the indicators that scored the lowest. In health, risk management scored the lowest while in the education the lowest was voice and accountability.

4.4 Descriptive statistical analysis for PFM, Service Delivery and SDGs

Descriptive statistics, like as mean, skewness and standard deviation refer to summarized information used for describing observations in a research study. They summarize in simple terms the research samples and their measures (Bland, 2015; Sundaram et al., 2014). Descriptive statistics applied were as presented in the following paragraphs:

4.4.1 Descriptive analysis: Public Finance Management (PFM)

The results showed that most statements representing public finance management had mean scores of greater than 4 on a scale of 1 to 7 in both education and health sectors. The highest mean scores of 4.231 were noted on statement relating education sector having effective control on spending while in the health sector higher mean score of 4.681 was noted with regards to response on the sector having a realistic budget that are timely executed. Standard deviation for responses to the statements in both sectors were greater than 1.

Huge variation in responses were noted on statement relating to education sector on allocating resources with alignment to sector's public priorities with a standard deviation score of 1.971 while in health huge variation in responses was noted on statement relating to improved operating efficiency with a standard deviation score of 1.975. the distribution of the responses was near normality in both sectors with kurtosis and skewness scores of less than 1

Table 4.4.1   Descriptive analysis: PFM - Value for money (Education)

Statements	Mean	SD	Kurtosis	Skewness
VFM1: The budget process in the sector's is credible, reliable and efficient	4.207	1.96	-1.176	-0.16
VFM2: The budget process in the sector is transparent and participatory	4.207	1.951	-1.184	-0.13
VFM3: The sector has an effective control of public spending	4.231	1.967	-1.182	-0.156
VFM4: Allocation of Resources are aligned with the sectors public priorities	4.135	1.971	-1.212	-0.074
VFM5: There is improved operational efficiency in the sector	4.173	1.969	-1.203	-0.114
VFM6: The sector's PFM systems (Institutional capacities) are well designed	4.211	1.961	-1.183	-0.136
VFM8: The budgets are realistic and are executed timely	4.195	1.966	-1.195	-0.127

Table 4.4.2   Descriptive analysis: PFM - Value for money (Health)

Statements	Mean	SD	Kurtosis	Skewness
VFM1: The budget process in the sector's is credible, reliable and efficient	4.293	1.971	-1.189	-0.176
VFM2: The budget process in the sector is transparent and participatory	4.345	1.947	-1.161	-0.195
VFM3: The sector has an effective control of public spending	4.293	1.961	-1.173	-0.169
VFM4: Allocation of Resources are aligned with the sectors public priorities	4.307	1.955	-1.157	-0.169
VFM5: There is improved operational efficiency in the sector	4.255	1.975	-1.199	-0.139
VFM6: The sector's PFM systems (Institutional capacities) are well designed	4.275	1.942	-1.133	-0.165
VFM8: The budgets are realistic and are executed timely	4.681	1.739	-0.706	-0.43

4.4.2   Descriptive Analysis: Service Delivery

The results showed that all statements representing service delivery in both education and health sectors had mean scores of greater than 4 on scale of 1 to 7 suggesting that most respondents moderately agreed to the statements. The highest

mean scores were noted on education sector having an effective mechanism for measuring service delivery (i.e. mean score of 4.165) while in health sector a higher mean score of 4.42 was noted on a statement relating to resources utilization for intended purpose. In both sectors the standard deviation was greater than 1 and highest variation was noted on statement relating to improved service quality in both education and health sectors with a standard deviation score of 1.982 and 1.943 respectively. The distribution of the responses in both sectors were near normality with kurtosis and skewness scores of less than 1.

Table 4.4.3   Descriptive analysis: PSP – Service Delivery (Education)

Statements	Mean	SD	Kurtosis	Skewness
SD1: There is an effective mechanism for measuring service delivery in the sector	4.165	1.965	-1.191	-0.147
SD2: Allocated resources are utilized for the intended purpose	4.139	1.971	-1.193	-0.131
SD3: Service delivery in the sectors is effective and equitable	4.163	1.968	-1.19	-0.152
SD4: There are appropriate incentives for service delivery	4.163	1.962	-1.173	-0.152
SD5: Service quality in the sector is improved	4.122	1.982	-1.22	-0.118

Table 4.4.4   Descriptive analysis: PFM - Value for money (Health)

Statements	Mean	SD	Kurtosis	Skewness
SD1: There is an effective mechanism for measuring service delivery in the sector	4.293	1.938	-1.172	-0.207
SD2: Allocated resources are utilized for the intended purpose	4.42	1.909	-1.139	-0.28
SD3: Service delivery in the sectors is effective and equitable	4.351	1.918	-1.152	-0.239
SD4: There are appropriate incentives for service delivery	4.341	1.923	-1.153	-0.233
SD5: Service quality in the sector is improved	4.321	1.943	-1.172	-0.213

4.4.3 Descriptive Analysis: SDG4-Education

- **Education**

The results showed that statements representing achievement of SDG target 4.1 had mean scores of greater than 4 on a scale of 1 to 7 suggesting that most respondents agreed to the statements. The highest mean score of 4.215 was noted on provision of free, equitable and quality primary education. The standard deviation for the respondents was greater than 1, the highest being 1.96 for statement on provision of free, equitable and quality secondary education. Distribution of responses were near normality with excess kurtosis and skewness scores of less than 1 in all statements.

Table 4.4.5   Descriptive analysis: SDG4 – Free and equitable Education

Statements	Mean	SD	Kurtosis	Skewness
SDGE4_1_1: Free, equitable and quality primary education has been provided in the country	4.215	1.951	-1.196	-0.152
SDGE4_1_2: Free, equitable and quality secondary education has been provided in the country	4.187	1.96	-1.186	-0.147
SDGE4_1_3: Drop-out rate for primary education has been controlled	4.207	1.956	-1.19	-0.15
SDGE4_1_4: Primary and Secondary school enrolment has increased	4.213	1.955	-1.17	-0.168

- **Access to Education**

The results showed that statements representing access to education had mean scores of greater than 4 on a scale of 1 to 7, suggesting that most respondents were in agreement. The highest mean score of 4.809 was noted on school feeding incentive improving ECD enrolments. Standard deviation for all responses was greater than 1 with the highest variation being noted on statement relating to increased coverage of ECD services (i.e. standard deviation of 1.655). the distribution of the responses was near normality with excess kurtosis and skewness scores of less than 1 in all statements.

Table 4.4.6   Descriptive analysis– Access to Education

Statements	Mean	SD	Kurtosis	Skewness
SDGE4_2_1: Boys and girls access to quality early childhood development and care has improved	4.793	1.636	-1.127	-0.346
SDGE4_2_2: Training of Early Childhood development teachers has improved	4.783	1.638	-1.133	-0.341
SDGE4_2_3: Coverage of ECD services has increased	4.757	1.655	-1.168	-0.329
SDGE4_2_4: Each education district has an ECD Resource Centre	4.785	1.645	-1.149	-0.342
SDGE4_2_5: school feeding incentive has improved ECD enrolments	4.809	1.64	-1.137	-0.344

- **Teaching and learning facilities**

The results showed that statement representing SDG target 4a had mean scores of greater than 4 on a scale of 1 to 7, suggesting than most respondents were in agreement to the statements. The highest mean score of 4.275 was noted on statement regarding supply of teaching and learning materials while the lower mean score of 4.243 related to access to electricity in schools. Standard deviation of the respondents to all statements was greater than 1 and higher variation was on access to electricity in schools with standard deviation of 1.979. Distribution of responses was near normality with excess kurtosis and skewness scores of less than 1 in all statements.

Table 4.4.7   Descriptive analysis- Teaching and Learning Facilities

Statements	Mean	SD	Kurtosis	Skewness
SDGE4a_1: Teaching and learning materials for primary school are provided	4.275	1.955	-1.181	-0.192
SDGE4a_2: Primary education facilities have been built and upgraded	4.259	1.955	-1.168	-0.198
SDGE4a_3: Access to electricity has been provide in schools	4.243	1.979	-1.213	-0.178
SDGE4a_4: Access to drinking water has been provided in schools	4.255	1.961	-1.182	-0.174

- **Teacher Supply**

The results showed that statement representing SDG target 4c had mean scores of greater than 4 on a scale of 1 to 7, suggesting than most respondents were in agreement to the statements. The highest mean score of 4.896 related to the statement on supply of qualified teachers despite having a higher variation in responses (standard deviation = 1.622). Standard deviation for responses to all the statements was greater than 1. Distribution of responses was near normality with skewness and excess kurtosis scores of less than 1.

Table 4.4.8   Descriptive analysis: Teacher Supply

Statements	Mean	SD	Kurtosis	Skewness
SDGE4c_1: Pupil-teacher ratio for primary education has been maintained	4.89	1.598	-0.987	-0.432
SDGE4c_2: Pupil-teacher ratio for secondary education has been maintained	4.863	1.621	-1.027	-0.411
SDGE4c_3: Teachers are receiving at least minimum organized training	4.867	1.614	-1.017	-0.428
SDGE4c_4: Supply of qualified teachers has increased	4.896	1.622	-1	-0.465

4.4.4   Descriptive analysis: Health

- **Maternal Mortality**

The results showed that statement representing SDG target 3.1 had mean scores of greater than 4 on a scale of 1 to 7, suggesting than most respondents were in agreement to the statements. The highest mean score of 4.291 related to control of maternal mortality ratio. Statement on Percentage of pregnant women receiving 3 or more doses of IPT during antenatal increased had a lower mean score of 4.177 with higher variation in respondents of standard deviation equal to 1.971. Distribution of responses was near normality with excess kurtosis and skewness scores of less than 1.

Table 4.4.9   Descriptive analysis- Maternal Mortality

Statements	Mean	SD	Kurtosis	Skewness
SDGH3.1.1: Maternal mortality ratio has been controlled	4.291	1.949	-1.171	-0.178
SDGH3.1.2: Proportion of births attended by skilled health personnel has improved	4.255	1.936	-1.148	-0.184
SDGH3.1.3: Antenatal coverage in the first trimester is very high in the country	4.245	1.947	-1.172	-0.164
SDGH3.1.4: Percentage of pregnant women receiving 3 or more doses of IPT during antenatal increased	4.177	1.971	-1.201	-0.113

- **End Pandemics of HIV, TB and Malaria**

The results showed that statement representing SDG target 3.3 had mean scores of greater than 4 on a scale of 1 to 7, suggesting than most respondents were in agreement to the statements. Highest mean score of 4.201 was noted on statement relating improvement of country's progress towards the 95-95-95 HIV treatment. All statements had a standard deviation for the respondents of greater than 1. High variation was on statement relating to control of the new TB infections in the country with standard deviation score of 1.978. The distribution of responses was near normality normality with excess kurtosis and skewness scores of less than 1.

Table 4.4.10   Descriptive analysis: End Pandemics of HIV, TB and Malaria

Statements	Mean	SD	Kurtosis	Skewness
SDGH3.3.1: The number of new HIV infections in the country has been controlled	4.161	1.974	-1.217	-0.102
SDGH3.3.2: Country's progress towards the 95-95-95 HIV treatment has improved	4.201	1.961	-1.196	-0.13
SDGH3.3.3: The number of new tuberculosis infections in the country has been controlled	4.163	1.978	-1.217	-0.108
SDGH3.3.4: The number of new malaria infections in the country has been controlled	4.147	1.971	-1.209	-0.107

- **Universal Access to Health Services**

The results showed that statement representing SDG target 3.8 had mean scores of greater than 4 on a scale of 1 to 7, suggesting than most respondents were in agreement to the statements. Higher mean score of 4.215 was reported on responses relating to improved access to ambulatory services while access to safe, effective, quality and affordable medicines had a lower mean score of 4.183 despite a higher variation in the respondents with standard deviation of 1.986. All responses to the statements had a standard deviation of greater than 1. The distribution of responses was near normality normality with excess kurtosis and skewness scores of less than 1.

Table 4.4.11   Descriptive analysis- Universal Access to Health Services

Statements	Mean	SD	Kurtosis	Skewness
SDGH3.8.1: Health facilities have been constructed and rehabilitated to improve access health services	4.211	1.978	-1.221	-0.143
SDGH3.8.2: Ambulatory services have improve access to health services in the country	4.215	1.98	-1.212	-0.152
SDGH3.8.3: Financial risk protection has improved access to health services (Masefield et l., 2020; National Health Policy II, 2017)	4.201	1.983	-1.213	-0.159
SDGH3.8.4: There is access to safe, effective, quality and affordable medicines (Masefield et l., 2020; National Health Policy II, 2017)	4.183	1.986	-1.228	-0.132

- **Health Resourcing**

The results showed that statement representing SDG target 3c had mean scores of greater than 4 on a scale of 1 to 7, suggesting than most respondents were in agreement to the statements. Higher mean score of 4.562 was reported on responses to statement regarding increased recruitment of health workers. A lower mean score of 4.526 was reported on implementation of development and training of health workers although there was higher variation of standard deviation 1.823. All responses to the statements has a standard deviation greater than 1 signifying variation among respondents. The

distribution of the responses was near normality as the skewness and excess kurtosis were less than 1.

Table 4.4.12   Descriptive analysis- Health Resourcing

Statements	Mean	SD	Kurtosis	Skewness
SDGH3.c.1: Health Financing has increased (Masefield et l., 2020; National Health Policy II, 2017)	4.544	1.816	-0.85	-0.43
SDGH3.c.2: Recruitment of health workers has increased (Masefield et l., 2020; National Health Policy II, 2017)	4.562	1.804	-0.79	-0.46
SDGH3.c.3: Health worker density and distribution has improved (Masefield et l., 2020; National Health Policy II, 2017)	4.538	1.815	-0.851	-0.43
SDGH3.c.4: Development and training of health workers has been implemented (Masefield et l., 2020; National Health Policy II, 2017)	4.526	1.823	-0.843	-0.43

CHAPTER 5: HIGHER ORDER CONSTRUCTS ANALYSIS AND SERIAL MEDIATION RESULTS

This chapter presents the results of the analysis of the data collected from a sample of 996 respondents drawn from education and health sectors. The discussion starts with the contrast between "reflective" and "formative" constructions has been taken into account at the commencement of the analysis. Reflective-formative methodology has been selected for the objective of determining the higher-order construct. Second, in the first stage of the analysis, the estimation and measurement model assessment for the lower-order components was conducted using the standard model, which drew direct links between the constructs without the higher-order component in the PLS route model. Thirdly, in stage two, the stage one latent variable scores allowed for the creation and estimation of the model. Lastly, the results of the hypotheses testing are discussed.

5.1 Results and Analysis

A causal chain connecting the mediators and a predetermined direction of causal flow is presupposed in serial mediation (Hayes, 2012). The Governance-Sustainable Development Goals (GSDG) Model's constructions have the potential to act as a casual chain, hence a model known as serial mediation (Hayes, 2012) has been applied in the current study. For instance, enhanced governance could lead to improved PFM, and PFM could impact better service delivery, which could forecast the achievement of sustainable development goals (Governance- PFM -SD-SDG). This is plausible because a Value for money centered message could lead to increased perceptions of PFM, and these increased perceptions of PFM may lead one to recognize the benefits of engaging in the desirable behaviour, namely achieving SDGs, which are only identifiable after developing a sense of PFM. Despite the improbability of a complete causal chain, it is probable that some of the GSDG Model's variables are associated with this. Serial mediation is crucial to investigate because the unequal influence of specific GSDG Model constructs may be suggestive of an underlying (and untested) causal chain. For the purpose of testing serial mediation, SDG was input as the outcome

variable, governance as the predictor variable, and PFM and SD as serial mediators. The structural model provides an explanation for the relevance of postulated linkages. Various hypotheses were proposed to assess the link between predictors and result.

- **Hypothesis 1 (Direct)**: Governance is positively related to Sustainable Development Goals.

- **Hypothesis 2a (Direct):** Governance is positively related to PFM

- **Hypothesis 2b (Direct):** PFM is positively related to Sustainable Development Goals.

- **Hypothesis 2c (Mediation)**. Public financial management mediates the linkage between PSG and SDGs

- **Hypothesis 3a (Direct)**: PSG is positively related to PSP (Service delivery).

- **Hypothesis 3b(Direct):** Service Delivery is positively related to Sustainable Development Goals.

- **Hypothesis 3c(Mediation)**: Service Delivery mediates the relationship between Governance and Sustainable Development Goals.

- **Hypothesis 4 (Direct):** Public financial management is positively linked to PSP (Service Delivery).

- **Hypothesis 5(Sequential Mediation):** PFM and PSP (Service delivery) sequentially mediate the relationship between Governance and Sustainable Development Goals.

5.1.1   Stage I: Measurement Model Evaluation

Higher-order constructs present researchers with a framework for modelling a construct on a more abstract dimension (referred to as a higher-order component) and its more concrete sub-dimensions (known as lower-order components) in the setting of PLS-SEM (Lohmoller, 1989). Instead of establishing interactions between numerous independent and dependent constructs in a path model, this section summarizes the independent constructs of a higher-order construct. This eliminates the necessity for

relationships between (then) lower-order model components and dependent model constructs.

The manifest variables of the higher order reflective constructs were the scores of the latent variables of the reflective lower order constructs. Governance and SDG have been reviewed based on an analysis of the study's measurement methodology. Factor loadings evaluation was conducted as a first step with an aim of assessing quality of the criteria. This was followed by ascertaining the validity and reliability of the constructs.
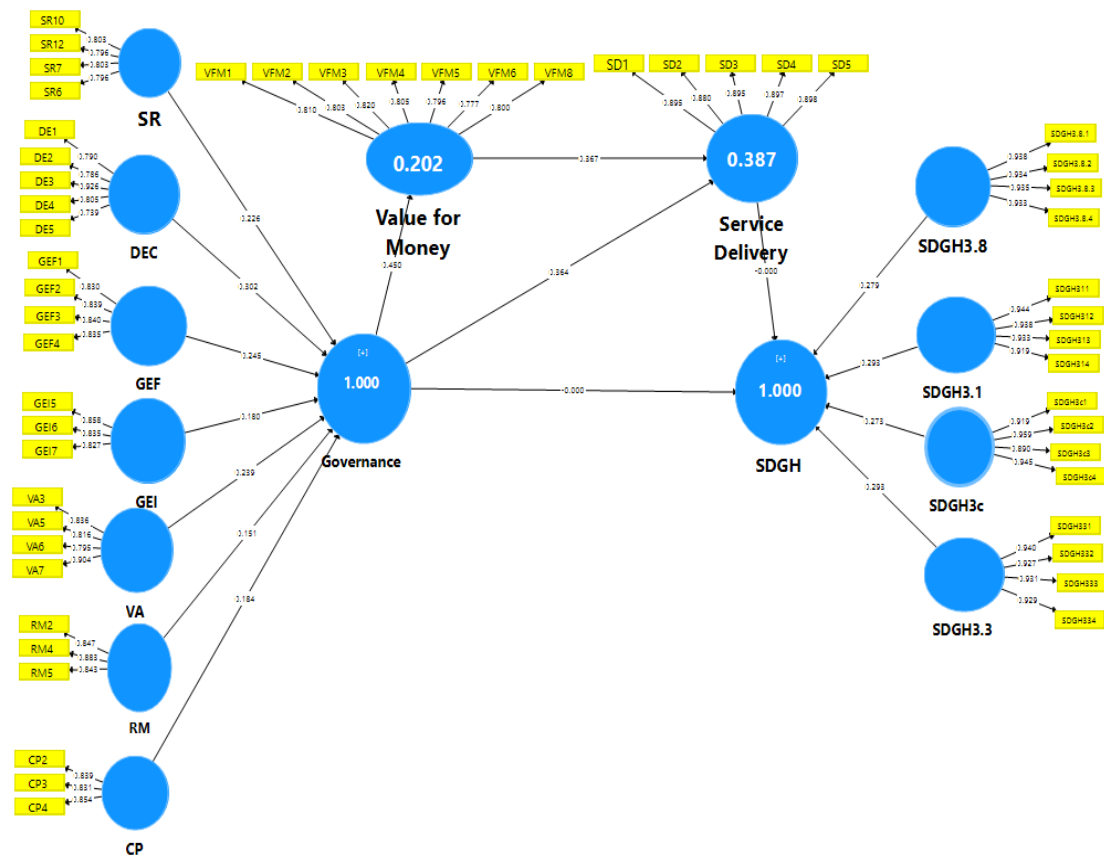
Figure 5.1.1   Factor loading evaluation for governance and SDG constructs (health Sector)
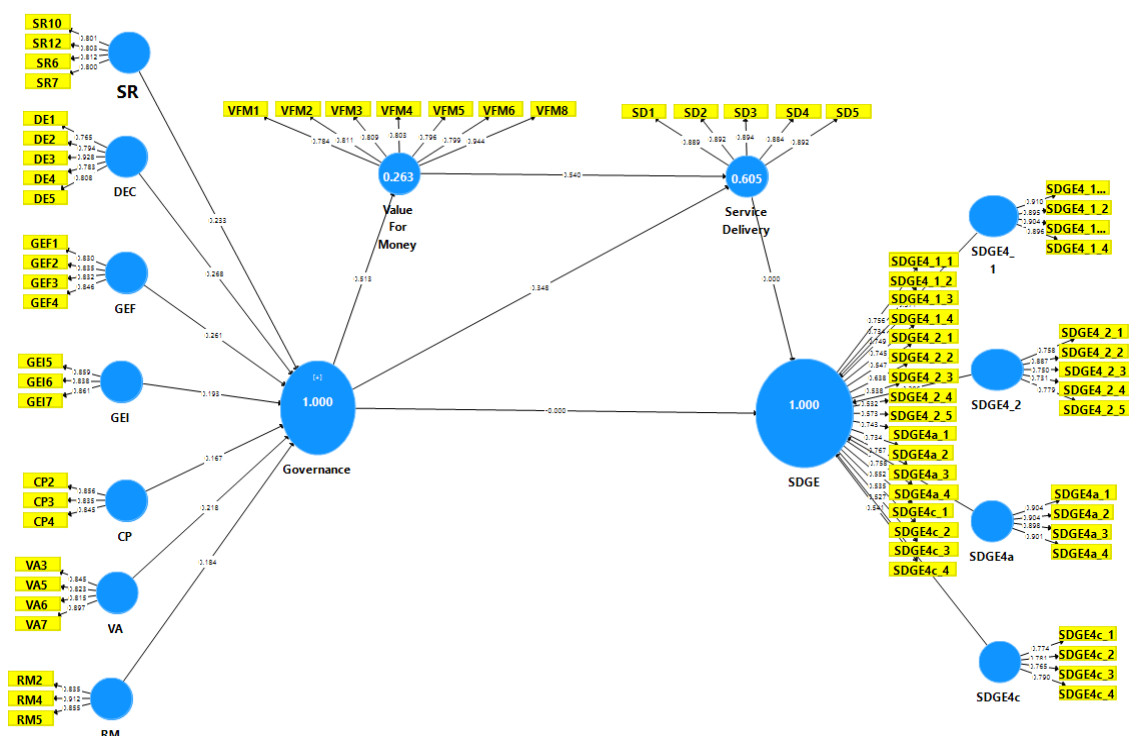
Figure 5.1.2 Factor loading evaluation for Governance and SDG constructs (Education Sector)

5.1.2 Reliability

Initially, standardized factor loadings were employed to guarantee the reliability of each indicator; an indicator was deemed reliable if its associated construct had a standardized factor loading of at least 0.70. In the second phase, the internal consistency and dependability of the structures must be checked. Cronbach's alpha, factor loadings, and 'CR' values are displayed in tables 5.1.1 and 5.1.2, which confirm the internal consistency and dependability of the first and second order reflective structures. In terms of Cronbach's Alpha and the composite reliability value, Hair et al. (2011) determined that dependability larger than 0.9 is regarded to be excellent, greater than 0.8 to be satisfactory, greater than 0.7 to be adequate, greater than 0.6 to be questionable, and less than 0.5 to be deficient.

The extent to which each item in the correlation matrix is related to a particular principal component is known as factor loading. Component loadings can be negative or positive, with larger absolute values signifying a stronger linkage between the item and the primary component (Pett et al., 2003). According to Figures 5.1.1 and 5.1.2,

none of the study's components had factor loadings below the threshold of 0.50 that is recommended. (Hair et al., 2016). No statements were therefore taken out.

According to Mark (1996), dependability can be defined as the ability of an instrument to produce the same findings regardless of how often it is used. Cronbach's alpha and composite reliability are the two methods that have the most widespread application when it comes to analyzing dependability. The results can be seen in Tables 5.1.1 and 5.1.2, which summarize Cronbach's alpha and composite reliability respectively. The range for the Composite Reliability statistics was from 0.816 to 0.923, but the range for Cronbach's Alpha was from 0.728 to 0.899. Both of the reliability indicators offer dependability statistics that are higher than the required 0.70 threshold (Hair et al. 2011). As a direct consequence of this, construct reliability has been established.

Table 5.1.1   Measurement Model of Health Sector (Stage 1)

Construct	Item	Loading	C (α)	CR	AVE
CP	CP2	0.839	0.794	0.879	0.708
	CP3	0.831			
	CP4	0.854			
DEC	DE1	0.79	0.868	0.905	0.658
	DE2	0.786			
	DE3	0.926			
	DE4	0.805			
	DE5	0.739			
GEF	GEF1	0.83	0.856	0.903	0.698
	GEF2	0.839			
	GEF3	0.84			
	GEF4	0.835			
GEI	GEI5	0.858	0.791	0.878	0.705
	GEI6	0.835			
	GEI7	0.827			
RM	RM2	0.847	0.82	0.893	0.736
	RM4	0.883			
	RM5	0.843			
SD	SD1	0.895	0.936	0.952	0.797
	SD2	0.88			
	SD3	0.895			
	SD4	0.897			
	SD5	0.898			
SR	SR6	0.796	0.812	0.876	0.639
	SR7	0.803			
	SR10	0.803			
	SR12	0.796			
VA	VA3	0.836	0.858	0.904	0.703

Construct	Item	Loading	C (α)	CR	AVE
	VA5	0.816			
	VA6	0.795			
	VA7	0.904			
VFM	VFM1	0.81	0.907	0.926	0.642
	VFM2	0.803			
	VFM3	0.82			
	VFM4	0.805			
	VFM5	0.796			
	VFM6	0.777			
	VFM8	0.8			
SDGH 3.1	SDGH311	0.944	0.948	0.960	0.871
	SDGH312	0.938			
	SDGH313	0.933			
	SDGH314	0.919			
SDGH 3.3	SDGH331	0.94	0.949	0.963	0.868
	SDGH332	0.927			
	SDGH333	0.931			
	SDGH334	0.929			
SDGH3.8	SDGH3.8.1	0.938	0.945	0.958	0.874
	SDGH3.8.2	0.934			
	SDGH3.8.3	0.935			
	SDGH3.8.4	0.933			
SDGH3c	SDGH3c1	0.919	0.947	0.962	0.863
	SDGH3c2	0.959			
	SDGH3c3	0.89			
	SDGH3c4	0.945			

Note: CR = Composite reliability; AVE = Average variance extracted. Results obtained through Smart-PLS algorithm function.

Table 5.1.2   Measurement Model of Education Sector (Stage 1)

Construct	Item	Loading	C (α)	CR	AVE
CP	CP2	0.856	0.8	0.88	0.71
	CP3	0.835			
	CP4	0.845			
DEC	DE1	0.765	0.875	0.91	0.67
	DE2	0.794			
	DE3	0.928			
	DE4	0.783			
	DE5	0.808			
GEF	GEF1	0.83	0.856	0.9	0.7
	GEF2	0.835			
	GEF3	0.832			
	GEF4	0.846			
GEI	GEI5	0.859	0.812	0.89	0.73
	GEI6	0.838			

	GEI7	0.861			
RM	RM2	0.835	0.836	0.9	0.75
	RM4	0.912			
	RM5	0.855			
SD	SD1	0.889	0.935	0.95	0.79
	SD2	0.892			
	SD3	0.894			
	SD4	0.884			
	SD5	0.892			
SR	SR6	0.801	0.818	0.88	0.65
	SR7	0.803			
	SR10	0.812			
	SR12	0.8			
VA	VA3	0.845	0.867	0.87	0.72
	VA5	0.823			
	VA6	0.815			
	VA7	0.897			
VFM	VFM1	0.784	0.919	0.94	0.68
	VFM2	0.811			
	VFM3	0.809			
	VFM4	0.803			
	VFM5	0.796			
	VFM6	0.799			
	VFM8	0.944			
SDGE 4.1	SDGE311	0.91	0.923	0.95	0.81
	SDGE312	0.895			
	SDGE313	0.904			
	SDGE314	0.896			
SDGE 4.2	SDGE331	0.758	0.84	0.89	0.61
	SDGE332	0.887			
	SDGE333	0.75			
	SDGE334	0.731			
SDGE4a	SDGE3.8.1	0.904	0.924	0.95	0.81
	SDGE3.8.2	0.904			
	SDGE3.8.3	0.898			
	SDGE3.8.4	0.901			
SDGE4c	SDGE3c1	0.774	0..782	0.86	0.61
	SDGE3c2	0.781			
	SDGE3c3	0.765			
	SDGE3c4	0.79			

Note: CR = Composite reliability; AVE = Average variance extracted. Results obtained through Smart-PLS algorithm function

5.1.3   Construct validity

Convergent and discriminant validity is required for construct validity to be proven statistically using PLS-SEM.

5.1.3.1 Convergent validity

The degree of agreement between different attempts to measure the same notion is known as convergent validity. significant correlation between two or more measurements of the same object exists when there is an accurate gauge of the notion, (Bagozzi et al., 1991) When the AVE value is greater than or equal to the indicated value of 0.50, items converge to assess the underlying construct, and convergent validity is demonstrated as a result (Furnell and Larcker,1981). According to the results of the current study's convergent validity is derived from AVE statistics, every single one of the constructs has a value of AVE that is greater than 0.50. Convergent validity is therefore not a problem. For each of the constructs, an AVE value is shown in Table 5.1.1 and 5.1.2.

5.1.3.2 Discriminant Validity

The premise states that accurate measurements of each idea should not relate too highly to one another if the concepts in question are separate from one another. The degree to which different measures correspond to different notions is what we mean when we talk about discriminant validity (Bagozzi et al. 1991). Criteria outlined by Fornell and Larcker (1981), states that discriminant validity can be ascertained when the square root of AVE for a given construct is higher than the construct's correlation with each and every other construct. In this study, it was found that a square root of AVE for a construct (in bold and italics) had a stronger correlation with other constructs than the construct's association with itself (Table 5.1.3 and 5.1.4). As a result, providing strong evidence in support of the creation of discriminant validity.

Table 5.1.3   Fornell-Larcker Criterion for Health sector

	SDGH3.1	SDGH3.3	SDGH3.8	SDGH3c	CP	DE	GEF	GEI	RM_	SD	SR	VA	VFM
SDGH3.1	0.933												
SDGH3.3	0.759	0.932											
SDGH3.8	0.706	0.715	0.935										
SDGH3c	0.697	0.702	0.595	0.929									
CP	0.447	0.43	0.375	0.396	0.841								
DE	0.449	0.455	0.411	0.415	0.375	0.811							
GEF	0.427	0.434	0.386	0.394	0.341	0.354	0.836						
GEI	0.415	0.412	0.419	0.402	0.329	0.346	0.338	0.84					
RM_	0.345	0.333	0.376	0.243	0.261	0.269	0.24	0.276	0.858				
SD	0.617	0.637	0.593	0.6	0.367	0.343	0.368	0.379	0.285	0.893			
SR	0.457	0.463	0.434	0.396	0.378	0.324	0.406	0.323	0.238	0.348	0.8		
VA	0.408	0.395	0.412	0.388	0.31	0.323	0.351	0.364	0.31	0.325	0.321	0.839	
VFM	0.509	0.526	0.485	0.461	0.325	0.345	0.257	0.276	0.235	0.53	0.305	0.286	0.802

Table 5.1.4   Fornell-Larcker Criterion for Education sector

	CP	DEC	GEF	GEI	RM	SDGE4_1	SDGE4_2	SDGE4a	SDGE4c	SR	SD	VA	VFM
CP	0.845												
DEC	0.288	0.818											
GEF	0.265	0.333	0.836										
GEI	0.326	0.303	0.4	0.853									
RM	0.347	0.291	0.368	0.336	0.868								
SDGE4_1	0.321	0.334	0.419	0.401	0.381	0.901							
SDGE4_2	0.246	0.205	0.242	0.278	0.223	0.421	0.783						
SDGE4a	0.364	0.349	0.373	0.374	0.378	0.624	0.409	0.902					
SDGE4c	0.253	0.179	0.265	0.226	0.179	0.411	0.471	0.443	0.778				
SR	0.312	0.341	0.408	0.38	0.373	0.401	0.229	0.382	0.273	0.804			
SD	0.377	0.364	0.469	0.461	0.383	0.682	0.423	0.651	0.426	0.43	0.89		
VA	0.284	0.304	0.339	0.326	0.279	0.309	0.222	0.287	0.221	0.33	0.373	0.846	
VFM	0.344	0.305	0.389	0.358	0.341	0.531	0.322	0.49	0.322	0.369	0.718	0.245	0.823

The Heterotrait-Monotrait (HTMT) ratio of correlations, as opposed to the conventional Fornell and Larkers approach (Henseler, 2015), is encouraged by the most recent guidelines for evaluating PLS-SEM measurement models. A HTMT threshold of up to 0.85 was advised when the constructs had a stronger conceptual differentiation (Hair, 2018). The results are shown in Table 3 along with a guarantee that the discriminant validity of the HTMT is based on an evaluation of the correlation between the components. HTMT ratio is used for establishing discriminant validity. Existing literature shows that Teo et al. (2008) advocated a liberal criterion of 0.90 or less while Kline (2011) settled for a threshold of 0.85 or less. The data for HTMT (Table 5.1.5

and 5.1.6) depict that the HTMT ratio four is below the recommended cut off point of 0.90.

Table 5.1.5   Heterotrait-Monotrait Ratio for Health (HTMT)

	SDGH3.1	SDGH3.3	SDGH3.8	SDGH3c	CP	DE	GEF	GEI	RM_	SD	SR	VA
SDGH3.1												
SDGH3.3	0.799											
SDGH3.8	0.742	0.752										
SDGH3c	0.734	0.741	0.626									
CP	0.515	0.496	0.431	0.456								
DE	0.492	0.5	0.451	0.456	0.45							
GEF	0.473	0.481	0.428	0.437	0.413	0.41						
GEI	0.479	0.475	0.483	0.462	0.415	0.414	0.409					
RM_	0.39	0.376	0.425	0.275	0.323	0.316	0.286	0.342				
SD	0.654	0.675	0.627	0.638	0.426	0.379	0.41	0.44	0.324			
SR	0.521	0.527	0.493	0.452	0.471	0.384	0.487	0.403	0.291	0.399		
VA	0.451	0.438	0.455	0.429	0.374	0.373	0.409	0.442	0.367	0.361	0.382	
VFM	0.548	0.566	0.521	0.497	0.382	0.387	0.291	0.325	0.271	0.575	0.354	0.324

Table 5.1.6   Heterotrait-Monotrait Ratio for Education (HTMT)

	CP	DEC	GEF	GEI	GOV	RM	SDGE4_1	SDGE4_2	SDGE4a	SDGE4c	SR	SD	VA
DEC	0.343												
GEF	0.321	0.382											
GEI	0.403	0.356	0.479										
RM	0.422	0.335	0.432	0.403	0.717								
SDGE4_1	0.373	0.369	0.472	0.464	0.61	0.432							
SDGE4_2	0.302	0.237	0.287	0.338	0.408	0.268	0.478						
SDGE4a	0.423	0.385	0.419	0.431	0.594	0.426	0.675	0.464					
SDGE4c	0.32	0.213	0.324	0.284	0.412	0.223	0.483	0.579	0.52				
SR	0.385	0.4	0.488	0.464	0.803	0.449	0.462	0.275	0.439	0.341			
SD	0.436	0.4	0.524	0.529	0.676	0.431	0.734	0.479	0.7	0.497	0.492		
VA	0.34	0.346	0.392	0.388	0.721	0.323	0.345	0.26	0.321	0.27	0.391	0.415	
VFM	0.4	0.337	0.436	0.413	0.556	0.386	0.575	0.367	0.53	0.378	0.424	0.771	0.272

5.1.4   Higher Order Construct Validation

Governance was the higher order construct in the study based on 7 lower order constructs: shared responsibility citizen participation voice and accountability decentralization government policy formulation government policy implementation and risk management. Similarly, SDG also being higher order construct is based on 4 lower order constructs. Outer weights, outer loadings, and VIF were calculated in order to demonstrate the validity of the higher-order construct. Significant outside weights were discovered (Hair et al., 2016). Furthermore, for each of the lower order structures, outside loadings larger than.50 were discovered (Sarstedt et al., 2019). To verify for

collinearity, VIF values were evaluated in the end. All VIF readings were lower than recommended value of 5 (Hair et al.,2016). All requirements were fulfilled, and higher order construct validity was established.

Table 5.1.7   Higher order construct validity in the health sector

Construct	Items	Scale	Weights	Loadings	T-Values	VIF
		Formative				
Governance	CP		0.235	0.675	4.003	1.359
	DEC		0.302	0.711	5.213	1.35
	GEF		0.154	0.629	2.723	1.387
	GEI		0.204	0.643	3.756	1.339
	RM		0.156	0.52	3.033	1.193
	SR		0.275	0.692	4.659	1.371
	VA		0.201	0.636	3.663	1.344
SDGH	SDGH3.1		0.29	0.902	4.176	3
	SDGH3.3		0.315	0.911	4.802	3.103
	SDGH3.8		0.281	0.859	4.99	2.358
	SDGH3c		0.251	0.841	4.515	2.265

Table 5.1.8   Higher order construct validity in the education sector

HOC	LOC	Scale	Weights	Loadings	T-Values	VIF
		Formative				
Governance	CP		0.212	0.611	13.53	1.272
	DEC		0.197	0.61	11.828	1.276
	GEF		0.246	0.7	16.244	1.428
	GEI		0.238	0.686	15.081	1.384
	RM		0.214	0.654	14.128	1.349
	SR		0.234	0.698	15.588	1.427
	VA		0.185	0.603	10.684	1.278
SDGE	SDGE4.1		0.398	0.842	22.756	1.756
	SDGE4.2		0.249	0.689	15.49	1.418
	SDGE4a		0.382	0.841	23.094	1.785
	SDGE4c		0.248	0.697	16.156	1.443

5.2 Structural Model Evaluation

The evaluation of the hypothesized links to support the put forward hypothesis is the next step in structural equation modeling. The second phase involved testing hypotheses and ascertaining the path coefficients significance levels while adhering to the recommendations in the PLS-SEM literature (Wah et al., 2012). While examining

the structural model's size and direction of path coefficients, values of the coefficient of determination, and t-values [Sarstedtet al., 2019; Peng et al., 2012), relationships between the dependent and independent variables have been evaluated. We regarded governance and SDG as higher order (single factor) components. Before moving on, the variance inflation factor (VIF) methodology was used to examine the collinearity. All values provided fell below the threshold of 3 (Hair et al., 2016), highlighting the fact that the model was not tainted by common method bias (Kock et al., 2015]). Table 5.3.1 and 5.3.2 provide a summary of the results of the hypothesis testing.
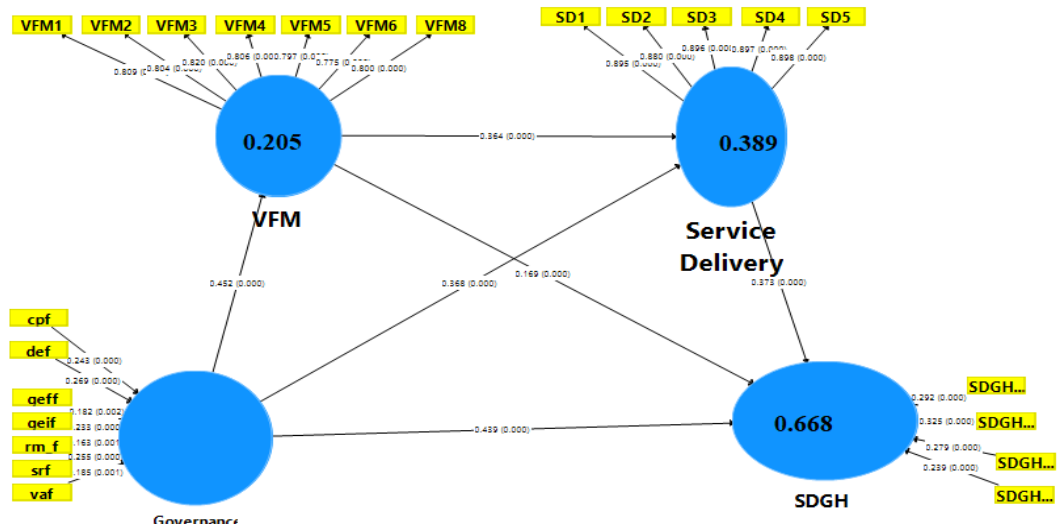
Figure 5.2.1   Structural model for the health sector
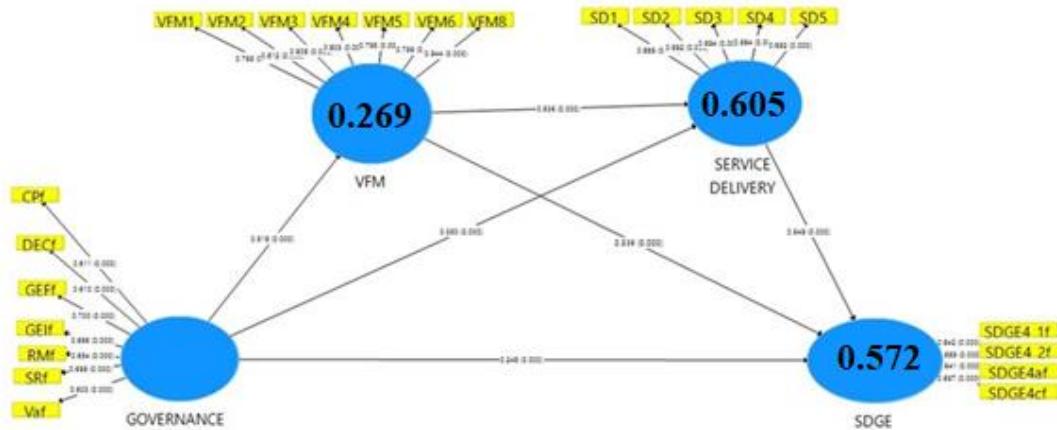
Figure 5.2.2 Structural model for Education sector

5.2.1 Path Coefficient (β)

The Smart-PLS 3.2.8 software's default parameters were used to perform a path weighting algorithm. With an aid of Smart PLS application version 3.2.8 (Ringle et al., 2015), the bootstrapping technique was carried out with 5000 subsamples (Hair, Ringle, and Sarstedt, 2011 with the no sign change option selected. The other options used to carry out the procedure were percentile bootstrap and significance levels for one-tailed testing. The value of the route coefficients should be determined using the percentile bootstrap confidence range (Aguirre-Urreta et al., 2018) for the statistical significance of the corresponding hypotheses, and its direction should be compatible with those hypotheses. The specifics of the hypotheses are shown in Table 5.2.1, where the results are supported by t-values and a percentile bootstrap confidence interval in table 5.2.2. We noted 1.96 as the t-statistics cut-off value (Qing et. al., 2019; Asif et al., 2019). The findings show that, all hypothesized correlations are significantly validated.

The current study's H1 asserts that Governance and SDG have a beneficial link. This hypothesis is fully supported by the findings from the health (b=.439, t= 11.969, p.000) and education (b=.248, t= 6.555, p=.000) sectors. As a result, the findings demonstrated that governance significantly influences the accomplishment of sustainable development goals. H1 was therefore supported. The findings also supported H2a, H2b, H3a, H3c H4 through direct Path analysis.

Table 5.2.1   Results of the structural model Education Sector (Direct hypothesized path)

Hypothesis	Structural Paths	Direct Effect	t-Value	95% Percentile Confidence Interval		Decision
				2.5%	97.5%	
1	GOV>SDG	0.248	6.555	0.176	0.322	Supported
2a	GOV>SD	0.350	10.584	0.277	0.411	Supported
2b	GOV>VFM	0.518	14.229	0.448	0.591	Supported
3a	SD>SDG	0.549	12.627	0.470	0.640	Supported
3b	VFM>SDG	0.336	7.74	0.289	0.478	Supported
4	VFM>SD	0.536	16.857	0.475	0.595	Supported
Quality indicators of the structural model						
R^2 SDGE	0.57			Q^2 SDGE	0.326	
R^2 SD	0.605			Q^2 SD	0.476	
R^2 PFM	0.269			Q^2 VFM	0.179	

Table 5.2.2   Results of the structural model Health Sector- Direct hypothesized path

Hypothesis	Structural Paths	Direct Effect	t-Value	95% Percentile Confidence Interval		Decision
				2.5%	97.5%	
1	GOV>SDG	0.439	11.962	0.366	0.513	Supported
3a	GOV>SD	0.368	8.098	0.279	0.460	Supported
2a	GOV>VFM	0.452	11.173	0.374	0.536	Supported
3b	SD>SDG	0.373	8.275	0.286	0.465	Supported
2b	VFM>SDG	0.169	4.468	0.091	0.240	Supported
4	VFM>SD	0.364	7.536	0.270	0.459	Supported
Quality indicators of the structural model						
R^2 SDGE	0.668			Q^2 SDGE	0.510	
R^2 SD	0.389			Q^2 SD	0.306	
R^2 PFM	0.205			Q^2 VFM	0.129	

5.2.2 Mediation Analysis

H2c mandates that PFM acts as a mediator in the dialogue between Governance and SDGs. Preacher and Hayes' (2004) guidelines were followed, and bootstrapping was used to evaluate the indirect impacts of mediation on the connection between Governance and SDG. Results for the health (b=.076, t=3.790, p=.000) were determined to be statistically significant. Further, for the education sector, the results (b=0.126, t=5.215, p=0.000) were significant. We, therefore, support this theory both in the Health and Education sectoral context.

In a similar vein, H3c asserts that the interaction between GOV and SDG is mediated through SD. By putting Preacher and Hayes' advice to use, this theory was also examined (2004). The bootstrapping method was applied to test indirect effects. We support this hypothesis since, as predicted, results were shown to be statistically significant in the health ($\beta = 0.137$, t = 5.345, p = 0.000) and education sectors ($\beta = 0.192$, t = 7.648, p = 0.000) as well.

According to H5, the PFM and PSP sequentially mediate the link between governance and the Sustainable Development Goals. Again, Preacher and Hayes' (2004) suggestions were followed in order to investigate the sequential mediation of Public Financial Management and Public Sector performance. Bootstrapping was used to test for indirect effects. The hypothesis is validated because results in this regard were also found to be statistically significant in the health sector ($\beta = 0.061$, t = 4.594, p = 0.000) and education sector ($\beta = 0.153$, t = 7.783, p = 0.000). The other choice was the no sign change option, which was used to assess the significance of the path coefficients with a two-tailed p value less than 0.05. A confidence interval was used to determine the importance of the hypotheses, and it was designed to be non-zero (Ringle et al., 2018). Table 5.2.3 and 5.2.4 and Figure 5.2.1 and 5.2.2 display the mediation analyses' findings. Since both direct and indirect effects are significant, therefore these all are the case of Partial Mediation.

Table 5.2.3   Results of the mediation analysis (Health Sector)

Hypotheses	Path	Original Sample (O)	SE	T Values	P Values	Decision

1	GOV-> SDGH	0.439	0.037	11.770	0.000	Supported
2c	GOV -> VFM -> SD -> SDGH	0.061	0.013	4.594	0.000	Supported
3c	GOV -> SD -> SDGH	0.137	0.026	5.345	0.000	Supported
5	GOV -> VFM -> SDGH	0.076	0.020	3.790	0.000	Supported

Table 5.2.4   Results of the mediation analysis (Education sector)

Hypotheses	Path	Original Sample (O)	SE	T Values	P Values	Decision
1	GOV -> SDGE	0.248	0.039	6.369	0.000	Supported
2c	GOV -> VFM -> SDGE	0. 126	0.025	5.002	0.000	Supported
3c	GOV -> SERVICE DELIVERY -> SDGE	0.192	0.025	7.648	0.000	Supported
5	GOV -> VFM -> SERVICE DELIVERY -> SDGE	0.153	0.020	7.783	0.000	Supported

Note: CI: Confidence Interval.

5.2.3   Explanatory power of the model

The structural model's ability to predict outcomes within a sample is indicated by the endogenous construct's R^2 value (Ringle et. al., 2018). The variance in the endogenous variable described by the exogenous variable is explained by R Square statistics (s). The model's explanatory power has been evaluated using the coefficient of determination, or R^2. The PLS algorithm was used to compute R^2 in the Smart PLS software, and all results were above the recommended threshold of 0.10. (Falk and Miller, 1992). Cohen (1988) assigned the following ratings to R^2 values for endogenous latent variables: 0.26 (substantial), 0.13 (moderate), and 0.02. (weak). In the health and education sectors, the R^2 values (Table 5.2.3 and 5.2.4) for public financial management were 0.205 and 0.269, respectively. The R^2 value for public sector performance was 0.281 and 0.605, while the R2 value for the Sustainable Development Goals was 0.65 and 0.572, respectively. The R^2 value for the Sustainable Development Goals' primary target construct is 65 percent in the health sector and 57 percent in the education sector, indicating that all the antecedents contributed significantly to the variance in the SDGs.

5.2.4   Blindfolding (Q2)

PLS-SEM has an additional way to assess the structure's prediction power using the blindfolding strategy, marked by Q2 (Hair et. al.,2016; Sarkis et. al., 2011). Cross-validated redundancy was used in a blinding procedure to determine the values of Q2 in Smart-PLS. All of the endogenous constructs had values that were greater than zero, guaranteeing the model's capacity for accurate prediction. The endogenous constructions' Q2 values are shown in table 5.2.1 and 5.2.2.

5.2.5 Out-of-Sample Predictive power of the model using PLS-Predict

Finally, using PLS predicts, Smart-PLS option and the method suggested by Shmueli (2016), the model's ability to predict outcomes outside of samples was evaluated. A fresh evaluation technique has been proposed by researchers like Shmueli et al., (2016), and it is specifically tailored for the prediction-oriented nature of PLS-SEM. As recommended by Shmueli et al., the study has added a predictive relevance analysis using PLS-Predict to expand our investigation (2016; 2019). In order to obtain case-level predictions on an item or construct level that applies the PLS-Predict with a 10-fold technique to test for predictive relevance, they proposed PLS predict as a holdout sample-based procedure.

All of the indicators of the primary target construct of Sustainable Development Goals had positive Q2 predict values (see Table 5.3.5 and 5.3.6). Additionally, the PLS-SEM results had lower prediction errors than the linear model benchmark for all of the EVGB indicators. As a result, the model demonstrated a high level of predictive power.

According to Shmueli et al. (2019), if the latent variable Q2 is bigger than 0, then evaluate the items. If all of the item differences (PLS-LM) were lower, then the predictive power would be strong; if all were higher, then the predictive relevance would not be confirmed; if the majority was lower, then the predictive power would be moderate; and if the minority was lower, then the predictive power would be low. The latent variable SDG's Q was 0.548 (greater than 0), showing good construct-level predictive significance. Following that, we may infer from table 5.2.5 that our model, based on Shmueli et al., has a considerable predictive potential because most of the

item level errors of the PLS model were lower than the LM model and all of the item level Q2 were larger than 0. (2019).

Table 5.2.5   PLS-predict (Health)

	PLS		LM		PLS-LM		
	RMSE	MAE	RMSE	MAE	RMSE	MAE	Q²_predict
SDGH3.3	0.770	0.615	0.772	0.618	-0.002	-0.003	0.410
SDGH3.8	0.793	0.637	0.793	0.637	0.00034	0.000882	0.373
SDGH3c	0.818	0.667	0.819	0.668	-0.00142	-0.00124	0.335
SDGH3.1	0.766	0.613	0.768	0.614	-0.00272	-0.00166	0.417

Table 5.2.6   PLS-predict (Education).

	PLS		LM		PLS-LM		
	RMSE	MAE	RMSE	MAE	RMSE	MAE	Q²_predict
SDGE4c	0.943	0.786	0.947	0.794	-0.004	-0.008	0.115
SDGE4a	0.841	0.693	0.849	0.695	-0.00864	-0.00235	0.296
SDGE4_1	0.830	0.693	0.837	0.693	-0.00663	-0.00051	0.313
SDGE4_2	0.938	0.791	0.947	0.804	-0.00933	-0.01311	0.123

Since all the indicators in PLS-SEM analysis of the Education sector have lower RMSE or MAE values in contrast with the native LM benchmark, the model has higher predictive power. However, in the health sector majority of indicators in PLS-SEM analysis yields smaller prediction errors compared to the LM, we can say the model has a medium predictive power.

5.3 Discussion of the results

As far as the author is aware, this research stands as one of the first attempts to explore the link between Governance and Sustainable development goals by suggesting Governance practices as a new avenue for improving the achievement of Sustainable Development Goals in a country. Our study added to the literature by extending earlier research on Governance and Sustainability by exploring and conducting a comparative analysis of the existing governance practices in the education and health sector of Malawi. Second, the current research added to the investigation of whether Public

Financial Management mediates the relationship between Governance and Sustainable development goals. Thirdly, the study contributed to the investigation of whether service delivery mediates the relationship between Governance and Sustainable development goals. Fourthly, this research added to the exploration of whether Public Financial Management and Service delivery in sequence, mediate the linkage between Governance and Sustainable development goals.

Consistent with our anticipations, the outcomes revealed that Governance directly influenced the achievement of Sustainable Development Goals. This finding strengthens the argument suggesting that the achievement of SDGs can be enhanced by good governance. These findings agree with earlier studies (Sachiko and Durwood, 2005; Juiz et al., 2014; Chigudu, 2018) that suggested an integration of good governance into the corporate governance code for Africa's sustainable development considering that most political decision trickle down to public officers in form of directives. PSG supports transparency, accountability, efficiency and rule of law and enables better management of natural, financial and human resources for sustainable development The results further align with the existing studies (Kardos, 2012; Munthali and Nantchouang, 2018; Masefield et al., 2020) who suggested that stakeholders perceived that governance challenges are a critical barrier to achievement of a health system that is effective and equitable as a way of attaining sustainable development goals on health. Thus, the results confirm that effective PSG is key to the attainment of sustainable development. The identified categories of governance challenges in area of accountability, management of health resources and decision-making influence do impact on the pursuit of achieving health SDGs. The study has further confirmed that governance plays a vital role in enhancing accountability and transparency with an aim to attain policy outcomes for service delivery and their impacts of the lives of the citizenry and environment (Berger, 2003; Ijeoma and Ezejiofor, 2013; Almqvist et al., 2013).

In the same way, results from our study, reveal that Governance improves Public Financial Management, which results into improvements in attaining SDGs in the health sector. Simply, Public Financial Management mediates the link between PSG and SDGs. The finding in consonance with previous studies by (Buger and woods,

2008; Acemoglu and Robinson, 2012; Cheruiyot et al., 2017; OECD, 2018; Fünfkirchen and Schneider, 2018; Gurazada et.al, 2020) which suggested that prioritization and application of limited public resources and realizing value for money lead to achievement government objectives of service delivery to the citizenry. The results of the study confirm the suggestion that PFM is considered to be helpful for countries seeking progress their economic growth and increase in resources availability to pursue national development plans (Renzio, 2015; PEFA, 2016; Borysivna, (2016). The results of this study have also confirmed critical mediation role that PFM plays in ensuring achievement of the SDGs as alluded by Renzio, 2015.

This study has also revealed that good governance improves public sector performance in terms of service delivery which in turn lead to realization of the sustainable development goals. Thus public sector performance through service delivery mediates the linkage between PSG and SDGs. The finding complements the results of other existing studies by (World Bank, 1999; Parihar, 2012; Sarr, 2015; Arora, 2010; Ferry and Ahrens, 2017). The results from this study on the sequential mediation effect of PFM and service delivery on the link between Governance and SDG has confirmed the suggestion made by other researchers such as Buger and Woods (2008), Renzio (2015), Cheruiyot et al. (2017) and Gurazada et al. (2020).

Summary

The findings of the quantitative research were provided in this chapter, together with a discussion of descriptive statistics, measurement, and structural model analysis. A total of 994 surveys were collected after data was screened only 996 were utilized for the data analysis. Relationships between governance, PFM, and service delivery on the SDGs that are statistically significant were discovered to have both direct and indirect effects. All the proposed hypotheses were supported in the Education sector. The findings from the health sector were not at odds with the postulated association between governance and SGD accomplishment in the education sector. For all of the relationships between the health and education sectors that had been hypothesised, similar findings were made. The results indicated a positive relationship and the relationships were judged to be significant.

APPENDICES
Appendix 1:   The Relevance Ratings On The Item Scale By Ten Experts

THE RELEVANCE RATINGS ON THE ITEM SCALE BY TEN EXPERTS

Construct 1: PUBLIC SECTOR GOVERNANCE (PSG) – PUBLIC INTEREST ORIENTED Variable 1:PSG 1: Promotion of shared responsibility across multi levels of government (Daniell and Kay, 2017; Duprè, 2018; Shivakoti et. al, 2019)

NO	ITEM	EXPERT 1 mark	EXPERT 2 vic	EXPERT 3 bita	EXPERT 4 bertha	EXPERT 5 duncan	EXPERT 6 grace	EXPERT 7 john	EXPERT 8 kuyeli	EXPERT 9 titha	EXPERT 10 mat		EXPERT AGREEMENT	I-CVI	UA
1	There is adequate dispersion of authority at all levels of government?	1	1	1	1	1	0	1	1	1	1		9	0.9	0
2	Shared responsibility is promoted across central and local government	1	1	1	1	1	0	1	0	1	1		8	0.8	0
3	Power has been decentralized to local government.	1	1	1	1	1	1	1	1	0	1		9	0.9	0
4	There is financial/fiscal decentralization in the sector	1	1	1	1	1	0	1	1	1	1		9	0.9	0
5	Stakeholder participation is encouraged for delivering policies effectively at all levels	1	1	1	1	1	1	1	1	1	1		10	1	1
6	Continuous negotiations are encouraged among nested governments at territorial levels	1	1	1	1	1	1	1	1	0	1		9	0.9	0
7	A multi-level mechanism exists for policy design and implementation	1	1	0	1	1	1	1	1	1	1		9	0.9	0
8	Devolution of power and responsibility is adequate at all levels	1	1	1	1	1	0	1	0	1	1		8	0.8	0
9	There is less influence of others from those in higher power in the sector	1	1	1	1	1	1	1	1	1	1		10	1	1
10	Meta - governance is recognized as an important component of multi-level governance	1	1	1	1	1	1	1	1	0	1		9	0.9	0
11	Integration of policies, programs and targets is projected at all levels of governance	1	1	1	1	1	1	1	1	0	1		9	0.9	0
12	There is adequate clarity of interconnected system for policy dispersal/goal/targets at all levels.	1	1	1	1	1	1	1	1	1	1		10	1	1

NO	ITEM	EXPERT 1	EXPERT 2	EXPERT 3	EXPERT 4	EXPERT 5	EXPERT 6	EXPERT 7	EXPERT 8	EXPERT 9	EXPERT 10		EXPERT AGREEMENT	I-CVI	UA
13	The institutional coordinating mechanisms is adequate to foster partnership/coordination and all levels.	1	1	1	1	1	1	1	1	1	1		10	1	1
												S-CVI/Ave		0.92	
												S-CVI/UA			0.31
Proportion Relevance		1	1	0.9231	1	1	0.6923	1	0.8462	0.6923	1				
Average proportion of items judged as relevant across the ten experts												0.92			

Construct 1: PUBLIC SECTOR GOVERNANCE (PSG) – PUBLIC INTEREST ORIENTED Variable 2 PSG2: Government Effectiveness (Liou, 2017)

NO	ITEM	EXPERT 1	EXPERT 2	EXPERT 3	EXPERT 4	EXPERT 5	EXPERT 6	EXPERT 7	EXPERT 8	EXPERT 9	EXPERT 10		EXPERT AGREEMENT	I-CVI	UA
1	The quality of government objectives' implementation is adequate	1	1	1	1	1	0	1	1	1	1		9	0.9	0
2	There is inclusiveness in the implementation of government objectives	1	1	1	1	1	1	1	1	1	1		10	1	1
3	The quality of policy formulation is adequate	1	1	0	1	1	0	1	1	0	1		7	0.7	0
4	There is inclusiveness in the in policy formulation process	1	1	1	1	1	1	1	1	1	1		10	1	1
5	The quality of policy implementation is adequate	1	1	1	1	1	0	1	0	1	1		8	0.8	0
6	The credibility of commitment to policy is good	1	1	1	1	1	1	1	1	1	1		10	1	1
7	The quality of public service delivery is good	1	1	1	1	1	1	1	1	1	1		10	1	1
8	The quality of civil service is high	1	1	1	1	1	1	1	0	0	1		8	0.8	0
9	The civil service is independent from political interference	1	1	1	1	1	1	1	1	1	1		10	1	1
10	Resource allocation by government is appropriate	1	1	1	1	1	1	1	1	1	1		10	1	1
11	Resource utilization by the sector is appropriate	1	1	1	1	1	1	1	0	1	1		9	0.9	0
												S-CVI/Ave		0.92	
												S-CVI/UA			0.55
Proportion Relevance		1	1	0.9091	1	1	0.7273	1	0.7273	0.8182	1				
Average proportion of items judged as relevant across the ten experts												0.92			

Construct 1: PUBLIC SECTOR GOVERNANCE (PSG) – PUBLIC INTEREST ORIENTED Variable 3 PSG3: Voice and Accountability, (Liou, 2017; Kock and Gaskins, 2014; Kaufmann et al., 2019; Grzeszczak, 2015; Chigudu, 2018)

NO	ITEM	EXPERT 1	EXPERT 2	EXPERT 3	EXPERT 4	EXPERT 5	EXPERT 6	EXPERT 7	EXPERT 8	EXPERT 9	EXPERT 10		EXPERT AGREEMENT	I-CVI	UA
1	Civil Society Organizations are allowed to contribute to policy decisions in the sector through a deliberative process	1	1	1	1	1	1	1	1	1	1		10	1	1
2	Voice and accountability provisions are included in the sector's legislative documents	1	1	1	1	1	1	1	0	1	1		9	0.9	0
3	Formal and informal institutions exist in the sector to provide an enabling environment for voice and accountability	1	1	1	1	1	1	0	1	1	1		9	0.9	0
4	Effective vertical and horizontal accountability dimensions exist in the sector	1	1	1	1	1	1	1	1	0	1		9	0.9	0
5	Effective vertical and horizontal responsiveness exist in the sector	1	1	1	1	1	1	1	1	0	1		9	0.9	0
													S-CVI/Ave	0.92	
													S-CVI/UA		0.2
Proportion Relevance		1	1	1	1	1	1	0.8	0.8	0.6	1				
Average proportion of items judged as relevant across the ten experts												0.92			

Construct 1: PUBLIC SECTOR GOVERNANCE (PSG) – PUBLIC INTEREST ORIENTED Variable 4 PSG4: Risk management and performance through robust internal control and strong PFM (Juiz et al., 2014: Ghita, (2008)

NO	ITEM	EXPERT 1	EXPERT 2	EXPERT 3	EXPERT 4	EXPERT 5	EXPERT 6	EXPERT 7	EXPERT 8	EXPERT 9	EXPERT 10		EXPERT AGREEMENT	I-CVI	UA
1	The sector has a robust internal control and risk management system	1	1	1	1	1	1	1	1	1	1		10	1	1
2	The sector has a functioning risk committee/audit committee	1	1	1	1	1	1	1	1	1	1		10	1	1
3	The sector has an effective performance management system	1	1	1	1	1	1	1	0	1	1		9	0.9	0
4	The sectors financial management system is strong	1	1	1	1	1	1	1	0	1	1		9	0.9	0
5	The sectors have implemented strategies for managing emerging risks	1	1	1	1	1	1	1	1	1	1		10	1	1
													S-CVI/Ave	0.96	
													S-CVI/UA		0.6
Proportion Relevance		1	1	1	1	1	1	1	0.6	1	1				

		EXPERT 1	EXPERT 2	EXPERT 3	EXPERT 4	EXPERT 5	EXPERT 6	EXPERT 7	EXPERT 8	EXPERT 9	EXPERT 10				
Average proportion of items judged as relevant across the ten experts													0.96			

Construct 1: PUBLIC SECTOR GOVERNANCE (PSG) – PUBLIC INTEREST ORIENTED Variable 5 PSG5: Citizen participation (Grzeszczak, 2015; Chigudu, 2018)

NO	ITEM	EXPERT 1	EXPERT 2	EXPERT 3	EXPERT 4	EXPERT 5	EXPERT 6	EXPERT 7	EXPERT 8	EXPERT 9	EXPERT 10		EXPERT AGREEMENT	I-CVI	UA
1	There is increased Citizen/ Civil Society Organizations participation in sector's policy formulation	1	1	1	1	1	1	1	1	1	1		10	1	1
2	Citizen engagement has led to increased public awareness of the SDGs	1	1	1	1	1	1	1	0	1	1		9	0.9	0
3	Stakeholder engagement has facilitated partnerships between central and local government	1	1	1	1	1	1	1	1	1	1		10	1	1
4	The sector implements community based monitoring	1	1	1	1	1	1	1	0	0	1		8	0.8	0
													S-CVI/Ave	0.93	
													S-CVI/UA		0.5
Proportion Relevance		1	1	1	1	1	1	1	0.5	0.75	1				
Average proportion of items judged as relevant across the ten experts													0.93		

Construct 2: Public Finance Management (PFM) Variable 1 PFM: Value for Money in service delivery (Cheruiyot et al., 2017; Buger and woods, 2008; Gurazada et.al, 2020; Postula and Raczkowski, 2020; Pretorius and Pretorius, 2016; Allen and Tommasi, 2001; Akazili et. al, 2008; Tropina, 2016; Schwartz et al., 2002; Ogorodnikova, 2020; Welham et al., 2013)

NO	ITEM	EXPERT 1	EXPERT 2	EXPERT 3	EXPERT 4	EXPERT 5	EXPERT 6	EXPERT 7	EXPERT 8	EXPERT 9	EXPERT 10		EXPERT AGREEMENT	I-CVI	UA
1	The budget process in the sector's is credible, reliable and efficient	1	1	1	0	1	1	1	0	1	1		8	0.8	0
2	The budget process in the sector is transparent and participatory	1	1	1	0	1	1	1	1	0	1		8	0.8	0
3	The sector has an effective control of public spending	1	1	1	0	1	1	1	1	1	1		9	0.9	0
4	Allocation of Resources are aligned with the sectors public priorities	1	1	1	1	1	1	1	1	1	1		10	1	1
5	There is improved operational efficiency in the sector	1	1	1	1	1	1	1	1	1	1		10	1	1
6	The sector's PFM systems (Institutional capacities) are well designed	1	1	1	1	1	1	1	0	1	1		9	0.9	0

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NO	ITEM	EXPERT 1	EXPERT 2	EXPERT 3	EXPERT 4	EXPERT 5	EXPERT 6	EXPERT 7	EXPERT 8	EXPERT 9	EXPERT 10		EXPERT AGREEMENT	I-CVI	UA
7	There are insignificant resource leakages in the sector	1	1	1	1	1	1	1	1	1	1		10	1	1
8	The budgets are realistic and are executed timely	1	1	1	1	1	1	1	1	1	1		10	1	1
													S-CVI/Ave	0.93	
													S-CVI/UA		0.5
Proportion Relevance		1	1	1	0.625	1	1	1	0.75	0.875	1				
Average proportion of items judged as relevant across the ten experts												0.93			

Construct 3: Public Sector Entity Performance (PSP) Variable 1 PSP: Service Delivery (quality, quantity and accessibility) (Kaufmann et al., 2002; Renzio, 2015; Allen and Tommasi, 2001; Maw, 2019)

NO	ITEM	EXPERT 1	EXPERT 2	EXPERT 3	EXPERT 4	EXPERT 5	EXPERT 6	EXPERT 7	EXPERT 8	EXPERT 9	EXPERT 10		EXPERT AGREEMENT	I-CVI	UA
1	There is an effective mechanism for measuring service delivery in the sector	1	1	1	1	1	1	1	1	1	1		10	1	1
2	Allocated resources are utilized for the intended purpose	1	1	1	1	1	1	1	1	1	1		10	1	1
3	Service delivery in the sectors is effective and equitable	1	1	1	1	1	1	1	1	1	1		10	1	1
4	There are appropriate incentives for service delivery	1	1	1	1	1	1	1	1	1	1		10	1	1
5	Service quality in the sector is improved	1	1	1	1	1	1	1	1	1	1		10	1	1
													S-CVI/Ave	1	
													S-CVI/UA		1
Proportion Relevance		1	1	1	1	1	1	1	1	1	1				
Average proportion of items judged as relevant across the ten experts												1			

Construct 4: Sustainable Development Variable 1 Health sector (SDG targets 3.1; 3.3; 3.8; 3c)

NO	ITEM	EXPERT 1	EXPERT 2	EXPERT 3	EXPERT 4	EXPERT 5	EXPERT 6	EXPERT 7	EXPERT 8	EXPERT 9	EXPERT 10		EXPERT AGREEMENT	I-CVI	UA
1	Secondary data on the country's maternal mortality ratio for period 2017-2020	1	1	1	1	1	1	1	1	1	1		10	1	1
2	Secondary data on proportion of births attended by skilled health personnel for period 2017-2020	1	1	1	1	1	1	1	1	1	1		10	1	1

3	Secondary data on the number of new HIV infections for period 2017-2020	1	1	1	1	1	1	1	1	1	1		10	1	1
4	Secondary data on the number of tuberculosis incidences for period 2017-2020	1	1	1	1	1	1	1	1	1	1		10	1	1
5	Secondary data on the number of malaria incidences for period 2017-2020	1	1	1	1	1	1	1	1	1	1		10	1	1
6	Secondary data on Construction of health facilities to improved access to essential health services for period 2017-2020 (Masefield et l., 2020; National Health Policy II, 2017)	1	1	1	1	1	1	1	1	1	1		10	1	1
7	Secondary data on ambulatory services to improve access to essential health services for period 2017-2020	1	1	1	1	1	1	1	1	1	1		10	1	1
8	Secondary data on provision of financial risk protection for accessing health services (Masefield et l., 2020; National Health Policy II, 2017)	1	1	1	1	1	1	1	1	1	1		10	1	1
9	Secondary data on access to safe, effective, quality and affordable medicines for all for period 2017-2020 (Masefield et l., 2020; National Health Policy II, 2017)	1	1	1	1	1	1	1	1	1	1		10	1	1
10	Secondary data health financing for period 2017-2020 (Masefield et l., 2020; National Health Policy II, 2017)	1	1	1	1	1	1	1	1	0	1		9	0.9	0
11	Secondary data on recruitment of health workers for period 2017-2020 (Masefield et l., 2020; National Health Policy II, 2017)	1	1	1	1	1	1	1	1	1	1		10	1	1
12	Secondary data on health worker density and distribution for period 2017-2020 (Masefield et l., 2020; National Health Policy II, 2017)	1	1	1	1	1	1	1	1	0	1		9	0.9	0

NO	ITEM	EXPERT 1	EXPERT 2	EXPERT 3	EXPERT 4	EXPERT 5	EXPERT 6	EXPERT 7	EXPERT 8	EXPERT 9	EXPERT 10		EXPERT AGREEMENT	I-CVI	UA
13	Secondary data on development and training of health workers for period 2017-2020 (Masefield et l., 2020; National Health Policy II, 2017)	1	1	1	1	1	1	1	1	1	1		10	1	1
												S-CVI/Ave	0.98		
												S-CVI/UA			0.85
Proportion Relevance		1	1	1	1	1	1	1	1	0.8462	1				
Average proportion of items judged as relevant across the ten experts												0.98			

Construct 4: Sustainable Development Variable 2: Education Sector (SDG targets 4.1; 4.2; 4a; 4c)

NO	ITEM	EXPERT 1	EXPERT 2	EXPERT 3	EXPERT 4	EXPERT 5	EXPERT 6	EXPERT 7	EXPERT 8	EXPERT 9	EXPERT 10		EXPERT AGREEMENT	I-CVI	UA
1	Secondary data on Free, equitable and quality primary education for period 2017-2020	1	1	1	1	1	1	1	1	1	1		10	1	1
2	Secondary data on Free, equitable and quality secondary education for period 2017-2020	1	1	1	1	1	1	1	1	1	1		10	1	1
3	Secondary data on drop-out rate for primary education for period 2017-2020	1	1	1	1	1	1	1	1	1	1		10	1	1
4	Secondary data on Boys and girls access to quality early childhood development and care for period 2017-2020	1	1	1	1	1	1	1	1	1	1		10	1	1
5	Secondary data on provision of Teaching and learning materials for primary education for period 2017-2020	1	1	1	1	1	1	1	1	1	1		10	1	1
6	Secondary data on Primary education facilities built and upgraded for period 2017-2020	1	1	1	1	1	1	1	1	1	1		10	1	1
7	Secondary data on Schools access to electricity and drinking water for period 2017-2020	1	1	1	1	1	1	1	1	1	1		10	1	1
8	Secondary data on Schools having basic hand washing facilities for period 2017-2020	1	1	1	1	1	1	1	1	1	1		10	1	1

No.	Question															
9	Secondary data on pupil-teacher ratio for primary education for period 2017-2020	1	1	1	1	1	1	1	1	1	1		10	1	1
10	Secondary data on Teachers receiving at least minimum organized training for period 2017-2020	1	1	1	1	1	1	1	1	0	1		9	0.9	0
11	Secondary data on Free, equitable and quality primary education for period 2017-2020	1	1	1	1	1	1	1	1	1	1		10	1	1
12	Secondary data on Free, equitable and quality secondary education for period 2017-2020	1	1	1	1	1	1	1	1	1	1		10	1	1
													S-CVI/Ave	0.99	
													S-CVI/UA		0.92
Proportion Relevance		1	1	1	1	1	1	1	1	0.9167	1				
Average proportion of items judged as relevant across the ten experts												0.99			

Appendix 2: Revised questionnaire statements instrument

A. PUBLIC SECTOR GOVERNANCE

Promotion of shared responsibility across multi-levels of government

No.	Question
6	Continuous negotiations are encouraged among nested governments at territorial levels
7	A multi-level mechanism exists for policy design and implementation
10	Meta -governance is recognized as an important component of multi-level governance
12	There is adequate clarity of interconnected system for policy dispersal/goal/targets at all levels.

Effective Decentralization

No.	Question
1	There is adequate dispersion of authority at all levels of government?
2	Shared responsibility is promoted across central and local government
3	Power has been decentralized to local government
4	There is financial/fiscal decentralization in the sector
5	Stakeholder participation is encouraged for delivering policies effectively at all levels

Government Effectiveness: Formulation of Policy and objectives

No.	Question
1	The quality of government objectives' implementation is adequate
2	There is inclusiveness in the implementation of government objectives
3	The quality of policy formulation is adequate
4	There is inclusiveness in the in-policy formulation process

Government Effectiveness: Implementation of policy and objectives

No.	Question
5	The quality of policy implementation is adequate
6	The credibility of commitment to policy is good
7	The quality of public service delivery is good

Voice and Accountability (VandA)

No.	Question
1	Civil Society Organizations are allowed to contribute to policy decisions in the sector through a deliberative process
2	Voice and accountability provisions are included in the sector's legislative documents
3	Formal and informal institutions exist in the sector to provide an enabling environment for voice and accountability

Risk management and performance through robust internal control and strong PFM

No.	Question
1	The sector has a robust internal control and risk management system
2	The sector has a functioning risk committee/audit committee
3	The sector has an effective performance management system
4	The sectors financial management system is strong
5	The sectors have implemented strategies for managing emerging risks

Citizen Participation

No.	Question
1	There is increased Citizen/ Civil Society Organizations participation in sector's policy formulation
2	Citizen engagement has led to increased public awareness of the SDGs
4	The sector implements community based monitoring

B. PUBLIC FINANCE MANAGEMENT (PFM)

Value for Money

No.	Question
1	The budget process in the sector's is credible, reliable and efficient
2	The budget process in the sector is transparent and participatory
3	The sector has an effective control of public spending
4	Allocation of Resources are aligned with the sectors public priorities

C. PUBLIC SECTOR PERFORMANCE (PSP)

Service Delivery (Quality, Quantity and Accessibility)

No.	Question
2	Allocated resources are utilized for the intended purpose
3	Service delivery in the sectors is effective and equitable
4	There are appropriate incentives for service delivery
5	Service quality in the sector is improved

A. SUSTAINABLE DEVELOPMENT

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Target 3.1: Reduce global maternal mortality ratio

No.	Question
1	Maternal mortality ratio has been controlled
2	Proportion of births attended by skilled health personnel has improved
3	Antenatal coverage in the first trimester is very high in the country
4	Percentage of pregnant women receiving 3 or more doses of IPT during antenatal increased

Target 3.3: End Pandemics of communicable diseases

No.	Question
1	The number of new HIV infections in the country has been controlled
2	Country's progress towards the 95-95-95 HIV treatment has improved
3	The number of new tuberculosis infections in the country has been controlled
4	The number of new malaria infections in the country has been controlled

Target 3.8: Universal Health Coverage

No.	Question
1	Health facilities have been constructed and rehabilitated to improve access health services
2	Ambulatory services have improve access to health services in the country
3	Financial risk protection has improved access to health services
4	There is access to safe, effective, quality and affordable medicines

Target 3c: Increase Health Financing and Workforce

No.	Question
1	Health Financing has increased
2	Recruitment of health workers has increased
3	Health worker density and distribution has improved
4	Development and training of health workers has been implemented

Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Target 4.1: Universal Primary and Secondary Education

No.	Question
1	Free, equitable and quality primary education has been provided in the country
2	Free, equitable and quality secondary education has been provided in the country
3	Drop-out rate for primary education has been controlled
4	Primary and Secondary school enrolment has increased

Target 4.2: Early Childhood development and universal pre-primary education

No.	Question
1	Boys and girls access to quality early childhood development and care has improved
2	Training of Early Childhood development teachers has improved
3	Coverage of ECD services has increased
4	Each education district has an ECD resource centre
5	Supply of qualified teachers has increased

Target 4a: Effective learning environment

No.	Question
1	Teaching and learning materials for primary school are provided
2	Primary education facilities have been built and upgraded
3	Access to drinking water has been provided in schools
4	Access to electricity has been provide in schools

Target 4c: Supply of Teachers and educators

No.	Question
1	Pupil-teacher ratio for primary education has been maintained

2	Pupil-teacher ratio for secondary education has been maintained
3	Teachers are receiving at least minimum organized training
4	Supply of qualified teachers has increased

Appendix 3: List of publications

- Book chapter on Effectiveness of Corporate Governance on the Performance of Public Sector Organizations with regards to public finance management for Sustainable Development

- Paper on A Critical Review of Covid-19 Effects on Public Finance Management Systems

- Paper on Public Sector Governance and Sustainable development in health and education sectors: Bibliometric Analysis.

Appendix 4: List of conferences attended

- MAIMS International Conference (MIC'2020) Held on 3rd to 4th December, 2020 A Conference. Paper presented: A Critical Review of Covid-19 Effects on Public Finance Management Systems

- An International Conference On Rethinking Business; Designing Strategies in The Age of Disruptions On 19th December 2020.

- An International E-Conference On Being Covid Antifragile – The Sustainability And Growth Perspective On 11 -12th February, 2021.

- ICSSR-IMPRESS Sponsored Virtual International Conference-2021: "Entrepreneurship and Small Business; opportunities and challenges held from 26th -27th August, 2021

- International Conference on the theme "Industry5.0: Human Touch, Innovation and Efficiency" organized by Mittal School of Business (ACBSP, USA Accredited), LPU on January 28th, 2022. Paper presented: Supreme Audit

Institutions Embracing Technology In Public Sector Auditing: An Assessment Of Information Technology Maturity Of SAI Malawi

Appendix 5: List of Online workshops attended

- Three days free e-workshop on Bibliometric Analysis, Meta- Analysis and Meta SEM held 21st -23rd January, 2021
- Banarsidas Chandiwala Institute of Professional Studies one-week faculty programme on Multivariate analysis through advance techniques held on 15th - 20th March, 2021
- Koach online Workshop on "Integrating Theory for Developing a Framework and Questionnaire development" from 18th -23rd September 2021

Abstract:

The quest for public sector governance has recently increased considering that implementation of Public Finance Management systems that harness the achievement of sustainable development to ensure a balanced high standard of living for the citizenry and socio-economic and environmental sphere has not yielded much success in developing countries such as Malawi. With a particular focus on education sector and health sector of Malawi, the study sought to examine whether public sector governance correlates with the achievement of sustainable development goals while taking into consideration the serial mediating roles of public financial management (PFM) and performance of public sector (PSP) (service delivery). Empirically, the determination of this relationship was done through an exploratory literature review using bibliometric analysis with an aid of Vosviewer and Biblioshiny softwares. The antecedents for public sector governance were drawn, based on which, hypotheses were tested by applying Structural Equation Modelling (SEM) analysis with an aid of Smart-PLS software. These antecedents included: Shared responsibility (SR); Government Effectiveness (GE), Voice and Accountability (VA). Risk Management (RM) and Citizen Participation (CP). The hypothesis sought to establish whether: "H_1: Governance is positively linking with SDGs; H_{2a}: Governance is positively linking with PFM; H_{2b}: PFM is positively linking to SDG; H_{2c}: PFM mediates the link between Governance and SDG; H_{3a}: Governance is positively linking with Service Delivery (SD); H_{3b}: Service Delivery is positively linking with SDGs; H_{3c}: Service Delivery mediates the link between Governance and SDG; H_4: PFM is positively linking with Service Delivery; and H_5: PFM and SD sequentially mediate the link between Governance and SDGs". Combined interrelated research designs including qualitative and quantitative with a positivist approach were applied. Further, factor analysis using exploratory factor analysis as well as Cronbach's alpha reliability test were applied on the collected data in order to validate the statements and measurements used in this study. As a perceptual survey-based research, questionnaires were administered and responses were obtained from an adjusted sample of 960 respondents which was determined through the use of Raosoft to a sample calculator and Cochran's sample size formula. A Likert scale of Seven-points was applied for obtaining perceptions from the respondents on the statements of the study constructs. Using SPSS, descriptive statistics were obtained for the test on normality

of the collected data. was conducted. Collected data was analyzed using Partial least squares which was done using variance-based SEM with an aid of Smart-PLS.

This research contributed significantly to the body of knowledge through an extension of previous studies on Governance linking with Sustainability by digging into and conducting a comparative analysis of the existing governance practices in the education and health sector of Malawi. Second, the contribution of the research was made on an investigation as to whether Public Financial Management facilitates the linking of Governance to Sustainable development goals. Third, the contribution was made on establishing whether service delivery facilitates the Governance linkage to Sustainable development goals. Fourth, contribution was made towards establishing whether Public Financial Management combined with Service delivery together facilitate the Governance linkage to Sustainable development goals.

The study concluded that the proposed Governance linkage to SGDs in education sector was not contrary to health sector findings. Similar results were found for all the hypothesised relationship for Health and education sector. The relationships were found to be significant and the results showed a positive relationship. The study's results noted that the respondents' perception agreed to all the measurement statement items. They also revealed that Governance positively influenced the achievement of SDGs. This strengthened an argument which suggests that the SDGs achievement could be enhanced through good governance. Further, results showed that The Governance-Sustainable Development Goals (GSDG) Model's constructions have the potential to act like casual sequence, hence the GSDG model known as a serialized mediation. Thus, enhanced governance could lead to improved PFM, and PFM could impact better service delivery, which could forecast the achievement of sustainable development goals (Governance-PFM -SD-SDG). This is plausible as a Value for money oriented message could translate to increased insights relating to PFM, which might in turn bring a recognition the benefits derived from engagement of desirable behaviour viz achieving SDG.

The study sought to explore existing literature on public sector governance and performance of public entities in relation to public finance management for sustainable development. For studies in future, Structural Equation Modelling (SEM), could focus on used of confirmatory Factor Analysis (CFA) to test the GSDG model. It is envisaged that the observation made through this study will be instrumental to the Malawi Supreme Audit Institution in improving its ways of providing oversight role on public service delivery. Recommendation made will help improve the way public sector entities engage with issues of governance, service delivery and public finance management.

Key words: *Public sector governance, Public finance management, sustainable development; Performance sector performance; voice and accountability; health and education sector*

used for the data collection and contributed to the success of the research study. All the respondents from the education and health sectors cannot go without being appreciated.

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May God richly bless you all.

Caroline Lindah Mphande Buliani, September, 2022.

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LIST OF ABBREVIATIONS

ADC	:	Area Development Committee
AIP	:	Annual Implementation Plan
AVE	:	Average variance extracted
CEED	:	Central East Education Division
CLRM	:	Classical Linear Regression Model
CP	:	Citizen Participation
CR	:	Composite reliability
CVI	:	Content Validity Index
CWED	:	Central West Education Division
DC	:	District Commissioner
DDP	:	District Development Plan
DEC	:	District Executive Committee
DEC	:	District Executive Committee
DHO	:	District Health Officer
DSDG	:	Division for Sustainable Development Goals
EFA	:	Exploratory Factor Analysis
EFQM	:	European Foundation for Quality Management
EHP	:	Essential Health Package
EMIS	:	Education Management Information System
EMIU	:	Education Management Infrastructure Unit
EMS	:	Essential Medicines and Supplies
GDP	:	Gross Domestic Product
GE	:	Government Effectiveness
GEF	:	Government Effectiveness policy Formulation
GEI	:	Government Effectiveness policy Implementation
GNACTA	:	Global Network on Anti-Corruption, Transparency, and Accountability

GoM	:	Government of Malawi
GSDG	:	The Governance-Sustainable Development Goals
GSDR	:	Global Sustainable Development Reports
HAC	:	Hospital Advisory Committee
HLPF	:	High-Level Political Forum
HR	:	Human Resources
HSAs	:	Health Surveillance Assistants
HSSP II	:	Health Sector Strategic Plan II
HSWG	:	Health Sector Working Group
HTMT	:	The Heterotrait-Monotrait ratio of correlations
IFMIS	:	Integrated Financial Management System
MBNQA	:	Malcolm Baldridge National Quality Award
MDAs	:	Ministries, Departments, and Agencies
MDGs	:	Millennium Development Goals
MoE	:	Ministry of Education
MoH	:	Ministry of Health
MTEF	:	Medium-Term Expenditure Framework
NED	:	Northern Division
NESIP	:	National Education Sector Investment Plan
NESP	:	National Education Sector Investment Plan
NHP	:	National Health Policy
NRED	:	Northern Region Education Division
OS	:	Original Sample
ODA	:	Overseas Development Assistance
OPC	:	Office of the President & Cabinet
PEFA	:	Public Expenditure Financial Accountability
PFM	:	Public Financial Management

PLS-SEM	:	Partial least squares structural equation modelling
PPPs	:	Public-Private Partnerships
PQTR	:	Pupil Qualified Teacher Ratio
PSG	:	Public Sector Governance
PSP	:	Public Sector Performance
RM	:	Risk Management
SAI	:	Supreme Audit Institution
S-CVI/UA	:	Scale-level Content Validity Index/ Universal Agreement
SD	:	Service Delivery
SD	:	Service Delivery
SDGs	:	Sustainable Development Goals
SEED	:	South East Education Division
SEM	:	Structural Equation Modelling
SHED	:	Shire Highlands Education Division
SMEs	:	Small and Medium Enterprises
SR	:	Shared responsibility
STDEV	:	Standard Deviation
SWED	:	South West Education Division
TLM	:	Teaching and Learning
TWG	:	Technical Working Groups
UA	:	Universal Agreement
UHC	:	Universal Health Coverage
UK	:	United Kingdom
UN	:	United Nations
UNDESA	:	UN Department of Economic and Social Affairs
USA	:	United States of America
VA	:	Voice and Accountability

VDC	:	Village Development Committees
VECM	:	Vector Error Correction Model
VFM	:	Value for Money
VIF	:	Variance inflation factor
WHO	:	World Health Organization
ZHSO	:	Zonal Health Support Offices
ZHSOs	:	Zonal Health Support Offices

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Appendix 1:   The Relevance Ratings On the Item Scale by Ten Experts

Appendix 2:   Revised questionnaire statements instrument

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