Examining the Influence of Public Financial Management Processes and Practices on the Efficiency of County Health Systems in Kenya

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Declaration and Approval

I declare that this work has not been previously submitted and approved for the award of a degree by this, or any other University. To the best of my knowledge and belief, this Ph.D. thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

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Abstract

Public Financial Management (PFM) processes and institutions are an important determinant of the efficiency of the public health system particularly in low- and middle-income countries where there are numerous challenges. These challenges include; poor budget structures, misalignment of plans and budgets, fragmented revenue streams, low budget credibility, inefficient procurement processes, ineffective controls, and insufficient monitoring and evaluation mechanisms. There are also conflicts in the relationship between the institutions involved in the PFM process, especially the ministry of health and finance ministry. While some of these challenges are well documented, there is limited knowledge of how these challenges compromise health system efficiency. I examined how elements and processes of the PFM cycle - the budget formulation, budget execution, and budget monitoring processes influence county health systems' efficiency in Kenya. I employed a qualitative case study design that entailed budget data analysis and a qualitative cross-sectional examination of the relationship between PFM and efficiency using in-depth interviews and document reviews. I used descriptive statistical analysis to analyze the quantitative budget data collected from document reviews and employed thematic analysis to analyze the in-depth interviews. I found that the budget formulation, execution and monitoring, and accountability processes influenced the efficiency of county health systems by influencing the input mix within health systems, the cost of inputs, the motivation and productivity of human resources for health, and the responsiveness of the budget to health system needs. To enhance the efficiency of county health systems, I recommend implementing various policy measures throughout the PFM process. In budget formulation, it is advisable to use a Medium-Term Expenditure Framework (MTEF) to guide allocations, provide timely budget ceilings, allocate sufficient resources to health, cascade budget ceilings to facilities, and involve facilities in budgeting and planning, develop and use Programme Based Budgets (PBBS), pool health sector funds, promote stakeholder participation in budgeting and planning, and base decision-making on evidence. In budget execution, the government should avail promised funds, prioritize payments based on County Department of Health (CDOH) priorities, ensure timely procurement process, enhance facility managers' autonomy, and include facilities in the financial management information system. In budget monitoring and oversight, the government should clearly demarcate roles for implementing and oversight stakeholders, enhance civic education to improve the population's budget literacy, fully operationalize the sector working groups and the county health stakeholder's fora, utilize synchronous accountability mechanisms, provide feedback

following monitoring mechanisms, implement existent sanctions for inefficiency and rewards for efficiency, and finally the government should increase budget transparency.

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Abbreviations

Abbreviation	Definition
ADP	Annual Development Plan
AIDS	Acquired Immuno-Deficiency Syndrome
APR	Annual Performance Review
AWP	Annual Work Plan
BCG	Bacille Calmette-Guerin
CA	County Assembly
CAS	Complex Adaptive System
CBROP	Conty Budget Review and Outlook Paper
CDOH	County Department of Health
CEC	County Executive Committee
CFSP	County Fiscal Strategy Paper
CGMR-C	Centre for Geographic Medicine Research Coast
CHMT	County Health Management team
CIDP	County Integrated Development Plan
COB	Controller of Budget
COVID	Corona Virus Disease
CRF	County Revenue Fund
DAAD	German Academic Exchange Service
DANIDA	Danish International Development Agency
DEA	Data Envelopment Analysis
DRC	Democratic Republic of Congo
FMIS	Financial Management Information System
FY	Financial Year
GDP	Gross Domestic Product
AfHEA	African Health Economics Association
HIC	High Income Country
HIS	Health Information System
HIV	Human Immunodeficiency Virus
HSWG	Health Sector Working Group
IBP	International Budget Partnership
IFMIS	Integrated Financial Management Information Systems
IRB	Institutional Review Board
KEMRI	Kenya Medical Research Institute
KEMSA	Kenya Medical Supplies Agency
KES	Kenya Shillings
LMIC	Low- and Middle-Income Country
LSO	Local Service Order
MCA	Member of County Assembly
MOF	Ministry of Finance

MOH	Ministry of Health
MSF	Médecins Sans Frontières/Doctors Without Borders
MTEF	Medium Term Expenditure Framework
NACOSTI	National Commission for Science, Technology, and Innovation
NCD	Non-Communicable Diseases
NGO	Non-Governmental Organization
NHIF	National Hospital insurance Fund
OCOB	Office of the Controller of Budget
ODI	Overseas Development Institute
OOP	Out of Pocket Payments
PBB	Programme Based Budgeting
PEFA	Public Expenditure and Financial Accountability
PFM	Public Financial Management
PFMA	Public Finance Management Act
PHC	Primary Health Care
PPADA	Public Procurement and Asset Disposal Act
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
READ	Read, Extract, Analyze and Distill
RMNCAH	Reproductive, Maternal Neonatal, Child and Adolescent Health
SDG	Sustainable Development Goal
SERU	Scientific Ethics Review Unit
SU	Strathmore University
SWG	Sector Working Group
TB	Tuberculosis
THE	Total Health Expenditure
THS	Transforming Health Systems
UCS	Universal Coverage Scheme
UHC	Universal Health Coverage
USD	United States Dollar
WHO	World Health Organization

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Dedication

This thesis is dedicated to my husband Gregory Momanyi, our daughter Mozelle and our son, Sekaye.

Chapter One: Introduction

1.1 Introduction

Public Finance Management (PFM) refers to the laws, guidelines, procedures, and institutions that governments have in place to collect, allocate, expend, and account for public funds (Allen et al., 2013). These PFM processes are expected to result in fiscal discipline and the efficient use of resources (Schick, 1998). PFM systems were previously whole of government issues centered mainly around the ministry of finance (Welham et al., 2017). However, several studies have now recognized the impact of PFM systems on the health sector, specifically on the efficiency of health systems (Piatti-Fünfkirchen & Schneider, 2018a; World Health Organization, 2018).

Efficiency in healthcare means maximizing health outputs and outcomes using available resources (Daher, 2001). To achieve health system goals, countries should use the limited resource available efficiently – achieving the maximum possible health outcomes with allocated public resources (World Bank, 2014; World Health Organization, 2016c). PFM processes and practices are critical to managing public funds and ensuring efficiency (Cashin et al., 2017). There are three types of efficiency, allocative efficiency, technical efficiency and scale efficiency. Technical efficiency is when outputs are maximized for a given set of inputs or when inputs are minimized for a given set of outputs. Allocative efficiency on the other hand entails the right mix of inputs for a given set of outcomes. Scale efficiency entails the optimal point where any change in input will lead to inefficiency rather than improved efficiency. In this thesis I focus on the aspects of efficiency that are subject to - and are a goal of the financial management processes – allocative and technical efficiency. The public financial management process determines the level of inputs available for health, and how these inputs are utilized and combined.

PFM indicators are key determinants of health system outcomes and performance including efficiency (Ally & Piatti-Fünfkirchen, 2021; Piatti-fünfkirchen & Lodewijk, 2019; Piatti-Fünfkirchen & Schneider, 2018a). For example, a study that examined the relationship between PFM and under five mortality found that an increase in the quality of PFM by one unit reduced under-5 mortality by up to 14 deaths per 1000 live births (Piatti-fünfkirchen & Lodewijk,

2019). However, the PFM process within the health system for most LMICs is still characterized by multiple challenges including, limited budget absorption, limited budget allocation, misalignment between plans and budgets, and misappropriation of funds (Ally & Piatti-Fünfkirchen, 2021; Piatti-Fünfkirchen & Schneider, 2018a; Zeng et al., 2021). While these challenges are well documented, there is a gap in understanding how these PFM challenges interact to influence service delivery and therefore health system outcomes, such as efficiency (Goryakin et al., 2020). This study sought to fill this gap by examining the link between PFM structures and processes and the health system goal of efficiency in Kenya.

Kenya has had historical challenges with the PFM structures within the health system, including misalignment between plans and budgets (Tsofa et al., 2016), priority setting challenges (E. Barasa, Molyneux, et al., 2017), and budget execution challenges (Glenngård & Maina, 2007). There have been several policy and governance reforms targeted at addressing among other things, how public resources are collected, allocated, and used. These reforms included the devolution of some government functions to semi-autonomous sub-national units (counties) in 2013 following a new constitution passed in 2010. Since 2013, the counties are responsible for among other functions, health service delivery. A key goal of devolution was to enhance efficiency by taking services closer to the people. Parallel to devolution, the government also rolled out the Public Financial Management Act, of 2012 which guided how resources are to be managed at both the national and county levels, with a key goal of enhancing efficiency and fiscal discipline in the management of public resources. Despite these initiatives to enhance service delivery and efficiency in the utilization of public resources, there remain documented challenges with how health budgets are planned (E. Barasa, Manyara, et al., 2017), executed, and monitored, with potential effects on health system performance. Understanding how these challenges interact to influence health system performance is important in ensuring available health resources are used efficiently.

This study sought to address this gap by examining the relationship between public finance management and efficiency in Kenya; in the process, it generated evidence on the mechanisms through which PFM influences the efficiency of health systems. Specifically, the study 1) examined how the budget formulation structures and processes influenced the efficiency of county health systems 2) examined how the budget execution processes influenced the

efficiency of county health systems and finally, 3) examined how the budget monitoring and evaluation processes influences the efficiency of county health systems in Kenya

1.2 Background

Globally, the World Health Organization (WHO) estimates that approximately 20-40% of resources spent on health are wasted (World Health Organization, 2010). These inefficiencies have catastrophic consequences, including loss of life and denying much-needed health services to other people(Cylus et al., 2016). There is also a consensus that efficiency gains can unlock additional resources for health service delivery that are within the control of the health system (Barroy et al., 2016). PFM has been identified as a driver of efficiency - a key goal of PFM is the achievement of both allocative and technical efficiency in the use of public finance (Allen et al., 2013). For example, effective PFM processes are associated with enhanced health system performance (Welham et al., 2017). Constructive PFM systems measured by the Public Expenditure and Financial Accountability (PEFA) score positively correlate with health system outcomes, including reduced neonatal mortality and increased life expectancy (Welham et al., 2017). In addition, several countries that have implemented PFM reforms have reported considerable improvement in specific health system processes like programme-based budgeting (PBB) (World Health Organization [WHO], 2019).

Regionally, and in most low- and middle-income countries, there are challenges with PFM with consequences on health service delivery. For example, PFM systems often misalign with health needs, and health financing goals (Cashin et al., 2017; World Health Organization [WHO], 2019). PFM systems are often cross-cutting across departments and do not take into consideration local contexts (World Health Organization [WHO], 2019). Weak priority-setting mechanisms have prevented linkages between financing and health system needs (World Health Organization [WHO], 2019). Rigid budget systems are linked to delayed reallocation of funds to handle emergency healthcare conditions (Piatti-Fünfkirchen & Schneider, 2018a). Fragmented funding sources that are not under the control of health departments make it difficult to plan for health needs effectively (Piatti-Fünfkirchen & Schneider, 2018a). These challenges often conflict with health system goals and limit efficiency.

In Kenya, PFM has been identified as a significant driver of health system efficiency (Zeng et al., 2020). Studies in Kenya have shown challenges with selected aspects of PFM such as budget and planning that have implications on efficiency. For example, a study that assessed the implementation of PBB at the national level found that health system goals attached to budgets were unclear with no measurable targets (Lakin & Magero, 2014). Another study that evaluated the budgeting process found that the institutionalized separation of budgeting and planning roles in Kenya delinked planning and budgeting processes that resulted in poor performance of health systems (Tsofa et al., 2015). Another study conducted before devolution found cash flow issues and liquidity problems that limited the transfer of funds to the district level (Waweru et al., 2013). Kenya has also experienced underspending in health where the budgets for health were not fully executed resulting in lost opportunities for health system performance (World Health Organization, 2016b). At the sub-national level, the budgeting and planning processes in hospitals were often misaligned with health sector priorities. Informal processes such as lobbying were used to allocate budgets between departments (E. Barasa, Molyneux, et al., 2017). Besides the challenges, the PFMA and other PFM laws and guidelines introduced several actors and players to the budgeting cycle within county health systems. While this may enhance the control process and inclusivity, multiple actors and processes can introduce inefficiencies. For most low- and middle-income countries, every additional layer of accountability may result in loss of funds for the health system. (Piatti-Fünfkirchen & Schneider, 2018a; World Health Organization [WHO], 2019). There have been several efforts to improve the governance of public funds including through devolution of services.

Kenya devolved the delivery of healthcare services to the sub-national level in 2013 following the enactment of the 2010 constitution (Constitution of Kenya, 2010). This devolution process was expected to improve the participation of communities in decisions and enhance social accountability. In doing this, devolution in health was expected to enhance priority-setting mechanisms, improve public participation and increase technical efficiency (Tsofa et al., 2017). Following the devolution of health systems, the government also rolled out public finance management laws, guidelines, and processes to the counties (National Treasury, 2016). Some of these laws were new, stemming from the enactment of the public finance management act (PFMA) 2012, while others existed at the national level but at that time were also extended to the county level. These PFM systems guide the entire budget process from budgeting and planning to budget execution and finally, accounting and oversight (Government of the

Republic of Kenya, 2012). In addition to the new laws, Kenya has also been part of other global PFM reforms that are targeted at improving health system performance. These include the introduction of Programme Based Budgets (PBB) and the Medium-Term Expenditure Framework (MTEF). All these reforms are targeted at improved service delivery and efficiency. Understanding how these changes have influenced the efficiency of county health systems is therefore an important research question. The next section will provide a background of Kenya, the country where the research was conducted.

1.2.1 Background: Kenya Country Context

Kenya is a country in Africa within the East African region. It is East Africa's biggest economy with a GDP of USD 2081.8 per capita in 2021 (Table 1.1) (World Bank, 2021). In 2019, Kenya had a population of 47,564,296 (Kenya National Bureau of Statistics, 2019). Kenya runs a devolved system of government with 47 county governments and one national government (Constitution of Kenya, 2010).

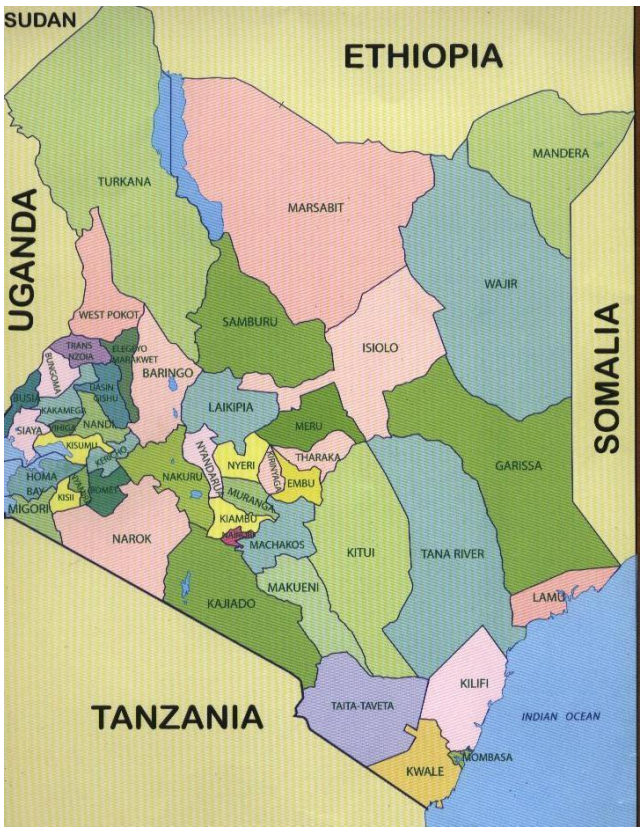

Figure 1.1: Map of Kenya showing the 47 county governments

Table 1.1: Summary of Kenya demographic socio-economic and health indicators

Indicator	**Value**
***Demographics (*Kenya National Bureau of Statistics, 2019)**	
Population	47,564,296
Annual growth rate	2.2%
Social and economic indicators (Ministry of Health, 2021; World Bank, 2021)	
GDP	US$2081.8
GDP growth rate	7.5%
Literacy rate	83%
Allocation to health as % of GDP	11.7%
Health Indicators (Kenya National Bureau of Statistics, 2023)	
Insurance Coverage	26%
Fertility rate	3.4
Percentage of women with 4+ antenatal visits	65.7%
Percentage deliveries conducted by a skilled birth attendant	89%
Percentage of children 12-23months who are fully vaccinated	80%
Under 5 mortality rate per 1000 live births	37.2%

1.2.1.1 The health system in Kenya and health financing indicators.

Kenya has two levels of government – the national government and 47 semi-autonomous county governments (Constitution of Kenya, 2010). Within the health sector, county governments are responsible for health service delivery while the national government is responsible for policy formulation, the national referral system and training (Constitution of Kenya, 2010).

Health service provision in Kenya is divided into 4 tiers of care (Constitution of Kenya, 2010). Tier one comprises the community services mainly provided in level 1 facilities (community

units) (Constitution of Kenya, 2010). Tier two comprises primary healthcare services mainly provided within level 2 (dispensaries) and level 3 (health centers) facilities (Constitution of Kenya, 2010). Tier three comprises county referral services which is mainly provided in level 4(Sub county) and level 4 (County referral facilities) facilities, and finally tier four which comprises level 5 county referral hospitals which act as regional referrals and level VI national referral facilities. However, at the time of this thesis, the country is also piloting primary healthcare networks - hub and spoke models with the sub county hospitals as a hub and the dispensaries and health centers as spokes. This may reorganize the health system in Kenya and may redefine the definition of primary healthcare to primary care networks.

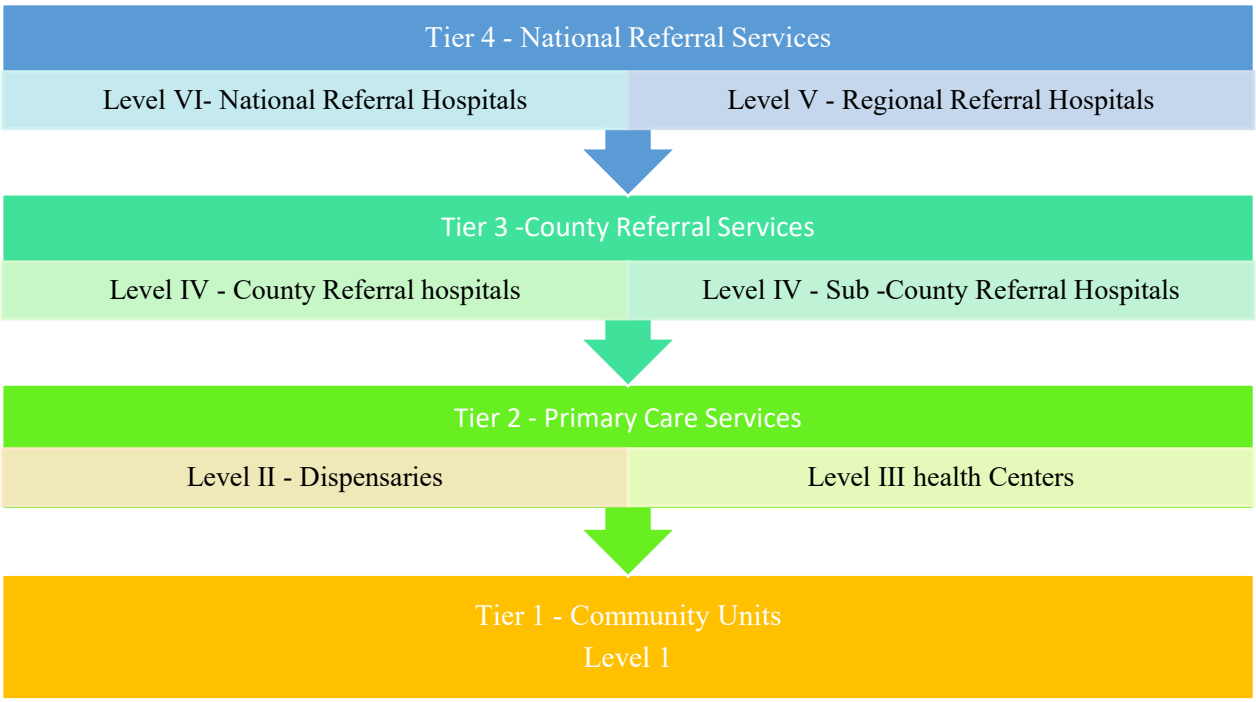

Figure 1.2: Tiers and Levels of Health Service Provision in Kenya

1.2.1.2 The Status of Healthcare Financing

The health system in Kenya is financed through 1) government transfers 2) public health insurance (National Health Insurance Fund (NHIF)) 3) external funding 4) out of pocket payments and 5) voluntary health insurance (Ministry of Health, 2021). Of all these sources, government transfers constituted the largest share of health financing in 2020 (46%) followed by out-of-pocket payments (24%), external aid (18%), voluntary health insurance (10%) and then the social health insurance (1%) (Ministry of Health, 2021). The 24% out of pocket

payments are above the recommended 15% OOP payments (Ministry of Health, 2021). The incidence of catastrophic health expenditure is estimated to be 4.9% (Ministry of Health, 2018). Health budgets remain underutilized with an average county budget absorption of 91% in 2019/2020 and national budget absorption of 70% (Ministry of Health, 2021).

The government of Kenya is the biggest source of financing for the Kenyan health system (Ministry of Health, 2021). How these funds are managed within the system is therefore important in enhancing county health system efficiency. To finance health service delivery, county governments are allocated funds from the exchequer using the county allocation of revenue formula. This formula was passed by the senate, and it incorporates various county level indicators as shown in table 1.2 below. In addition to the allocated revenue, counties are also expected to collect their own source revenue. Once every county has its total revenue, they then follow the government planning and budgeting process to allocate the funds across different departments.

Table 1.2: County Allocation of Revenue Act weights

Indicator of expenditure	**Weight**
Health Index	17%
Agricultural index	10%
County Population	18%
Basic share index	20%
Urban households	5%
Land area	8%
Rural Access Index	8%
Poverty Index	14%

Adopted from the county allocation of revenue act

The management of public funds is guided by the Public Financial Management Act (PFMA) and the Public Procurement and Asset Disposal Act (PPADA). However, as I will show later in the literature review in chapter 2, the public finance management process is subject to

guidelines, functions, and the political economy factors. The next section will outline the problem that I sought to explore.

1.3 Problem Statement

Inefficiencies in the health system have catastrophic consequences including denying much-needed health to the people. As stated in section 1.1, PFM processes are the key mechanism for managing the largest percentage of health system resources in Kenya and ensuring they are spent efficiently. However, PFM processes and structures sometimes conflict with health systems goals of equity, efficiency, and financial risk protection.

Most studies around PFM in health have been piecemeal. They have considered singular aspects of PFM and not linked them with health system goals – such as efficiency or equity (E. Barasa, Manyara, et al., 2017; Tsofa et al., 2015; Waweru et al., 2013). They also focus on the upstream processes of PFM, specifically around budget formulation, yet the most significant shortcomings are experienced downstream, at budget implementation and evaluation (World Health Organization [WHO], 2019). Studies have shown that in most African countries, budgets are better planned than they are executed or monitored. The biggest challenges are in the down-stream processes of PFM (Piatti-Fünfkirchen et al., 2021).

The few studies that have linked PFM to efficiency have been quantitative(E. Barasa et al., 2021; Piatti-fünfkirchen & Lodewijk, 2019; Zeng et al., 2021). They have identified PFM as a determinant of health system efficiency, but they do not explain how and why PFM influences efficiency.

With this study, I filled this gap by taking a comprehensive view of PFM in the health sector, Secondly, I linked the PFM processes with the health system goal of efficiency, and finally, I provided an explanation on the mechanisms through which PFM influences health system efficiency. I focused on efficiency as a goal because of its potential to unlock more resources to support Kenya's UHC goal.

1.4 Study Justification

Low- and middle-income countries including Kenya are struggling with limited resources against a growing burden of communicable diseases, non-communicable diseases, and injuries (World Health Organization, 2016b). This is further compounded by the dwindling of donor funds (World Health Organization, 2016b). This pushes toward increased reliance on public financing for health. While it's important to allocate more money for health, this is not always feasible, as it's constrained by economic growth and competing needs (Barroy et al., 2016). A key question, therefore, is whether, and how the health system can get more health from the available resources. I explored this question by examining the Public Financial Management processes- which are the guidelines through which the health system manages public financing for health. Besides, PFM has been identified as a determinant of efficiency (E. Barasa et al., 2021).

Governments allocate substantial resources to the healthcare system with the goal of cultivating a robust and thriving population. Consequently, the healthcare system functions as a production process aimed at enhancing overall health and addressing illnesses. This research contributes to existing knowledge that has established that governments may not be optimizing its resources to achieve maximum health outcomes. The study explores the process of translating these resources into tangible results, identifying crucial policy areas that can be enhanced to ensure more effective resource utilization for the betterment of public health.

The goal of public financial management is to ensure efficiency in the management of public resources. The government of Kenya has put in place cross-cutting rules to guide how public funds are managed. These are encompassed in the PFM Act and related laws such as the Public Procurement and Asset Disposal Act. While these are well-intentioned, sometimes the complexity of the health system means that policies don't always result in the intended outcomes (Gilson, 2013). Cross-cutting PFM structures can be detrimental to ensuring efficiency in health service delivery. It is important to understand whether (or not) these rules and structures ensure efficiency in the use of resources. This is direr in the health system, where systems are complex, and policies don't always result in the intended outcomes. The next section will outline the research objectives and research questions, thereafter, the scope of the study.

1.5 Research Questions and Objectives

General Objective: To examine the influence of public financial management processes and practices on the efficiency of county health systems in Kenya.

1.5.1 Specific Objectives

i. To examine how the budget formulation process and practices influence the efficiency of county health systems.
ii. To examine how the budget execution processes and practices influence the efficiency of county health systems.
iii. To examine how the budget monitoring and evaluation processes and practices influence the efficiency of county health systems.

1.5.2 Research Questions

i. How are county health budgets formulated and how does the formulation influence county health systems' efficiency?
ii. How are county health budgets executed and how does the execution influence county health systems' efficiency?
iii. How are county health budgets monitored and evaluated and how does the monitoring and evaluation influence the efficiency of county health systems?

1.6 Scope of the Study

I focused on the PFM process within county health systems in Kenya, including the budget formulation, execution, and monitoring process. I conducted a case study of four counties: Trans Nzoia, Uasin Gishu, Homabay, and Tana river. I collected quantitative data for the financial years 2017/2018 and 2018/2019. For the qualitative aspects, this study interviewed 70 respondents including; county government officials, national government officials, development partners, non-governmental organizations, and hospital managers who were involved in the county PFM process. The next section explains the significance of this study.

1.7 Significance of the Study

The findings have provided information on how public finances within county health systems can be managed better to maximize efficiency. The findings can be used by policy makers and

implementers to inform the achievement of the goals of the PFM Act which is concerned with technical efficiency, allocative efficiency, and fiscal discipline in the use of public resources (The Public Finance Management Act, 2012). Within the health sector, the findings can inform the achievement of the goals of the Kenya Health Financing Strategy 2020-2030. Specifically, they can provide policy levers for efficiency maximization. This can contribute to the achievement of objective 2 of the strategy which is concerned with maximizing efficiency with available resources (Ministry of Health, 2020).

This study explored various aspects of the budget process in Kenya. The budget process is the tool through which the government executes its mandate. The findings of the study can provide policymakers with information on how health budgets can be better formulated, approved, executed, and monitored to ensure that they meet various service delivery goals. These findings can help policymakers make decisions that will ensure the government meets its constitutional mandate of providing the highest attainable healthcare services to its citizens (Constitution of Kenya, 2010).

Beyond Kenya, the study findings can provide mechanisms through which other low- and middle-income countries can improve fiscal space for health for the achievement of UHC. While the goals of UHC are clear, most LMIC countries do not have enough resources to meet these goals. However, from the literature review, it has emerged that a lot of resources within the health system are wasted. One of the sources of inefficiency is the PFM process. The findings can inform how PFM can be used to solve health system inefficiencies and enhance health service delivery and therefore the global goal of UHC. The next section outlines the structure of the thesis.

1.8 Structure of the Thesis

This thesis consists of 7 chapters. The first chapter, introduces the study, providing background information on PFM processes and efficiency globally, regionally, and in Kenya. It also states the problem and explains why it was necessary to conduct the study. After justifying the study, the chapter lists the objectives of the study, research questions, scope, and significance of the study.

The second chapter is the literature review chapter detailing the approaches to understanding public financial management and reviewing existing organizational theories important in understanding efficiency as an aspect of performance. Following the theoretical review, the chapter details the empirical literature review conducted to gain an understanding of the relationship between PFM and efficiency. It concludes with a conceptual framework that is developed from the literature review on the relationship between PFM and efficiency.

The third chapter is the methods chapter, detailing the methodological process undertaken to answer the research objectives. It begins with the philosophical assumptions guiding the study and outlines the research approach, the study design, the research strategy, and the data collection methods and procedures. The chapter also explains the steps taken to ensure rigor.

The fourth, fifth and sixth chapters are the results chapters. The fourth chapter provides results for objective 1 of the study, examining how the budget formulation process influences the efficiency of county health systems in Kenya. It describes the budget formulation process within counties in Kenya and then analyses five budget formulation factors that I found to influence the efficiency of county health systems in Kenya. These are budget ceilings, budget structure, pooling of resources, participatory budgeting, and the budget approval process.

The fifth chapter documents the results of objective 2 of the study, examining how the budget execution processes influence the efficiency of county health systems in Kenya. It describes the budget execution process and explores the five budget execution factors that I found to influence the efficiency of county health systems in Kenya. These are budget credibility, cash disbursement processes, procurement and supply chain, provider autonomy, and the financial management system.

The sixth chapter documents the results of objective 3 of the study, examining how the budget monitoring and accountability processes influence the efficiency of county health systems. It describes the existent budget monitoring and accountability processes within county health

systems and analyses the budget monitoring and accountability factors that I found to influence the efficiency of county health systems. These are accountability actors and pathways, accountability domains, accountability mechanisms, and the reward system for efficiency.

Chapter seven is the final chapter of this thesis providing a summary of the results, and a discussion of the empirical results in relation to existing literature. It concludes with a section on policy implications; making recommendations for policy actions and suggestions for areas for further research.

Chapter Two: Literature review

2.1 Introduction

In this chapter, I review the theoretical and empirical literature on public financial management and efficiency. Section 2.2 contains the theoretical literature review including the theory I used to conduct the study. Section 2.3 systematically outlines the empirical literature reviewed. I conducted a systematic search of PubMed, google scholar, WHO database, World Bank database, and other organizational websites for studies and reports on the relationship between PFM and health system efficiency. The review process results in a conceptual framework (Section 2.4) that guided the tools and the analysis. The chapter concludes with section 2.5 which outlines the gaps in the literature that this study sought to fill.

2.2 Theoretical Review

2.2.1 Approaches to Public Finance Management

The field of public finance has underpinnings in political science and governance, administration, law, accounting, social science, and economics. For example, the cameralists who are partly accredited with the origin of public finance were made up of lawyers, economists' political scientists, and administrators (Backhaus & Wagner, 2004). The cameralists were groups of people that advised the Kings, queens, and princes, they were concerned with the survival of regimes, and this, in turn, required economic development and military prowess (Backhaus & Wagner, 2004). In the next section I will discuss some of the perspectives that have dominated the field of public finance management

Three perspectives have dominated the field of public finance management: public administration, public finance, and political economy (Allen et al., 2013). Each of these perspectives has different concerns and therefore different views on the objectives of the PFM process. Table 2.1 below shows the concerns of each theoretical perspective, and how they view the budgeting process. The next section will explore in detail each of the three perspectives starting with public administration.

Table 2.1: Theoretical Perspectives of Public Finance Management

Theoretical perspective	**Concerns**	**View of the budgeting process**
Public administration	Budget systems, integrity, and compliance	A budget is an instrument to organize how resources are managed
Public finance	Budget Policies	A budget is an instrument to achieve fiscal policy objectives such as stimulating economic growth, stabilization, etc
Political economy	Institutional arrangements	A budget is a tool that reconciles competing interests over the use of public resources

Source: Adapted from Allen et al, 2013

2.2.1.1 Public Administration

Public administration is concerned with budgetary systems and is keen on compliance to the budget process (Allen et al., 2013). To achieve this, scholars in public administration developed budgetary principles that guide the budgeting process. These include, first, comprehensiveness or universality of the budget – this principle requires that all government revenues and expenditures are processed through the budget cycle. This protects the planning process in the government (Allen et al., 2013; Sundelson, 1935). Second, unity – the government should document all its activities in a single document or use one system to avoid duplication and fragmentation. Third, specification or appropriation – the implementing authorities are required to execute the budget in the planned way, with the planned amount without unauthorized changes. Fourth, annuality – governments are to prepare budgets for a specific time often over a year. Fifth, prior authorization – budgets must be authorized by the legislative arm of government before they are implemented by the executive arm of government. Sixth, accuracy – the budgeting departments ought, to be honest, and accurate with their projections. Seventh, clarity – budgets should be clear and easily understandable, they should also allow for annual comparisons. Eighth, publicity/transparency – the budget ought to be made public (Allen et al., 2013; Sundelson, 1935). The focus on budgetary principles and rules is critiqued for being long and formalistic, limiting the flexibility of budgets and ignoring other conditions, such as political goodwill, that determine the degree of adherence to budget rules in various contexts (Allen et al., 2013). The next section will describe the second perspective – public finance.

2.2.1.2 Public Finance

The public finance approach focuses on the objectives or the outcomes of the budget process. This is achieved through budget policies (Allen et al., 2013). The public finance theoretical perspective borrows majorly from public economics, though with some input from public administration perspective (Allen et al., 2013). I will review this perspective through the works of Schick, Musgrave, and finally the World Bank view of the goals of Public Finance Management. All these approaches are interrelated, I will therefore discuss the criticisms after discussing each of the approaches.

2.2.1.2.1 Public Finance According to Schick

Schick identified three objectives of the budgeting process: expenditure control, management, and planning (Schick, 1998). To exercise expenditure control budgeting institutions had to develop systems that would guard against abuse and ensure available resources were spent as per existing policies and plans (Allen et al., 2013). The management objective was linked to programming, institutionalization, staffing, and procurement, which entailed developing programmes for the goals. These institutions will then implement the budget, staff the institutions, and procure commodities (Schick, n.d., 1998). Finally, the planning objective emphasized the focus of the PFM process as not just the annual goals, but rather the longer-term goals. Next, I will discuss Musgrave's theory of public finance.

2.2.1.2.2 Musgrave's Theory of Public Finance

Musgrave's theory of PFM discusses three primary goals of public finance (Figure 2.1) - allocating public goods, redistributing income, and stabilizing the economy (Desmarais-Tremblay, 2017; Harriss et al., 1959). On allocation Musgrave states that goods should be allocated so that they better serve public needs (Allen et al., 2013). The budget's other role was to adjust income distribution through taxes and policies (Allen et al., 2013). Finally, public finance was to stabilize the economy by creating employment and stabilizing prices (Harriss et al., 1959). While the purposes include other goals such as social justice through redistributing income, public finance has mainly focused on stabilizing the economy with little focus on

social justice. Next, I will discuss the World Bank's approach to public finance followed by the criticism of the public finance theories.

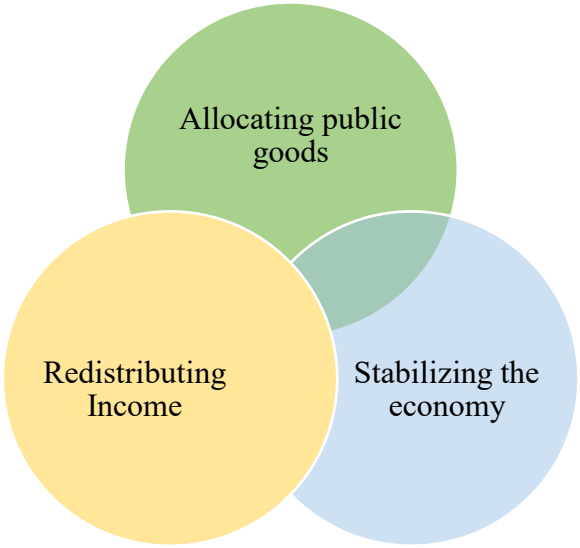

Figure 2.1: Musgrave's functions of PFM

2.2.1.2.3 World Bank Theory of Public Finance

The third theory of public finance, the world bank approach, brings together Schick's and Musgrave's views (Figure 2.2). It identifies three main functions of public finance – fiscal discipline, allocative efficiency operational efficiency (Schick, 1998). Allocative efficiency is concerned with the allocation of resources based on strategic priorities. Operational efficiency on the other hand is concerned with the efficient and effective use of resources to achieve strategic priorities (Allen et al., 2013).

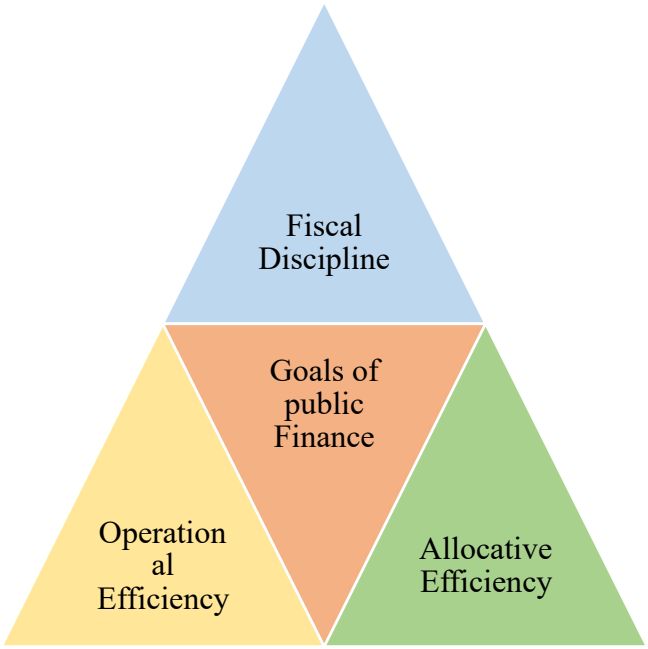

Figure 2.2: World Bank's goals of PFM

The public finance theories comprehensively outline the role of budget, in doing so, they address the challenges of the budgeting principles as there is less focus on the principles and the rules. However, they have been critiqued for overlooking the political nature of the budgeting process (Allen et al., 2013). For example, these theories totally disregard the importance of actors who make decisions over the budget process. They assume that the individuals working in the budget process will make rational decisions. They have also been criticized for equating fiscal discipline to fiscal balance while ignoring other contextual issues (Allen et al., 2013). The next section will describe the political economy perspective which attempted to address the challenges from the public administration and public finance perspectives.

2.2.1.3 Political Economy

This is concerned with the interactions between the various actors in the budgetary system, and it borrows a lot from institutional economics and political science. Constitutional and legal roles may define the behavior of the different players in the budget process, influencing the budget process (Allen et al., 2013). For example, the legislature may be pushed to protect the treasury, on the other hand, the implementation organizations may want to implement the

priorities of the president (Allen et al., 2013). In some countries, constitutional mandates of different positions can shape their behaviour and understanding of the budget. The political science approach therefore considers budgets as the result of the interactions between the various actors, and the rules that govern them. In the next section, I will discuss different political systems and how they define the budget process.

The political nature of a state or the form of governance will determine the nature and form of public finance (Bailey, 2004). Three political science views are relevant to the role of the state and the need for state financing of public goods: Libertarianism, Collectivism, and Neo-liberalism. Libertarianism in this protocol denotes classical libertarianism while modern libertarianism is denoted by "neo-liberalism"(Bailey, 2009). *Libertarianism* fronts individual responsibility and a limited role of the state or government. There is very little need for public finance in this ideology. Private financing is core in this arrangement, and there is no case for equity and equality. *Neo-liberals*, just like libertarians emphasize individual responsibility. However, they are cognizant of the shortcomings of the market in giving every individual an equal opportunity to an adequate honest living. The government, therefore, has the role of ensuring every citizen has access to some limited positive rights. In health, the need is to have a health service that will keep the citizens fit for work. *Collectivism* views individuals as part of a community. The individual and community are interdependent. There is a need for collective rather than individual responsibility to attain the needs of society (Bailey, 1995, 2004). In this ideology, the state intervenes to create equality of outcomes and not just opportunities. The different political philosophies shape the goals and views of public finance (Bailey, 2004). The goals of public finance as outlined by the public finance theories are efficiency, effectiveness, economy, and equity. Table 2.2 below summarizes the different views of PFM goals under the three political philosophies the researcher discussed earlier. The political economy perspectives have been criticized for giving more power to the appearance of the budget rather than its purpose making it difficult to draw comparisons.

Table 2.2: Public Finance Goals under different political philosophies

	Libertarianism	**Neo-Liberalism**	**Collectivism**
Efficiency	Market Efficiency	Market efficiency after the achievement of public rights	Social Efficiency
Equity	Free market welfare outcomes	Work-based welfare – rights and responsibilities	Social outcomes
Economic goal	Attained when the government's role is limited to restricting negatives	Secured by attaining equality of opportunity by providing bear minimum	Equality of outcome is more vital than economic growth
Effectiveness	Achieved by allowing the private sector to maximize productivity and profits while the poor depend on trickle downs	Limited government interventions to correct for market failures	Achieved by enabling government policies to enhance social outcomes

Author's compilation adapted from Bailey 2004

While these political ideologies underly government decisions on various things, most governments are eclectic and pragmatic with public finance (Bailey, 1995, 2004, 2009). They are keener on a combination of ideologies that will enhance growth and that have worked. They are cognizant of the need for government investment in critical parts of the economy (public goods) while living some parts to the private sector to drive economic growth. The health system in one is one of these public goods. The political economy view of public finance is criticized for placing more focus on the process of budgeting rather than the outcomes of the budget process (Allen et al., 2013; Bailey, 2004). In the next section, I discuss other approaches to public finance (besides the three dominant perspectives).

2.2.1.4 Other Approaches to Public Finance

In addition to the three dominant perspectives discussed in the preceding sections, I will in addition discuss other two approaches – the legal approach and fiscal sociology.

2.2.1.4.1 Legal Approaches

While political scientists believe that democratically elected governments reflect the interests of the people and can be trusted with implementing the needs of the public, the legal frameworks postulate that this cannot just be left to governments (Bailey, 1995). The legal approach believes that popular sovereignty is not sufficient in ensuring the attainment of human rights, which encompasses not just the popular votes but the needs of the minority groups. Legal theorists postulate that democratic institutions and constitutional and legal safeguards are fundamental to human rights. These give the basis for establishing the processes of public finance. Most governments come into place through an electoral system that is rarely representative of the population. This underrepresentation means it rarely reflects the needs of the majority.

The Constitution of Kenya 2010 lists health as a human right to be provided by the state (Kenya National Commission on Human Rights, 2017). The public finance management act outlines the need for the act- to ensure that public finances are used per the constitution, and second to ensure that citizens who are given the mandate to manage these funds are accountable to the public (Government of the Republic of Kenya, 2012). The legal approach to public finance has a lot of similarities with public administration, and therefore may have similar shortcomings of ignoring the role of actors and interests in public finance. The next section will discuss fiscal sociology.

2.2.1.4.2 Fiscal Sociology

The sociological perspective is indispensable in discussions related to public finance (Harriss et al., 1959). It recognizes that social arrangements determine the public's needs and are necessary for evaluating the effectiveness of public finances. It critiques the public finance perspective for focusing on financial matters concerning the public but never seeking to define the public. The fiscal sociology perspective suggests that historically, ruling parties create contribution schemes within societies that disadvantages the poor. While modernization has made some changes by introducing equity and equality aspects to public finance, there are still gaps in the implementation of these principles. There are two major sociological views on public finance – how public interventions impact society economically and second, the people and institutions who determine the use of public finances (Alker & Hobson, 1998; Pitt, 2009). According to fiscal sociologists, research must not only review the economic impact of public

expenditure, but also how decision makers and their institutions shape these decisions. Other public finance theories and public choice theories view the government as an agent that intervenes to solve market failures or fails to intervene to allow the private sector to thrive. The Fiscal sociology theory looks at government as an arena, just like the market where various individuals interact to front their interests. The fiscal sociology aspects have similar underpinnings to political economy, that has been criticized for focusing on the process and disregarding the outcomes or purpose of the PFM process. The previous section has reflected on the theories of PFM, the next section will reflect on efficiency as an aspect of organizational performance and specifically, the theories that explain organizational efficiency.

2.2.2 Organizational Theories

To better understand how the PFM processes influence efficiency within county health systems, I explore the PFM process within the context of organizational theories. Organization theories are abstract conceptualizations or ways of thinking about organizations and their behavior – how they work, and how they can be better managed (Shafritz et al., 2015). Several theories have been developed over the years. In this thesis, I will explore the major organizational theories and how they explain performance as efficiency is an aspect of performance. Specifically, I will explore classical theories, neoclassical theories, human relations theory, contingency theories, organizational culture theories, and systems theory.

2.2.2.1 Classical Theories

The classical theories are entrenched in the tenet that organizations exist to accomplish economic goals such as efficiency (Shafritz et al., 2015). This efficiency is achieved through structure and rationality. The classical theories encompass Taylor's scientific management approach, Weber's bureaucratic approach, and Fayol's administrative theory. I will review each of these in detail below.

Taylor's scientific management approach focuses on enhanced organizational performance using scientific evidence. From Taylor's perspective, functions ought to be split into small parts and then organizations must apply the most efficient way to perform each task (Taylor, 1910). These tasks were also timed to establish the best turnaround time for performing each task. The most efficient way with the best time was then standardized as the best approach as he theorized

that consistency further improved efficiency. This went hand in hand with specialization as Taylor believed that when one worker repeatedly performed a task then they would become better at it hence further enhancing efficiency. Taylor also believed in the need for training to further improve the skills of the workers and incentives and rewards to incentive the worker for achieving the targets that improved the organizations' performance. The main critic of this theory is its focus on efficiency at the expense of employee well-being and job satisfaction. The theory is also criticized for disregarding social and contextual issues that may influence the work environment. The critics note that work is embedded in social relationships and focusing on small roles and how to make them more efficient ignore the softer aspects that influence work. This notwithstanding, this theory has principles that are useful in the understanding of organizations in the modern era. Next, I will review Weber's bureaucratic theory, the second classical theory.

Weber's bureaucratic theory emphasizes the need for hierarchical structures, rules, and rational decision-making within organizations. It was developed by Max Weber in the early 20th century. His key principles entailed: first, organizational structure. Weber emphasized the need for a hierarchical organizational structure with each level of authority having defined roles and responsibilities (Shafritz et al., 2015). Second, he emphasized the need for defined rules and procedures on how business is run. This was to enhance predictability, stability, and fairness in decision-making. This goes hand in hand with the fourth principal which is impartiality/democracy which calls for all individuals to be treated fairly regardless of their differences. A key mechanism for the reward for merit should therefore be technical competence. A key criticism of this theory is its emphasis on a structure with inflexibility for creativity and innovation. The theory focuses on rules procedures and top-down structures. These may hinder innovation. Like other classical theories, they are criticized for their disregard for other contextual and human factors that may likely influence organizational performance. Since they focus on formal relationships, they disregard interpersonal relationships that may influence organizational behavior and consequently performance. Next, I will review Fayol's theory of administration the third classical theory.

Fayol's administration theory focused on the principles of management and defining the functions of management (Fayol, 1930). The concepts include specialization which entailed

the division of labor based on competencies to maximize efficiency (Shafritz et al., 2015). It also entails discipline where members of an organization are required to comply with organizational rules and regulations which are enforced fairly to maintain order (Shafritz et al., 2015). Fayol's administration theory also entails unity of command where each employee is answerable to one supervisor to ensure clear communication and accountability for allocated tasks (Shafritz et al., 2015). It also entails unity of direction where members are to work towards joint goals. Another element was the subordination of individual interests for the sake of group goals. Fair remuneration for accomplished work was also key for Fayol's theory. Finally, decision-making was to be centralized to ensure role consistency and maximization of outcomes. Fayol believed the key functions of management were planning, organizing, training, commanding, and coordinating. Like the other classical theories, Fayol's administration theory has been criticized for neglecting the softer issues such as human complexities and interpersonal variations and how they influence organizational performance (Morgan, 2006). Because it emphasizes unity of command, it has similar shortcomings to weber's theory that is based on rigid structures that influence innovation and creativity. This is further complicated by a rapidly changing organizational environment that requires constant innovation. It has also been criticized for ignoring other factors external to the organization that may influence the organization's performance. It focuses rather on the internal aspects of the organization ignoring other market, societal and economic factors external to the organization that may influence the organization's performance (Scott & Davis, 2015). Next I will review the cross-cutting criticisms of the classical theories.

The classical theories have been criticized for creating mechanistic environments with several challenges (Oaks et al., n.d.). First, they are criticized for being inflexible and difficult to adapt to change. Second, they result in unquestioning adherence to top-down rules. Because of the hierarchical rules, problems may remain unsolved as there is no go to action in the event of a problem, because of the bureaucracies they result in ineffective communication, senior managers become removed as they may not be aware of issues happening on the ground, high degrees of specialization may lead to limited views of challenges, and finally there may be no ownership of organizational problems as everyone feels it is not their responsibility. In the next section, I will review the neo-classical organizational theories.

2.2.2.2 Neoclassical Organizational Theory

Neoclassical theories emerged to address the shortcomings of the classical theories (Shafritz et al., 2015). These shortcomings included the over emphasis on efficiency at the expense of human relations and human behavior. The neoclassical theory believes in understanding human relationships as a key component of achieving organizational goals. Specifically, these theories emphasize that human communication, relationships, and motivation are key to organizational performance. It had several principles, first, human relations. This theory emphasized the importance of understanding the human being as a social being. An individual's needs need to be met to achieve the full potential of the organization. Second, informal organizations at work (Shafritz et al., 2015).

This theory recognized the existence of informal relationships at work, and the importance of these relationships in shaping the work culture and ultimately organizational performance. Third, motivation – the neoclassical theory believes that workers are motivated by their satisfaction with their roles, recognition, and successful completion of their assigned activities . Fourth, communication entails effective organizational communication with an emphasis on communication between workers and supervisors as a way of enhancing motivation and therefore productivity. Finally, participative management - the involvement of workers in organizational decision-making to enhance productivity (Shafritz et al., 2015). These theories are criticized for overlooking the institutional factors that influence organizational behavior. As such they do not offer a comprehensive reflection of the determinants of performance (Morgan, 2006; Scott & Davis, 2015). They leave out factors that will enable a comprehensive understanding of organizational theory. In the next sections I will discuss three modern approaches to organizational theory which attempt to take a comprehensive approach to organizational theory – contingency approach, socio-technological approach and systems approach. I will start with the contingency approach.

2.2.2.3 Contingency or Situational Approach

This is one of the three modern approaches to understanding organizational behavior. The other two are the socio-technological approach and the systems theory. The general position that these modern theories take is that organizations are a defined structure where people interact to achieve a specific set of objectives (Shafritz et al., 2015). Their interactions are influenced

by several systemic multi-disciplinary and multivariable factors. For the contingency approach specifically, it believes that there cannot be one way to look at organizations that are universal for all existing organizations. They believe that every situation is different, and organizations may need to take up different approaches to management in different settings. These environments may be influenced by various situational factors including socio-economic, legal, political, and technical factors (Scott & Davis, 2015). Organizations must match the management approach to the specific context at the time. This may require analysis of the situation and then varying the management style to achieve the desired outcome. It emphasizes a flexible approach to management that can adopt multiple management styles depending on which is most effective at the time. It also emphasizes the need for evidence – especially empirical evidence to guide the choice of the most effective management style (Scott & Davis, 2015). One of its big critics is the lack of specific guidelines to help managers handle the different challenges that result within organizations. The other critic is that the management approaches are not generalizable, management practices that are deemed to be working cannot be replicated across different settings as they are subject to the prevailing situation and context. In the next section, I will discuss the socio-technological approach to organizational behavior.

2.2.2.4 Socio-Technological Approach

This theory is the second of the modern approaches to organizational management. It recognizes the technological revolution in the modern era (Scott & Davis, 2015). The theorists believe that there is a need for a balance between the people, technology, and the environment for organizations to be effective. People ought to use technology effectively to produce goods and services that are needed by the environment. This is based on the understanding that technological innovations have consequences on the people and equally people influence the technological innovations (Morgan, 2006). This has been shown in history, for example historical attempts to mechanize coal mining greatly interfered with the informal relationships that had been developed by people working in the industry. While the theory emphasizes on a balance between the social and technical aspects, organizations and management often limit their thoughts and style of management to the technology aspects only, bringing about challenges. The theory contends that in a highly changing environment, the organization should be flexible to allow for innovation (*Burns and Stalker, The Management of Innovation**, n.d.; Morgan, 2006; Scott & Davis, 2015). This theory has several criticisms. First, it does not consider the power relationships within organizations, these power relationships may

significantly influence the application of these socio-technological approaches within organizations (Morgan, 2006). Second, they are also criticized for ignoring contextual factors that may influence the organization as the focus is on the relationship between people and technology. Contextual factors such as the economy, market dynamics and cultural factors may influence the organization significantly. In the next section, I will review the systems approach.

2.2.2.5 Systems Theories

This theory, one of the modern theories, views organizations as a system comprising other interdependent sub-systems (Midgley, 2000, 2006; Scott & Davis, 2015). These sub-systems may also contain other sub-systems within them. The main principles are first the system is composed of interdependent components that work together to achieve a certain goal(Scott & Davis, 2015). Changes in one part of the system can have an impact on other parts or the whole system in totality (Midgley, 2000). Second, the system receives inputs from the environment that are transformed into desired outputs. Third, the production process – inputs into an organization transform into resultant outputs (Midgley, 2000). This transformation process can entail manufacturing, packaging, value addition, or distribution. Forth outputs, organizations are designed to produce outputs from their transformation process, these outputs are then released to the environment and have an impact on the environment. Fifth, is feedback, this theory recognizes the need for feedback in organizational processes (Midgley, 2000). This feedback process sis mostly on outputs but it improves the transformation process and the quality of outputs produced. Finally, openness, the systems theory recognizes that an organization is subject to and can be influenced by the environment where it exists (Scott & Davis, 2015). Environmental factors can include social, political, legal, and economic. In the next section, I will review one of the systems' approaches of organizational theory that I used to explain my findings.

2.2.2.5.1 Complex Adaptive Systems Theory

This thesis adopts the systems approach to explain the mechanisms through which PFM influences efficiency. Efficiency is an economic term that refers to maximizing outputs or outcomes with available resources or minimizing inputs for a given set of outcomes. The public financial management process on the other hand entails the transformation of government

resources to goods and services desired by the population. To address this, I adopt the systems approach which looks at organizations as a production process.

Specifically, I adopt the complex adaptive systems (CAS) approach. A complex adaptive system is a collection of agents that have the flexibility to act independently leading to unpredictable outcomes, their interactions may influence other interconnected agents (America, 2001; Pype et al., 2018a). This approach takes a systems look at organizations but in addition recognizes that these organizations can adapt and evolve based on time, and the interactions of the various components. The CAS has several characteristics. First, they are emergent, continuous interaction within the system results in emergent or novel behavior that had not otherwise been envisioned. This characteristic is not common in machines which often produce the same results but for complex adaptive systems, this is routine. As such the system is just not reduced to the sum of its part, rather the interaction between the different parts may result in a complex, dynamic outcome (America, 2001; Pype et al., 2018a).

Second, CASs are nonlinear, small changes in one part of the system may have large unpredictable effects on the entire system (America, 2001; McDaniel et al., 2009; Pype et al., 2018a, 2018b). Third, CASs are self-organizing which means that CAS can evolve and change over time based on the circumstances. An example is antimicrobial-resistant organisms which change following exposure to antimicrobials (Pype et al., 2018b). CAS also display feedback loops, which implies that the consequences or results of the organizational process may either strengthen or weaken the causal sequence that led to their emergence. CAS also displays co-evolution, this means that the system can change in response to changes in its environment, or system behaviour can influence changes in the environment. Finally, context and embeddedness, systems exist in a specific context or environment and these are important in the interaction of the system. While it is possible to study an aspect within the system, the context.

This section has so far discussed a range of theoretical perspectives that inform public finance management and has specified the theory that this work adopted to explain the results. In the

in the next section, I review empirical literature on public finance management in the health sector, and develop a conceptual framework that also informed the study.

2.3 Empirical Review: Evidence on Efficiency as a Goal of Public Financial Management

This section uses a scoping review to synthesize empirical evidence on the relationship between public finance management and health system efficiency. I was guided by Arkesy and O'Malley's methodological framework for scoping reviews (Tricco et al., 2018) and the enhancements by Levac (Levac et al., 2010). I used the PRISMA extension (Figure 6) for scoping reviews to report the findings of the study (Tricco et al., 2018). I did not register the protocol for this study in advance.

2.3.1 Identifying the Research Question

I sought to answer the question, "How do Public Financial Management (PFM) processes influence health system efficiency?". The definition of PFM was broad to accommodate aspects of the budget process such as the planning process, priority setting, provider payment mechanisms, procurement processes, and auditing, all of which are part of the PFM process. I defined *efficiency* as both technical and allocative. Technical efficiency means maximizing outputs/outcomes with available resources or minimizing inputs for a given set of outcomes. Allocative efficiency means the best combination of inputs. The purpose of this scoping review was to identify key concepts about PFM that may influence efficiency and to identify knowledge gaps in the relationship between PFM and health system efficiency (Munn et al., 2018).

2.3.2 Identifying Relevant Studies

I searched PubMed and Google Scholar and the websites of the World Health Organization (WHO), World Bank, Overseas Development Institutes (ODI), and International Budget Partnership (IBP) for relevant articles on PFM and health system efficiency. I only included studies published in English. I used four key search terms, their related synonyms, and combinations to develop a search strategy: "Public" AND "Financial Management" AND "efficiency" AND "health system". I developed a Boolean Algorithm to search Pub Med

(Figure 2.3). I also searched references of selected papers for other relevant studies. The final search was done in January 2023.

#1= “public financ*” OR “finance* management” OR “fiscal manag*” OR budget*

#2= public OR government OR state

#3= efficienc* OR technical efficien* OR allocative efficien*)

#4= “health system*” OR “healthcare system*” OR “health care system*” OR “health sector”

#5= #1 AND #2 AND #4

#6= #1 AND #2 AND #3 AND #4

Figure 2.3: PubMed Search

2.3.3 Selecting Articles

I included empirical studies and grey literature from WHO, World Bank, and ODI but excluded systematic literature reviews. I included studies that 1) Evaluated an aspect of PFM; either budget formulation, execution, or evaluation, or an aspect under the three stages and 2) articles that attempted to relate the PFM aspect to health system efficiency. For the second aspect, I first searched the abstract and included only articles that matched this criterion. I excluded studies that 1) Described but did not evaluate an aspect of PFM and 2) Did not link PFM to health system efficiency. After de-duplication, I conducted both title and abstract screening. I reviewed all the titles and abstracts to determine eligibility for full-text review. I reviewed all full texts as the primary reviewer. Because most of the literature on PFM and efficiency is grey, I did not conduct a quality appraisal of selected articles.

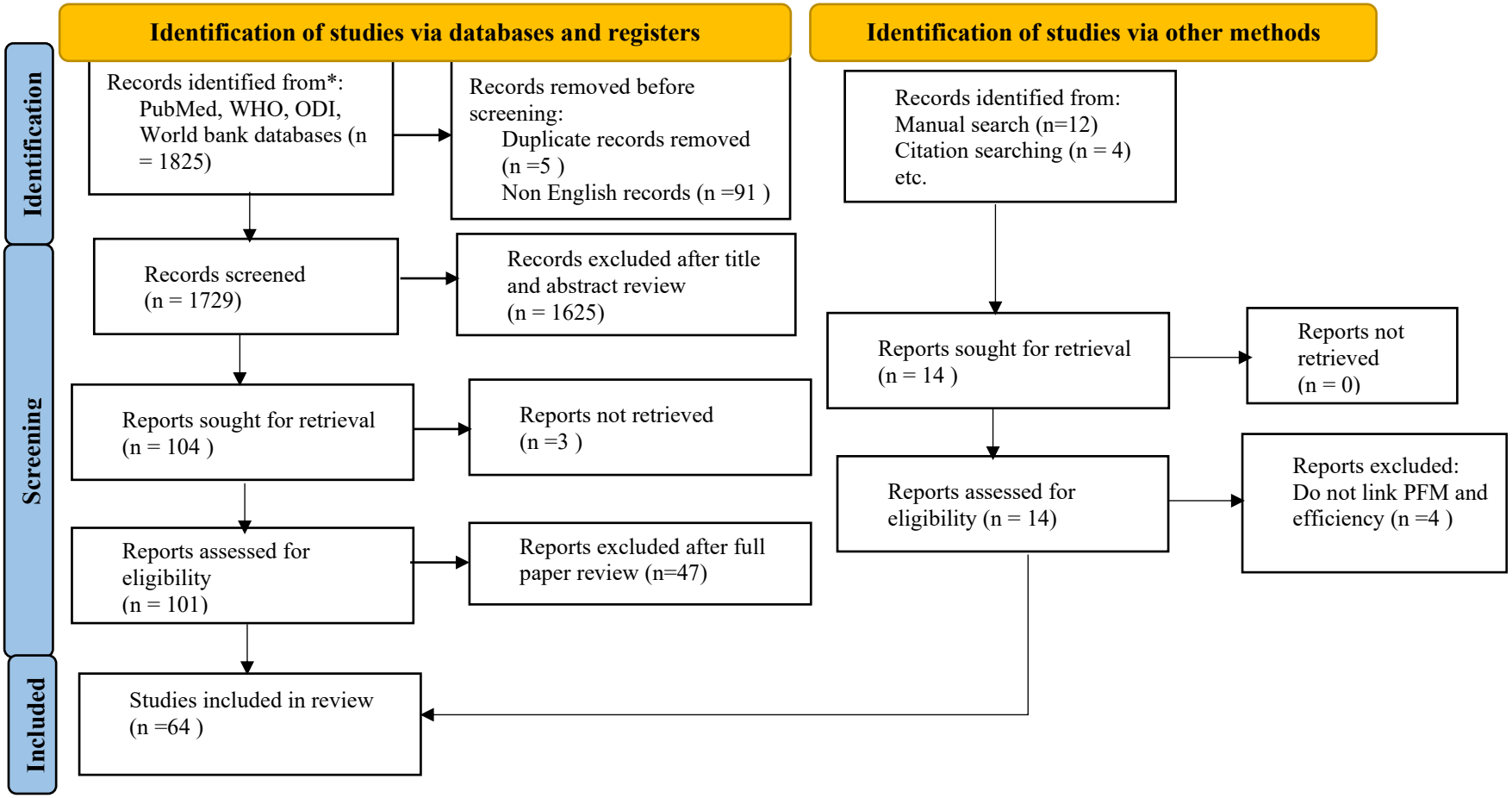

Figure 2.4 : The study selection process flow chart (adapted from PRISMA flow diagrams)

2.3.4 Data Extraction and Synthesis

I applied the thematic analysis approach to extract and synthesis findings. These followed the steps of familiarization, coding, and charting. During familiarization, I read and reread the articles included in the study. I then applied a data extraction form that I developed from the review question- How PFM influenced health system efficiency. Following familiarization, I coded the data using codes developed inductively and deductively. I then further categorized the codes into four major themes: budget formulation and approval, budget implementation, budget monitoring and evaluation, and actors. Each theme had several sub-themes; for example, under budget formulation, I report five subthemes: budget ceilings, budget structure, alignment of plans and budgets, costing, pooling of funds, and priority-setting processes. I finalized the categorization of sub-themes, and where there was uncertainty about the allocation of specific sub-themes, I resolved this by discussing and agreement with my supervisors. I then charted the data onto an Excel framework that allowed me to summarize the findings by category, compare between papers, and identify linkages.

2.3.5 Results

The PubMed, Google Scholar, and organizational websites literature search resulted in 1825 items; I removed 5 duplicates and 91 non-English publications. 1625 items were excluded based on the title and abstract. I did a full paper review for 101 papers and an additional 14 papers added through experts in the field and manually searching references of selected papers. In the full paper review, I excluded 46 records that did not link PFM and service delivery. Sixty-four are included in this review (Supplementary File 2).

2.3.5.1 Article Overview

Of the 64 papers included in this review, 36 are peer-reviewed studies while 28 are from grey literature. In the study setting, 2 are in high-income countries, 43 were in low- and middle-income countries and 14 targeted both HIC and LMIC countries (Figure 2.5). 10 papers focused on budget formulation only, 14 on budget execution, 4 budget formulation and execution, 6 focused on health service delivery and 20 on PFM in general.

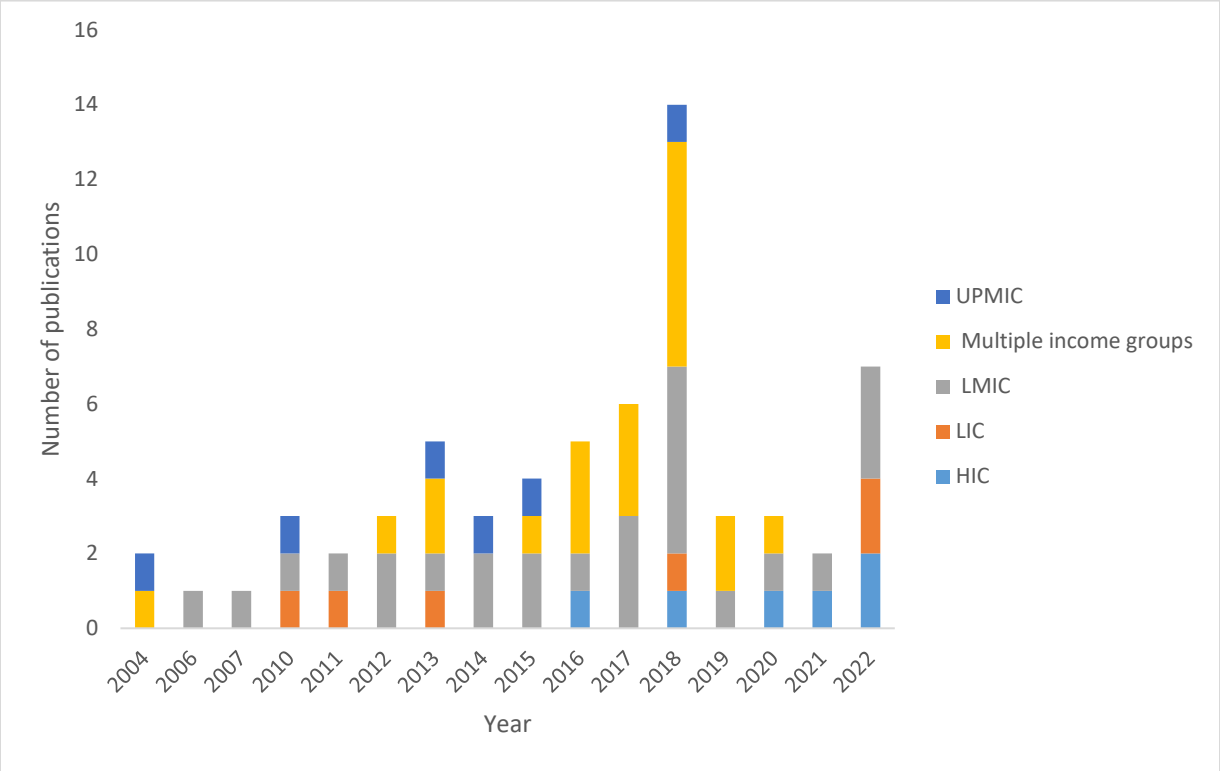

Figure 2.5: Publications screened by year and country income group

2.3.5.2 How PFM Influences Health System Efficiency

The mechanisms through which PFM influences efficiency are explained in the three phases of the budget process: budget formulation, execution, and monitoring.

2.3.5.2.1 Budget Formulation and Approval

Budget formulation and approval entails projecting expected funds, planning for the funds, and seeking legislative authorization for the plans before execution (Simson et al., 2011; World Health Organization, 2017b, 2017a). Challenges and opportunities within budget formulation had a ripple effect downstream of the PFM process (in budget execution and accountability). The papers reviewed showed that budget formulation structures and processes could potentially influence health system efficiency through the following aspects; the budget ceiling (Duran et al., 2019; Kiross et al., 2020; le Gargasson et al., 2014; Tsofa et al., 2016; Vian & Bicknell, 2014), the budget

structure (Barroy et al., n.d.; Jakab et al., 2018; Vian & Bicknell, 2014), alignment 0f plans to budget (E. Barasa, Cleary, et al., 2017; Folscher & Kruger, 2013; Tsofa et al., 2016; Waithaka et al., 2018), costing (Nnaji et al., 2010; Vian & Bicknell, 2014; World Health Organization, 2018; World Health Organization [WHO], 2019), and pooling of the funds (Asfaw et al., 2020; Elgazzar, 2011; Piatti-Fünfkirchen & Schneider, 2018b; Smith & Witter, 2004). I explain these in detail in the subsequent paragraphs.

Budget ceilings - the amount of money allocated to the health system – influenced health system efficiency. There were consensus that adequate and indicative budget ceilings that were allocated based on strategic criteria and issued on time improved service delivery outcomes by improving the alignment of plans to budgets (Dale et al., 2018; Duran et al., 2019; Tsofa et al., 2016; Vian & Bicknell, 2014). For example, in Kenya (Nyawira et al., 2020) and Uganda (Musango et al., 2012), insufficient budget allocation led to inadequate infrastructure for service delivery and poor service delivery, respectively. Also, in Thailand, historical budget ceilings within the civil servants' scheme encouraged inefficiency because the more the scheme spent, the more they were allocated (Patcharanarumol et al., 2018). Finally, ceilings that were not indicative of the actual funds resulted in service delivery interruptions in DRC because budgets were not honoured (World Health Organization, 2016a), and cash budgeting and replanning in Ghana because of the significant differences between ceiling projections and resource availability (Abekah-Nkrumah et al., 2009).

The papers reported the use of different budget structures with consequences on efficiency. The structures used included line budgets (Afzali et al., 2011; Elgazzar, 2011; Glenngård & Maina, 2007; Jakab et al., 2018; Piatti-Fünfkirchen & Schneider, 2018c) programme based budgets (Asante et al., 2006; Dale et al., 2018; Nnaji et al., 2010; Piatti-Fünfkirchen & Schneider, 2018b) and outcome budgets (Rasivhetshele & Govender, 2014), with some countries using both functional and economic classification of budgets (Nnaji et al., 2010). Budget structures that linked resources to priorities and outcomes (Barroy et al., n.d.; Vian & Bicknell, 2014; World Health Organisation, 2014) and allowed flexibility in the use of resources enhanced service delivery (Jakab et al., 2018) with positive implications on health system efficiency. For example, several

reports on PFM for health have shown that the use of line-item budgets disconnected priorities and resources (Jakab et al., 2018; World Health Organisation, 2014), resulting in health systems that focused on infrastructural projects rather than purchasing benefits for the population (World Health Organization, 2016a). Another report on how health financing strategies can support scale-up on NCD interventions noted that input-based budgeting encouraged inefficiency and inequity by encouraging the status quo in resource allocation because efficiency and equity were not considered during the budget formulation processes (Jakab et al., 2018).

The alignment of health budgets with plans had a likely impact on efficiency. When health systems failed to link available resources to health system plans then they compromised efficiency in two ways. First plans that were not included in the budget were not funded and therefore not implemented (Folscher & Kruger, 2013; Glenngård & Maina, 2007; Gwati, 2015; Jakab et al., 2018; Tsofa et al., 2016), second the misalignment compromised both financial and performance accountability as at the end of the financial year, the health system could not link the resources used to outcomes produced (Vian & Bicknell, 2014; World Health Organisation, 2014). For example, in Lesotho, a study that tested implementation progress for PBB found that the plans and PBB development happened under different structures. As a result, the plans and budgets could not align. The misalignment made it challenging to monitor performance (Vian & Bicknell, 2014). A study by Waithaka et al. in Kenya that looked at the planning and budgeting processes within counties found that these processes were not aligned; budgets did not incorporate plans which reflected county priorities the plans were therefore not implemented (Waithaka et al., 2018). Another report indicated that to enhance efficiency, Ethiopia developed one plan, one budget and one report initiative to ensure that plans, budgets and reports are aligned (Asfaw et al., 2020).

Pooling of health system resources was associated with clarity and predictability in the budget envelope that enabled effective planning and, possibly enhanced efficiency (Brixi et al., 2013; Elgazzar, 2011; Musango et al., 2012; Piatti-Fünfkirchen & Schneider, 2018b). Besides, pooling allowed for effective resource reallocation, enhanced accountability and streamlined the incentives for service delivery. For example, in China, the national government used earmarked funding to enhance specific health goals at the local level. However, there was uncertainty about

the sustainability of these funds, and second, the study reported the reallocation of funds from the health systems' operation budget to other sectors following the introduction of earmarked transfers (Brixi et al., 2013). A WHO report on PFM bottlenecks and UHC opportunities noted that in Sierra Leone, multiple fragmented funding sources with different manuals and different bank accounts limited transparency and accountability (World Health Organisation, 2018).

Priority-setting mechanisms influenced efficiency. Evidence-based priority setting was more likely to result in efficiency (E. Barasa, Molyneux, et al., 2017). Countries whose priorities were skewed to curative rather than primary healthcare were more likely to be inefficient. For example, Ethiopia enhances efficiency by investing in high-impact primary healthcare interventions(Alebachew et al., n.d.). Kenya on the other hand was deemed inefficient as the focus was more on curative rather than preventive care (National AIDS Control Council et al., 2014). Next I explain how the budget execution process influenced efficiency.

2.3.5.2.2 Budget Execution

Budget execution entailed the release of funds and the use of the funds to finance the provision of health services (Piatti-Fünfkirchen & Schneider, 2018a; 'WHO | Aligning Public Financial Management (PFM) and Health Financing', 2017); it included several steps; expenditure verification, payment approval, and actual payment (World Health Organisation, 2018). For most African countries, the budget execution phase was the weakest part of the budget cycle; there were risks of losses of resources from the health system in every step of the budget execution (le Gargasson et al., 2014; World Health Organization [WHO], 2019). Budget execution influenced efficiency in several ways: the credibility of the budget -the extent to which the government honored the approved budget, timeliness of the cash disbursement process, financial controls, financial management systems, fraud and corruption, ring-fencing of funds, and provider payment mechanisms. I explain these in detail in the subsequent paragraphs.

Low budget credibility undermined the planning and budgeting phase of the budget. Because budgets were not honoured, health systems had to re-budget based on the funds received (Abekah-Nkrumah et al., 2009). Low budget credibility also undermined service delivery as it led to a

shortage of supplies (Mbau et al., 2018a; Piatti-Fünfkirchen & Schneider, 2018b). For example, in Ghana, a study that reviewed the budget cycle found that the budget cuts during execution led to the development of new budgets based on the amount received; this undermined the budget formulation stage (Abekah-Nkrumah et al., 2009). Also, in Zambia and Tanzania, a study that linked the budget process to health system performance found that the degree to which the budget was honored was inadequate; this compromised the quality of service delivery by limiting the ability to purchase medical supplies (Piatti-Fünfkirchen & Schneider, 2018b).

Cash disbursement delays were linked to health system inefficiency through 1) interrupted service delivery (Abekah-Nkrumah et al., 2009; Asante et al., 2006; Elgazzar, 2011; Gwati, 2015; Mbau et al., 2018a; Nxumalo et al., 2018) 2) health worker demotivation due to salary delays and lack of resources (Asante et al., 2006; Elgazzar, 2011) 3) Loss of resources in the process of chasing funds (Asante et al., 2006) 4) increased supplier costs to accommodate cash disbursement delays 5) patient and resource shifting that often led to informal payments which created barriers for access (Onwujekwe et al., 2020) 6) compromised tendering processes because the systems lacked a credible platform (good credit history) to contract suppliers (Piatti-Fünfkirchen & Schneider, 2018b) and ultimately 7) poor budget absorption (Asante et al., 2006; Glenngård & Maina, 2007). For example, in Yemen, a study that assessed the value for money in the health system found that cash disbursement delays had forced many facilities to halt operations and made absenteeism of health workers rampant (Elgazzar, 2011). In Zimbabwe, a study that examined the purchasing arrangements for health services found that cash flow challenges undermined service delivery through poor planning, dilapidated infrastructure, poor equipment maintenance, and shortage of supplies and equipment (Gwati, 2015). In Ghana, a facility manager had to spend half their allocation to cater for transport and accommodation to chase delayed funds at the capital in Accra (Asante et al., 2006).

Financial controls were associated with both efficiency and inefficiency. They could enable service delivery by preventing misappropriation of funds or be a stumbling block by preventing budget execution. Rigid internal controls resulted in cash disbursement delays (Abekah-Nkrumah & Nomo, 2015), limited autonomy for health workers (Barroy et al., n.d.; Penn-Kekana et al., 2004; Piatti-Fünfkirchen & Schneider, 2018a; World Health Organization, 2016b) and reduced

budget absorption. For example, in Ghana, a study that examined how the untimely release of funds influenced health service delivery found that half of each financial year was lost in financing procedures, and as a result, plans were not implemented (Asante et al., 2006). A WHO report on PFM and UHC noted that in DRC, every stage of controls reduced the funds available to healthcare; of the total budget, only 65% was committed, 55% validated for payment, 50% approved for actual payment, and 40% paid to providers (World Health Organization [WHO], 2019). In South Africa, strict PFM controls that did not consider the health workers' or patients' needs resulted in poor patient outcomes (Penn-Kekana et al., 2004).

The Financial Management Information Systems (FMIS) were said to influence provider autonomy, the efficiency of cash disbursement, resource fragmentation, and accountability. For example, in Armenia, a study that examined the transition to programme-based budgeting reported that the treasury was responsible for budget execution, and all payments were made through the treasury financial management system limiting autonomy for health workers (Dale et al., 2018). In Tanzania, a study that linked the budget cycle to performance criteria in health found that investment in a Financial Management system that was simple and easy to use even at the lowest level gave the facilities more autonomy, thereby increasing efficiency (Piatti-Fünfkirchen & Schneider, 2018a).

Fraud and corruption were associated with inefficiency (World Health Organisation, 2018). They led to the loss of resources from the health system. For example, in Mozambique, a WHO reported that misappropriation of resources during budget execution reduced spending on sector priorities (World Health Organization [WHO], 2019).In South Africa, Folscher and Kruger found high instances of wasteful expenditure that resulted in overall poor performance and bad audit reports (Folscher & Kruger, 2013). Another report by the WHO on public financing for health in Africa noted that improving the budget envelope's actualization depends partly on reducing leakages that resulted from a deficiency in healthcare financial management (World Health Organization, 2016b).

Failure to ring-fence health sector funds was associated with a loss of resources to other sectors. This reduced healthcare resources undermining service delivery and health output**s** (le

Gargasson et al., 2014). For example, in DRC, a WHO report noted that health funds were not ring-fenced and were used for other administrative activities under the president's office, reducing the budget available for health (le Gargasson et al., 2014). In Kenya, a study by Waithaka et al., found that funds that were planned for purchasing motorbikes for the health system were reallocated to another governor's projects which he had promised the public (Waithaka et al., 2018)

Strategic provider payment mechanisms enhanced efficiency. Provider payment mechanisms influenced provider behavior thereby influencing efficiency. Mixed provider payment mechanisms led to patient and resource shifting with likely consequences on efficiency (Ezenduka et al., 2022; Onwujekwe et al., 2020). For example, in Kenya, the line item budget did not incentivize providers to strive for efficiency, instead, the providers charged the patient additional fees as they felt that the funds were not sufficient (Mbau et al., 2018b). Also in Nigeria, mixed provider payment mechanisms led to resource shifting from funding with rigorous accountability mechanisms to those with less rigorous accountability mechanisms(Onwujekwe et al., 2020). Next I explain what the literature says about the relationship between budget monitoring and evaluation and efficiency.

2.3.5.2.3 Budget Monitoring and Evaluation

Budget monitoring and evaluation influenced health service delivery through three main mechanisms, first the fragmented accountability channels. Disconnected accountability for finances and service delivery undermined the synergy required to achieve health service delivery (Nxumalo et al., 2018). Piatti et al. found that budget evaluation in Zambia and Tanzania was compliance-driven with inadequate attention to health system goals of efficiency, equity, and quality (Piatti-Fünfkirchen & Schneider, 2018a). Also, in Ghana, there were conflicting reporting channels to the district and the Ghana Health Services in Accra, which compromised accountability from the Department of Health (Abekah-Nkrumah et al., 2009). Finally, in Nigeria, multiple funding flows led to the shifting of resources and patients from areas with complex accountability to those that required little accountability (Onwujekwe et al., 2020).

Also, the papers found that social accountability was critical in enhancing health outcomes and likely efficiency. For example, in China, Brixi et al. found that sub-national governments had

insufficient downward accountability; thus, the health sector performed poorly compared to the agricultural sector, where there were established mechanisms for downward accountability (Brixi et al., 2013). In Kenya, a facility with limited community support as the community health committee was inactive did not achieve the desired targets (Machira & Nizam, 2015), unlike those with community support. Also, In Kenya, the implementation of plans and budgets was unsatisfactory because the hospitals lacked internal accountability mechanisms to follow up and ensure plans and budgets were implemented (E. W. Barasa et al., 2017). In Thailand, the UCS scheme had a Facebook page and 24-hour call center to provide clients with information and resolve disputes. As a result, it was owned by the people; this was thought to contribute to its success and efficiency (Patcharanarumol et al., 2018). Besides, weak accountability had a direct impact on the use of public funds to deliver services (Folscher & Kruger, 2013).

Both supply-side and demand-side incentives influenced the utilization and cost of services, both of which influenced efficiency (World Bank, 2010; World Health Organization, 2016a). Health worker incentives and sanctions for excellent and poor performance significantly influenced efficiency (Abekah-Nkrumah & Nomo, 2015; Barroy et al., 2018). For example, in Romania, adverse audit reports led to minimal changes as the sanctions and rewards were not enforced. Instead, hospitals with higher debts received more attention from both government and NGOs and sometimes more financing. As a result, hospitals intentionally got into debt resulting in inefficiency (Duran et al., 2019). In South Africa, the Eastern Cape department was subjected to several government interventions for non-performance and poor audit reports for 12 years with little or no change (Folscher & Kruger, 2013). In 2010 following sanctions for malfeasance around public finance, the eastern cape department recorded a significant improvement in service delivery and decreased wastage of resources. Next, I explain how actors in the PFM process influenced health system efficiency.

2.3.5.2.4 Actors

Stakeholder involvement in the budget process influenced health system efficiency. Community-level stakeholder involvement in the PFM process increased awareness of services, demand for services, and accountability. Communities that were more aware were better placed to

demand accountability (Transparency International Česká republika, 2016). For example, in Kenya, a pilot study that tested the integration of social accountability mechanisms in health service delivery found that acceptance and support from the community increased the demand for services (Machira & Nizam, 2015). The study also found that facilities with better support from the community were more likely to meet their service delivery targets and were, therefore, more efficient (Machira & Nizam, 2015).

Frontline worker stakeholder involvement in the budget process enhanced the alignment of plans to budget, motivated health workers, and increased mobilisation of funds for the health sector. For example, in Kenya, a study that examined hospital autonomy in the context of devolution found that decreased stakeholder involvement was associated with the misalignment of plans and budgets and failure to implement planned activities (E. Barasa, Manyara, et al., 2017). In the Philippines, frontline worker management of the budget process increased funding from other sources such as the private sector and user fees (Liwanag & Wyss, 2018).

The success of the PFM arrangements in transforming budgets into health system outcomes depended on the actors in the process (Abekah-Nkrumah & Nomo, 2015). For example, in Ghana, the external audit was the responsibility of the auditor general. Late and poor audit reports from their office meant that the accountability mechanisms for the health system were poor (Abekah-Nkrumah & Nomo, 2015). According to Duran et al, there was widespread distrust among the hospital management team, the hospital board was seen as a bureaucratic addition that did not facilitate the budgeting process (Duran et al., 2019). In South Africa, the report by Folshcer and Kruger reported an undue influence of unions over hospital mangers that perpetuated indiscipline and poor work ethics (Folscher & Kruger, 2013). Also in South Africa, according to Duran et al changes in leadership positions led to significant changes in the performance of the health system, with improved financial management and accountability (Folscher & Kruger, 2013). In the next chapter, I present a summary of overarching methods for the thesis.

2.4 Chapter Summary

All the aspects of the PFM process in the budget cycle influence health system efficiency – budget formulation, execution, and accountability. However, most of the studies that explain this relationship focus only on an aspect of the PFM process- such as budgeting, planning, and priority setting, and not the entirety of PFM. Only one study directly sought to explore the relationship between PFM and efficiency in Tanzania and Zambia. This study explored the impact of PFM with a focus on health system performance in general and explored other aspects of performance such as equity, quality in addition to efficiency. This limited the depth of explanations on how PFM influences performance. Besides, the work is not grounded in theory. To get more health from the available health resources, the health system must have the knowledge of possible levers for efficiency. For the advancement of knowledge, this study will use theory on organizational performance to better understand how PFM issues influence health system performance. This study will aim to feed this gap.

Chapter Three: Study Methods

3.1 Introduction

In this chapter, I present the methods I adopted to undertake the study using a "research onion approach" (Saunders et al., 2009). This is an approach that helps to think about the study methods wholistically (Figure 3.1). It provides a guide to making decisions in the entire research process in a systematic manner. It starts with broader concepts and decisions around the underlying research assumptions as it moves to specific decisions on the data collection procedures. The various concepts are discussed in each of the sections in this chapter. Section 1.2 describes the research philosophy, section 1.3 the research approach, section 1.4 the research design, section 1.5 the research strategy, section 1.6 the time horizon, and section 1.7 the data collection and analysis techniques and procedures.

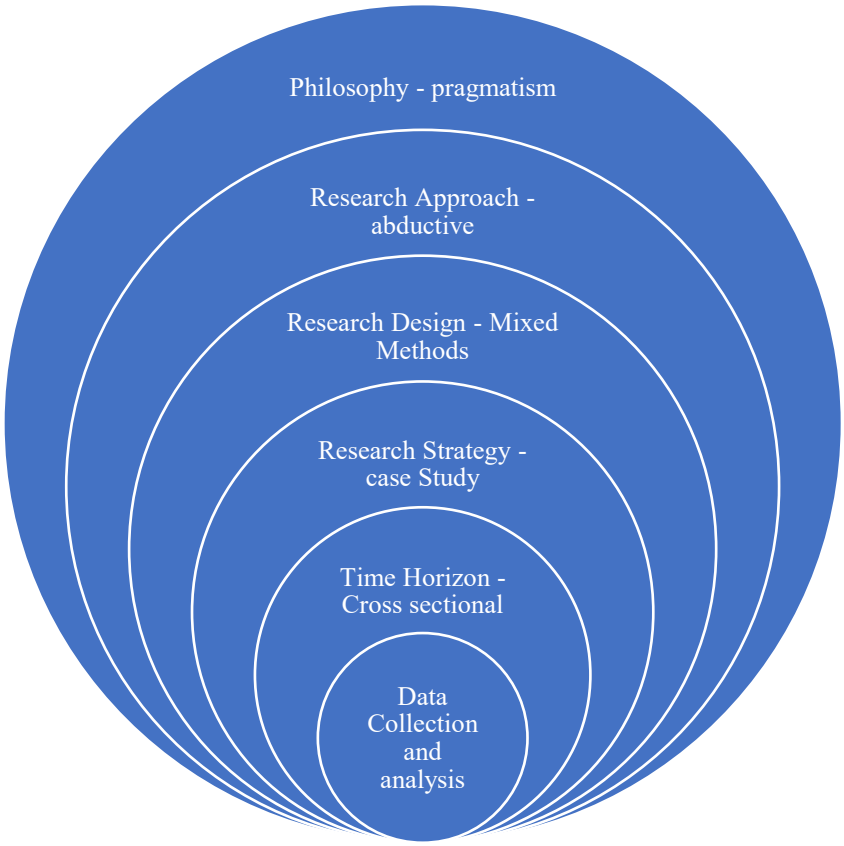

Figure 3.1: Research Onion

3.2 Research Philosophy

A researcher's philosophy entails their understanding of reality on how knowledge is generated (Saunders et al., 2009). This influences the researcher's understanding of the research questions, the methods adopted, and the interpretation of findings (Saunders et al., 2009). I adopted a pragmatic philosophical position. The pragmatic position is keen on knowledge to solve real-life problems. The focus is on using all approaches available to understand the problem. In this study, I sought to explain the relationship between efficiency and PFM. From the literature, counties had varying levels of efficiency and PFM was identified as a determinant of efficiency within counties (E. Barasa et al., 2021). I sought to explain how PFM influences efficiency. To fully explain this, it was necessary to use a pragmatic approach as first, PFM is both a technical process for the department of finance, and a political process for the politicians, but with an impact on health service delivery. To tease out all these relationships it was necessary to use all mechanisms possible to understand the problem.

Second, PFM happens within the budget cycle. It therefore incorporates budget data hence, it was necessary to adopt a position that could incorporate both the budget data and people's perspectives on "how" the decisions in PFM influence efficiency. For the pragmatic approach, the question guides the underlying assumptions and philosophical approaches. The pragmatic position can adopt a quantitative, qualitative, or mixed-method, research design, as guided by the question. Finally, the study setting for this research is within county health systems. Health systems are complex, and hence the need for multiple approaches to fully understand the problem. Pragmatism is anchored on three principles – generating useful knowledge, the interconnection between knowledge and practice, and the inquiry as an experiential process (Kelly & Cordeiro, 2020). Pragmatism, therefore, provided an avenue to fully understand how PFM determines the efficiency and to come up with useful recommendations that are likely to enhance the efficiency of county health systems.

One criticism of the pragmatic philosophical position is that it focuses on the intangible issues in the process, it ignores the importance of the distinctions between qualitative and quantitative methods . In this study, I appreciate the shortcomings of each of the methods. For example, my sampling was based on a quantitative observation that PFM influences efficiency. However, this could not sufficiently explain how and why PFM influences efficiency. To explain this, I adopted a qualitative approach. Given the nature of PFM, being anchored in the budget process, I incorporated a descriptive analysis of the budget data to further enrich the study.

3.3 Research Approach

I adopted an abductive approach. This means that I started with a theory on the relationship between PFM and health system efficiency but moved back and forth to modify the initial idea (Saunders et al., 2009). The alternatives would have been deductive reasoning which entails only testing a theory, or inductive approach which entails developing the theory. For this study, I first conducted a comprehensive scoping review of empirical and theoretical literature to come up with a conceptual framework for the relationship between public financial management and health system efficiency. From the literature, while there were a lot of studies around PFM as a subject and efficiency as a subject, these were limited studies that sought to link PFM and efficiency. Furthermore, the limited studies that link PFM and health system efficiency were mostly in grey rather than peer-reviewed literature. For this reason, an abductive approach was deemed more suitable– going back and forth to refine the initial conceptual framework. The abductive approach was also necessitated by the nature of PFM. PFM has been previously conceptualized as a finance issue. The understanding of its influence on health and other sectors is a more recent addition to the PFM literature.

3.3.1 Conceptual Framework

I developed the conceptual framework from a review of the literature as outlined in Chapter 2. It was also based on the understanding that PFM is embedded in the budget cycle. The conceptual framework proposed that the efficiency of the health system is dependent on processes and activities in the budget cycle - budget formulation, implementation, and monitoring processes (figure 9). In the formulation phase, efficiency is influenced by 1) budget ceilings, whether they

are sufficient, and provided 2) budget structure in use – whether programme based budgets or line budgets 3) pooling of resources -whether or not resources from multiple sources are pooled before budgeting, 4) participatory budgeting – whether the public and frontline health workers are involved in the budgeting process, 5) priority setting – whether evidence based or otherwise, and 6) budget approval process – whether it undermines the initial decisions made at the departmental stage. At the budget execution level, the efficiency of the health system is influenced by 1) budget credibility – whether the promised resources are delivered or not, 2) cash disbursement processes – cash disbursement delays and bureaucratic process can hinder efficiency, 3) provider autonomy – provider autonomy enhances efficiency, and 4) procurement processes – delays in the procurement process and the costs determined at this face can compromise efficiency. Finally, at the monitoring phase, efficiency is influenced by 1) accountability pathways – who the health system is accountable to, whether to the public or internal accountability, 2) accountability domains – what the health system is accountable for, whether financial or technical, 3) accountability mechanisms – hpw the health system is held accountable - such as auditing, budget reviews, and annual performance reviews, and finally 4) incentives and disincentives for efficiency.

While provider payment mechanisms are PFM areas that influence efficiency, the areas have been extensively studied in Kenya and I therefore opted not to include them in this study. Finally, the three processes of budget formulation, execution, and evaluation are also interrelated; the budget formulation phase will affect the budget execution which will in turn affect budget evaluation. The process of budget evaluation influences the following years' budget formulation process. I conceptualized efficiency in two dimensions: technical and allocative efficiency. Technical efficiency referred to how effectively counties utilized their resources to achieve optimal health outcomes. Allocative efficiency, on the other hand, denoted the ideal output-input balance leading to the most outcomes. While the initial technical efficiency analysis guided my selection process, I expanded my exploration of efficiency determinants through qualitative means, not restricting myself solely to those initial parameters.

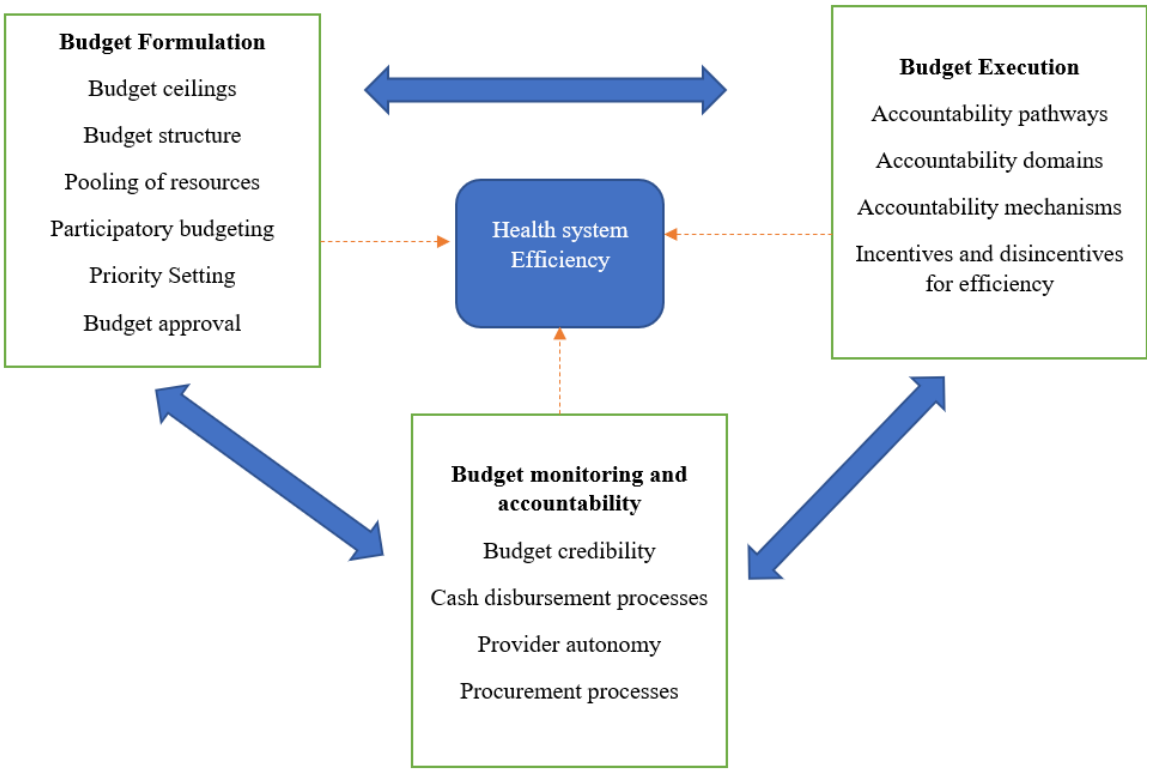

Figure 3.2: Conceptual Framework on the relationship between PFM and efficiency

3.3.2 Complex Adaptive Systems Theory

To place this thesis in theory, I used the Complex Adaptive Systems (CAS) theory to explain the relationship between PFM and efficiency. The complex adaptive systems theory is a way of explaining behaviour that looks at issues as having multiple agents that are interrelated rather than looking at linear cause and effect relationships (*Complex Adaptive Systems Evidence Scan*, 2010). I chose this theory based on the observation from the literature review (chapter 2) and the subsequent thesis conceptual framework that the relationship between PFM and health system efficiency is complex; it involves multiple components and actors. Characteristics of complex adaptive systems include the following. First, they exhibit emergence, which means that the behaviour of the system cannot be explained by observing the behaviour of its components. Second, Complex adaptive systems are non-linear, which means that (Pype et al., 2018a) small changes in one part of the system can have a massive impact on the system that would not otherwise be predicted. Third Complex adaptive systems are self-organizing (America, 2001; Pype

et al., 2018a). This means that they exhibit behaviour that results from interactions between individual components without control from the coordinator, or the centralized system. Fourth, they have feedback loops, which means that the behaviour of individual components affects the behaviour of the system which in turn influences the behaviour of individual components (America, 2001; Pype et al., 2018a). Fifth, Complex adaptive systems are adaptive, which means that they change and evolve over time. Finally, complex adaptive systems are robust, they can continue functioning even when there are changes or shocks in the system (America, 2001; Pype et al., 2018a)

3.4 Study Design

I employed a concurrent qualitative case study design. I used descriptive statistical methods to analyze secondary data on budgets and expenditures obtained from documents to quantify findings on budget formulation and budget execution. I used qualitative methods to examine stakeholder perceptions about the role of PFM in county health system efficiency. I collected the budget data and qualitative data concurrently. I used the budget data obtained during field work to guide some of the qualitative questions.

3.5 Research Strategy

I conducted a case study of counties. Case studies are research methods that guide the in-depth examination of single or multiple bounded systems contemporarily in their natural environment (J. Creswell, 2013; Yin, 2009; Zainal, 2017). I chose the case study for several reasons. First, case studies are useful for studies that seek to understand how and why relationships in real-life where the researcher lacks control over the happenings (Zainal, 2017). PFM has been identified as a driver of health system efficiency. Counties have significant differences in how they approach the health budget process despite being subject to the same PFM legal framework. These differences include different percentage allocations to health, different levels of absorption of the health budget, and different levels of autonomy. Some of these issues have been linked to health system efficiency (E. Barasa et al., 2021). This study sought to explore how counties budget, execute and account for health system resources, and how this influences health system resources. A case study was therefore deemed the best to answer how and why for specific cases.

Second, case studies provide a deeper understanding of the uniqueness of each case or explore problems or issues in more detail using the case as an example (Guest et al., 2013; John W. Creswell, 2013). I wanted to understand if and how public financial management processes differ in counties with varying levels of efficiency. I selected two relatively efficient and two relatively inefficient cases. I wanted to understand if there are PFM-related issues that the efficient counties do better and the challenges within the inefficient counties. This made the case study approach a better option for the study.

Third, case studies allow the exploration of phenomena in their natural environment(J. Creswell, 2013; J. W. Creswell & Creswell, 2014; Yin, 2009). PFM structures and processes cannot be isolated from the counties in which they exist. The case study approach was instrumental in studying the various aspects of PFM within counties, and how they influence health system efficiency.

3.5.1 Study Cases

I selected two sets of cases (counties) – the most relatively efficient (2) and the least relatively efficient counties (2). Cases for case study designs are selected based on the properties that make them unique or of specific interest (J. Creswell, 2013; Guest et al., 2013). There is no defined number of cases that are included in the case study design as the number is dependent on the budget and time the researcher has (Guest et al., 2013), a case study can consist of as little as one case, however, some guidelines recommended the inclusion of four to five cases (J. Creswell, 2013). In addition, multiple cases add external validity to the findings and limit observer bias (Meyer, 2001). This study was filling a gap of previous studies that sought to examine the efficiency of county health systems, one of which this study's selection is partly based its study design on. Studies, like Barasa et al have ranked counties form the most efficient to the least efficient. In this study, a datta envelopment analysis approach was used to rank counties from the most efficient to the least with the inputs being the public health expenditure, private health expenditure, and the number of facilities. The outputs were the disability adjusted life years. This study then went further to regress

the efficiency scores against some possible determinants of efficiency and county budget absorption rates, a factor of PFM was identified as a determinant of efficiency. The study by Barasa et al used the total health expenditure in both public and private as a key input. These studies have gone further to regress the efficiency scores against various determinants of efficiency and PFM has emerged as an important determinant of efficiency. Howevre one aspect that these studies do I selected four cases from the 47 counties in Kenya using the level of efficiency as determined by the Kenya Efficiency Study (E. Barasa et al., 2021). I selected two efficient counties (efficiency score more than 0.8) and two inefficient counties (efficiency score less than 0.5). I selected the two most efficient and two least efficient counties to explore if and how there is a variation in the way they undertake the PFM processes to influence their respective efficiency scores. Table 3.1 below summarises the characteristics of the counties I selected for the study. A vital step after the selection of cases is to identify the boundaries of the case (J. Creswell, 2013; Yin, 2009). Counties in Kenya are semi-autonomous governments with clear geographical boundaries, in addition, they operate independently of each other but rely on the national government for part of their budgetary allocation. The clear boundaries and minimal interaction between counties provided ideal cases to be studied using the case study method.

Table 3.1: Characteristics of selected counties

County	**Efficiency Score***	**Population (2019)**	**Total County Public Health Recurrent Expenditure (2018/2019) KES**	**Total County Public Health Development Expenditure (2018/2019) KES**	**Per Capita County Public Health Expenditure (2018/2019) KES**	**Percentage of public facilities**	**Percentage of private facilities**
A	0.9	1,163,186	1,884,620,000	46490000.00	1660.19	62%	38%
B	0.9	990,341	949,629,480	615,371,170	1580.26	47%	53%
C	0.4	1,131,950	2,121,046,189	370,754,248	2201.33	63%	37%
D	0.5	315,943	749,054,078	167,564,044	2901.21	71%	29%

3.5.2 Time Horizon

I adopted a cross-sectional approach. I collected data at one specific point in time – between June and August 2021. For the budget data, I collected data for two financial years- FY 2017/2018 and financial year 2018/2019. I planned to collect data for the last two complete financial years. At the time of data collection, the last two complete financial years were 2019/2020 and 2020/2021. However, for these years, the health budget processes were severely affected by the COVID-19 pandemic. During the COVID-19 period, there was increased resource allocation to the health system from external sources, relaxation of the PFM rules and legal requirements to allow efficient delivery of services, and reallocation of the available health system resources to address the COVID-19 pandemic. For this reason, these two years were not the best indicator of PFM systems devoid of shocks. While the intention was to focus on the PFM processes before the pandemic, this was not always possible. During interviews, the respondents compared PFM processes within a pandemic and during normal times. Some of these comparisons informed the recommendations for improving PFM processes for health system efficiency and recommendations for further research.

3.6 Data Collection Methods and Procedures

3.6.1 Study Participants and Sampling Procedures

I employed purposive sampling techniques to recruit participants for the study. Purposive sampling involves the selection of participants that are well-versed or experienced in the topic of inquiry and who will provide a vast understanding of the subject (J. Creswell, 2013; Michael Quinn, 2002; Ulin et al., 2005). This study sought to understand in-depth the relationship between public finance management arrangements and the efficiency of county health systems through the budgeting and planning processes within the county health system. These processes have multiple actors, some within the health department and others within the department of finance both at national and county levels. I purposively recruited 70 participants to participate in the study (Table 3.2).

Table 3.2: Participants selected for in-depth interviews

	County-Level Respondents				**National Level Respondents**
Interviewee group	**A**	**B**	**C**	**D**	
Health Sector	4	6	3	3	**1**
Finance Sector	4	1	2	5	**1**
Sub County Health Managers	0	3	2	0	**-**
Health Facility Managers	7	9	5	9	**-**
Donors	-	-	-	-	**6**
Sub totals	15	19	12	17	**8**
Total	**70**				

The number of study participants for the qualitative study is not defined rather its subject to the study design (J. Creswell, 2013). I considered various issues when determining the sample size, including the scope of the study where the broader the study, the longer it takes to achieve saturation (Morse, 2000). I also considered the study design, because this is a case study of four counties, I attempted to achieve balance in representation across cases (Morse, 2000). Finally, I conducted interviews until data saturation which is a strategy used by most qualitative interviews (Morse, 2015; Vasileiou et al., 2018). The issue of data saturation has been subject to criticism as it is at the discretion of the researcher to determine saturation, which can be subject to bias. While there is no clear way to determine saturation, it can be claimed when the resulting concepts are clearly outlined, and well described, with specific examples (Morse, 2015). I used this definition by Morse to determine saturation – the concepts being clearly outlined, well described, and with specific examples.

3.6.2 Data Collection Methods

The data collection process in case study research design seeks to gain comprehensive information on the cases and, also, determine what makes these cases different (J. Creswell, 2013; Guest et al., 2013). Detailed understanding of cases requires the use of multiple sources of data for example in-depth interviews, document reviews, observations, and audio-visual material (J. Creswell, 2013).

I employed in-depth interviews and document reviews to collect data. The subsequent sections discuss each of these data collection methods.

3.6.2.1 In-depth Interviews

I used in-depth interviews to address objectives 1,2 and 3 of the study. The in-depth interviews involved face-to-face or online conversations with individuals (J. W. Creswell & Creswell, 2014). In-depth individual interviews establish a one-on-one relationship between the interviewer and the respondent and are highly effective for sensitive topics (Ulin et al., 2005). This study involved asking respondents sensitive questions on public financial management within the county and therefore found much utility in individual in-depth interviews. Interviews involved PFM stakeholders at both the national and county level using an interview guide that I developed based on the conceptual framework. I sought individual written consent from all the participants and requested permission to audio record the interview. I conducted the interviews within the workplace or at a place convenient to the respondent. Given that the study was conducted during the COVID-19 era, some national-level respondents asked for online rather than physical interviews. A key consideration across all interviews was to get a private place to ensure the respondent was comfortable given the sensitivity of the data. Interviews lasted 45-90 minutes.

3.6.2.2 Document reviews

Document review entailed collecting and reviewing data that was documented for other purposes but was relevant to the study to corroborate other data collection methods such as in-depth interviews (Ulin et al., 2005; Yin, 2009). These documents included; public documents such as newspapers, and reports or private documents such as emails and letters (J. W. Creswell & Creswell, 2014). This data collection method was deemed relevant to the study as it provided a mechanism for triangulation of the other sources of data. Document reviews also provide an "unobtrusive" method for the collection of data (Ulin et al., 2005). Multiple documents were available from the study cases, I selected documents to be reviewed (Table 3.4) based on their relevance to the topic under inquiry, and the accessibility and availability of the documents (Yin, 2009).

Table 3.3: Documents for document review

Documents Type	Total Reviewed
County Votebooks 17/18	3
County Votebooks 18/19	3
County Fiscal Strategy Paper 18/19	4
County Budget Review and Outlook Paper 18/19	1
County Budget Operationalization Manual	1
Public Finance Management Act	1
Public Finance Management Guidelines	1
County Governments Budget Implementation Review Reports	1
County Audit Reports FY 18/19	4
Total	19

3.6.3 Ethical Considerations

This study received Ethics approval from the Scientific and Ethics Review Unit (SERU) at Kenya Medical Research Institute (KEMRI/SERU/CGMR-C/154/3814) and subsequent approval from the National Commission for Science Technology and Innovation (NACOSTI) (NACOSTI/P/21/9670). This study involved human research participants, therefore, followed the ethical principles outlined below.

Risks

The study was a low risk; however, some participants were anxious about responding to questions regarding financial management within counties. I assured the participants of confidentiality, and when requested, I had parts of the interviews done off-record.

Confidentiality

I endeavored to conduct all interviews in a private place. In addition, all study data including transcripts, notes, and documents, were deidentified and stored in a password-protected computer.

Informed Consent

I provided written informed consent to each study participant with an information sheet detailing; 1) the title of the study and purpose for the study 2) the sampling and inclusion criteria for participants and rationale 3) the time commitments expected from the research if they consent to participate in the study 4) the possible risks and benefits for participating in the study 5)voluntary nature of participating in the study 6)confidentiality in the research process 7) contact information of the principal investigator and the ethics committee. I also explained the information to the participants and ascertained that the participants understood the study requirements. The information sheets and informed consent were provided in English.

3.6.4 Data Management and Analysis

3.6.4.1 Analysis of Qualitative Data

I transcribed the recordings word for word to Microsoft word, thereafter I transferred the transcripts to NVIVO 12 software for data analysis. Analysis of the data followed a thematic approach. Thematic analysis is a method that guides the identification, organization, description, analysis, and reporting of themes founds in a data set (Braun & Clarke, 2006). The data analysis followed the following six steps: familiarizing with the data, generating initial codes, searching for themes, reviewing themes, naming themes, and writing the report (Braun & Clarke, 2006; Nowell et al., 2017).

Familiarization with the Data

The qualitative data analysis process goes hand in hand with the data collection process. I conducted over 60 of the 70 interviews and was immersed in the data. Following the transcription of the data, I read the transcripts repeatedly to identify patterns emerging from the data.

Generating Initial Codes

After the familiarization process, I reviewed the data again to identify codes and interesting ideas as guided by the conceptual framework that I had earlier developed. Coding involves taking extracts from transcripts or pictures or data from document reviews and labeling them using one word that was preferably identified by the respondents or used in the data (J. W. Creswell & Creswell, 2014). This phase also involved collating data that was relevant to each identified code (Braun & Clarke, 2006).

Searching for Themes

I then reorganized the codes into themes and put together all the data that relates to specific themes together. This involved combining different codes to form one theme (Braun & Clarke, 2006; Nowell et al., 2017).

Reviewing the Themes

I reviewed the themes to ensure that they relate to the codes that were identified in the second phase and the data set in totality (Braun & Clarke, 2006). This entailed collapsing some themes that lacked sufficient data and combining themes that were related (Braun & Clarke, 2006; Nowell et al., 2017).

Defining and Naming the Themes

This involved writing a detailed analysis of each identified theme and refining the analysis so that the themes relate to the data. In the process, I identified sub-themes that helped structure the analysis. This phase also helped to create boundaries for themes- defining what they include and exclude (Braun & Clarke, 2006).

Reporting

The final step entailed writing a final interesting narrative of the themes that were identified. I selected vivid examples from the dataset that helped bring out the different points. In this phase, I linked the findings to the research questions and objectives.

3.6.4.2 Document Analysis

I employed the READ approach to analyze the documents collected for document review – 1) I first readied the materials then 2) I extracted the necessary data, following this 3) I analyzed the data and finally 4) I distilled the findings (Dalglish & Mcmahon, 2020). The first phase entailed readying materials will include listing the documents to be reviewed, these included legal PFM documents, planning documents, budgeting documents, audit reports, and performance reports. For policy documents, the study included all the documents from the onset of the devolution process in Kenya. The second aspect of this was defining the scope of the research questions that the document review sought to answer. The scope for me was the public finance management process within county health systems in Kenya, specifically targeted to the four selected counties – Uasin Gishu, Trans Nzoia, Tana River, and Homabay.

I used NVivo and Microsoft Excel to analyze qualitative and quantitative data respectively. I transferred the transcribed files to NVIVO for coding for qualitative data. Then I entered financial and performance quantitative data into Excel to enable analyses such as budget credibility, budget absorption, and achievement of targets. Qualitative data analysis was iterative and emergent; the initial findings informed what to look for in subsequent analyses, and I adopted a general thematic framework. Finally, once saturation was attained, I distilled findings based on our research objectives covering the three areas of budget formulation, budget execution, and budget monitoring and evaluation.

3.6.4.3 Analysis of Quantitative Data

For financial and performance reports, I used documents for the last complete financial year before covid as explained in section 1.6. Financial indicators (Table 3.5) that were not already computed were analyzed in excel.

Table 3.4: Quantitative Data analyzed

Objective	**Data**	**Analysis**
Objective 1	Percentage of the ceiling to county budget	Computed as health ceiling as a fraction of the total county budget
Objective 2	Budget credibility	Computed as available funds as a fraction of the total budget
	Budget absorption	Computed as total expenditure as a fraction of the available budget
	health funds reallocated	The sum of all funds reallocated during midyear reallocations

3.7 Methodological Rigor

Methodological rigor entails the systematic and rigorous application of methods that ensure that the research findings are credible and trustworthy. I undertook several activities to enhance the trustworthiness of this study. First was the *use of theory*. I used a conceptual framework developed from the review of literature on the topic to develop data collection tools, analyze the work, and interpret the findings (Gilson, 2013). I also used the complex adaptive systems theory to explain the study findings as detailed in section 1.3 of this method.

The second was *triangulation.* I employed multiple data collection methods to enable triangulation, specifically the study used in-depth interviews and document reviews. The idea was to seek convergence and corroboration across the data. Because of the nature of PFM, there were challenges with access to information among the different actors in the process. As such review of documents helped to validate the data and come up with a true analogy of the happenings.

Third, was the *use of multiple cases* under each characteristic being studied. I used two efficient cases and two inefficient cases. This worked to enhance the generalizability of the study findings. It also enhanced the rigor and depth of the analysis. These cases further provided an opportunity to compare efficiency and inefficient counties and to draw patterns between the counties.

Fourth, I used *peer debriefing* to strengthen methodological rigor. Peer debriefing entails presenting the study progress to researchers within the investigator's organization for peer review. This enhances the internal validity of the study. Throughout my study, I have made two seminar presentations where I have presented my findings to researchers at KEMRI Wellcome Trust. I presented the progress of the study from the methodology, the findings, and the interpretations. In addition, I presented some of my findings at the African Health Economics Association (AfHEA) conference. In addition to this, my manuscripts have been read and reviewed by PFM experts in various organizations that support PFM work in Kenya and in the region. All this feedback has been incorporated into the final thesis.

Fifth, I have provided a *clear description and audit trail* of the research process. I have documented all the study choices from data collection to data analysis and reporting including the rationale for each choice made. Clear documentation provides for an audit trail and enhances the reliability of the data (Gilson, 2013). A clear description ensures that the research process is understandable and replicable, it also provides an opportunity for other researchers to evaluate and critique the methods used.

Sixth, reflexivity – I have constantly reflected on my personal biases, assumptions, and values, and how they are likely to influence the research process. I centralized aspects of both personal and epistemological reflexivity in the entire process of the study. I am a trained nurse who practiced briefly in the public health system in Kenya, following that I have worked in various capacities, as a programme officer coordinating the leadership training of many groups of health managers in the region, and later as a technical advisor supporting various counties to strengthen their PFM systems. Over the years, I have developed relationships with many county health system managers.

It is likely that the participants within the health department were influenced by my having a health worker background and were more open to disclosing their views. On the other side participants from other departments such as the finance department may have been unwilling to disclose their views as I may be perceived as being on the side of the health department. To mitigate this, I constantly reflect on the knowledge assumptions made in the entire process of the research and how this influences the findings (Dowling, 2006).

Seventh, Prolonged engagement with the study site. I spent weeks of continuous engagement with each study site, this engagement was both formal and informal to enhance the study findings (Gilson, 2013). In addition, over this time, I supported work that involved supporting counties with developing key budgeting and planning documents. While I did not directly work in the counties of study, the yearlong engagement with counties and key stakeholders helped to better contextualize my understanding of PFM processes within county health systems

Eighth, Respondent Validation. I provided preliminary analysis to the respondents for feedback and comment to reconfirm the findings (Gilson, 2013) during a dissemination workshop held in Kilifi on 19th and 20th December 2022. Thereafter I received feedback from participants on the same. This feedback was then incorporated into the final thesis

3.8 Methodological Limitations

The adopted methodology had some limitations, first teasing out the causes of the differences between the inefficient and efficient counties. When I set out to conduct this study, I selected two relatively efficient studies and two relatively inefficient studies, with the assumption that I will be able to tease out the differences between the two. However, the data did not show outright differences between the efficient and inefficient counties. This could be because the efficient counties are not efficient, they are just efficient as compared to other counties. The Data Envelopment Analysis (DEA) which was used to measure efficiency is a measure of relative efficiency. This means that it compared the outputs and inputs between the 47 counties. Those that had a higher relative efficiency may be performing better than their peers but may not be efficient in absolute terms. Hence it was difficult to tease out exemplary behavior in counties that are

generally inefficient. Second, the differences in efficiency may be linked to the extent of inefficient behavior rather than the occurrence of it. Hence difficult to tease out using a qualitative approach.

Second, the integration of the data and interpretation of findings especially where findings were contradictory. This study adopted a mixed methods approach. On some occasions, the qualitative and quantitative findings contradicted. This was linked to various challenges including, limited access to budget data for some participants, especially the technical people. Where this happened, I attempted to present to them the facts as per the quantitative data to establish if there would be a change in perspective on the causes of inefficiency. I also tried to further establish the root cause of some perceptions, which I explain in the findings. The quantitative data also conflicted, there were multiple sources of budget data including the controller of budgets report and budget data retrieved directly from the counties. These data sources would sometimes differ. When this happened, I would go with the most complete data source, which was extracted at the end of the financial year in question.

Third, this study would have benefited from interviewing users of the services. Two key areas emerge in the PFM process which involve the public – Public Participation in Budgeting and the role of social accountability. Exploring these issues and how they influence efficiency would have been enriched by the public perspective. While I was not able to do this, I have provided these areas for further studies, establishing the role of the public in enhancing health system efficiency.

3.9 Chapter Summary

In this chapter, I have detailed my approach to conducting the study. To identify policy levers for efficiency improvement, I utilized a pragmatic approach. Additionally, I have introduced the conceptual and theoretical frameworks utilized in this study. I used the complex adaptive system theory as the theoretical framework while the conceptual framework was based on a literature review discussed in chapter 2. For the study design, I employed a concurrent mixed methods case with two efficient and two inefficient counties selected as cases. I have also described the data collection and analysis procedures used and explained my rationale for selecting these approaches.

Furthermore, I have discussed my efforts to enhance methodological rigor and the ethical considerations I have put in place. Finally, I have addressed the methodological limitations of the study. In the next chapter, I present the findings of the first thesis objective, on the influence of budget formulation on county health system efficiency.

Chapter Four: Results (Part One): How Budget Formulation Structures and Processes Influence the Efficiency of County Health Systems

4.1 Introduction

In this chapter, I first present an overview of the budget formulation process in county health systems in Kenya, then I present the following six aspects of the budget formulation process that I found to influence efficiency: budget ceilings, budget structure, pooling of resources, participatory budget formulation, priority setting, and the budget approval process. A summary of my findings per county is outlined in Table 4.1.

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Table 4.1: Summary Findings per case study county

Issue reviewed	County A	County B	County C	County D
The mechanism for ceiling allocation	Estimates of requirements	Estimates of requirements	Historical	Historical
Timeliness of ceiling	Timely	Late or not issued at all	Not issued at all	Timely
Budget ceiling amount	Less than the recommended 30% of the total county budget	More than the recommended 30% of the total county budget	More than the recommended 30% of the total county budget	Less than the recommended 30% of the total county budget
Cascading of ceilings to lower planning units	Partially cascaded	Not cascaded	Not cascaded	Partially cascaded
Budget structure in use	Line-item budget	Line-item budget	Line-item budget	Line-item budget
Alignment of plans and budgets	Aligned	Misaligned	Misaligned	Misaligned
Disclosure of off-budget partner envelopes	Partially disclosed	Not disclosed	Not disclosed	Not disclosed
Funds pooled or fragmented	Fragmented	Fragmented	Fragmented	Fragmented
Public participation through facility boards and committees	Fully implemented	Partially implemented	Not implemented	Partially implemented
Involvement of facility managers in planning and budgeting	Partially involved	Partially involved until October 2020	Not involved	Partially involved
Priority setting criteria	Revenue maximization at the facility level Development Plan goals at the county level	Political demands	Political demands	Political demands
Budget reprioritization during the approval	Minimal Changes	Budget is reprioritized	Budget is reprioritized	Budget is reprioritized

4.2 Overview of the Budget Formulation Process

Kenya's fiscal year starts on the 1st of July and ends on the 30th of June of the next calendar year. From the policy and legal documents reviewed, the county treasuries release the budget circular by 31st August of every year marking the beginning of the budget formulation process. The budget circular contains key activities and deadlines for the budget process and guidelines for preparing the MTEF budget. The department of finance is also required to submit the Annual Development Plan (ADP) to the County Assembly (CA) and a copy to the commission on revenue allocation by

1st September. The county ADP consolidates sector/departmental ADPs. The department of finance then prepares the County Budget Review and Outlook Paper (CBROP) which is then submitted to the county executive committee (CEC) and CA by 30th September. The CBROP should be published by November. The CBROP assesses the performance of the previous financial year, and makes projections, including proposed budget ceilings, for the next financial year. The CBROP is ideally to incorporate the findings of the departmental Annual Performance Review (APR).

Thereafter, the various sectors, through the Sector Working Groups (SWG) in the county are to prepare the MTEF budgets which identify priorities in the medium term (3 years). The departments should then hold sector hearings where they incorporate public views in the MTEF, and thereafter submit it to the department of finance as the final MTEF. By 28th February, the department of finance develops the County Fiscal Strategy Paper (CFSP) for the CA. The CFSP contains the final indicative budget ceilings for the department. The CA is to approve the CFSP by 14th March. Thereafter, this is released to departments that are to develop budgets based on the ceilings and provide proposed budget estimates to the department of finance. The department of finance should then compile the proposed estimates and submit them to the CA together with the supporting documents by 30th April.

Between May and June, the CA budget appropriation committee should then conduct public hearings of the proposed estimates. Thereafter the CA is required to approve the estimates by 30th June, becoming the approved budget (Figure 4.1)

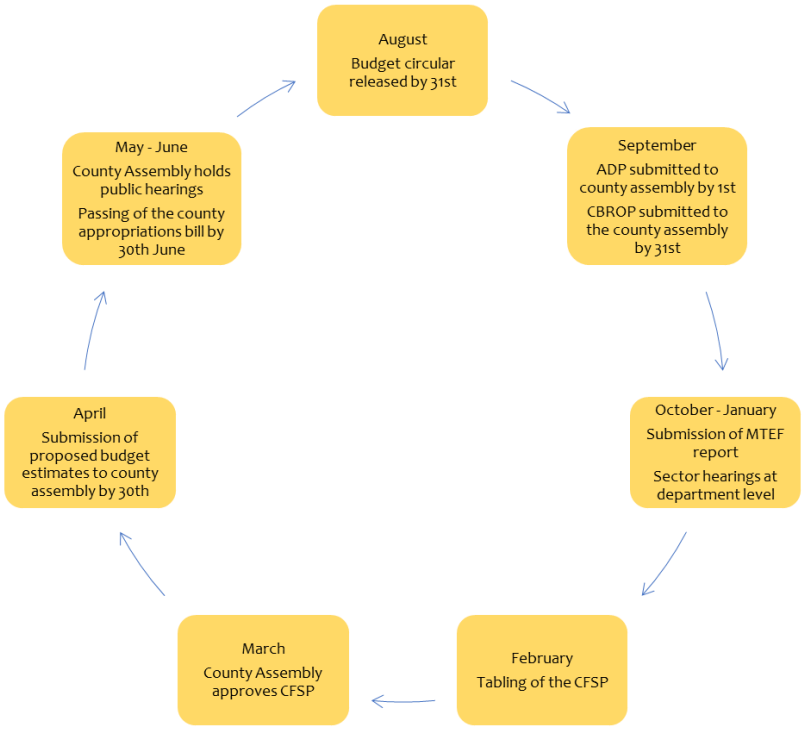

Figure 4.1: Budget formulation processes within county health systems in Kenya

4.3 Budget Ceilings

Across the case study counties, there was a variation in how budget ceilings were determined. In counties A and B, ceilings were determined using estimates of financial requirements for health system inputs (e.g. salaries, drugs). However, in counties C and D, ceilings were determined using historical allocations. These were adjusted by a percentage in county C and by the department budget absorption in county D. Within the CDOH, ceilings were a figure provided by finance with no rationale or explanation behind the allocation.

"During the budgeting process we review the previous year's plans and absorption of budget for departments to inform the current year's decisions on budget. If last year we gave you 100m and you did not absorb then it affects this years allocation" County Finance Manager, County D

"The ceiling is decided based on costs for critical items. These include staff salaries and essential health commodities such as non-pharmaceutics. It also includes projects that have political priority or are ongoing. For instance, in our county, the construction of the teaching and referral hospital is a political priority for the Governor and has been ongoing. This is prioritized in budgeting to avoid stalling of the project" County Finance Manager, County B

"No, that's another contentious issues ceiling just come from finance without an explanation" County Health Manager County B

Interview respondents reported that the use of historical allocation to determine budget ceilings limited the budgeting processes' responsiveness to the changing needs of the county.

"Historical budgeting carries forward budget challenges from previous years to subsequent years" County Facility Manager, County C

"Any new activities that were not in the previous budget are not included in the new budget and hence are not funded" Facility Health Manager, County D

Some respondents noted that ceilings to CDoHs were availed late or not at all. While ceilings were availed on time in counties A and D, they were not availed in county C. Ceilings for county B were either availed late in some financial years or not at all in others. Respondents reported that ceilings were not availed because of bureaucratic inefficiency, or because the county treasury made the final budget on behalf of all the other county departments. Interview respondents across the

counties felt that the timeliness of availing of ceilings to the CDoH influenced efficiency in various ways. First, ceilings that were not availed limited effective planning within the health sector and contributed to historical budgeting. For example, in County C, it was reported that in the absence of budget ceilings, the CDoH limited its planning to the previous year's budget yet the current years' resource envelope sometimes varied considerably from the previous years. On the other hand, in County B, it was reported that ceilings that were not availed shifted the decision-making power on priorities to the county treasury and hence reducing the CDoH's autonomy over health sector resource allocation.

"We did not know the ceiling so we would limit ourselves to the previous figure. As a result, we would fail to budget for some things. And, even after restricting ourselves to that previous figure we did not know what ended up in the budget, it is finance that would decide what to include in the final budget because they had the real ceiling" County Health Manager, County B

Secondly, it was felt that late ceilings did not give time for adequate consultation hence key inputs and information were missed out on the budget. For example, in County B, respondents from the CDoH reported that they only had one week to compile a budget, as a result, only two people were involved in determining the needs of the whole county. Because of the time and the few people involved, they left out important issues in the budget. In county A, the county tried as much as possible to involve all relevant stakeholders.

"Budgeting has become a two-people show involving me and Dr. XXXX. We stay up late trying to budget for the county. If we had more time, we would budget as a team. A bigger team would bring diverse views and ensure nothing is left out" County Health Manager County B

Thirdly, interview respondents reported that late budgeting limited the use of evidence in the budgeting process and contributed to historical budgeting. For example, in County B, it was

reported that the budgets for previous years were replicated because they did not have time to make alternative considerations.

"One week is the longest we've ever had, so if you look at our previous budgets, they are almost the same because you don't have time to think a lot" County Health Manager County B

In counties where ceilings were availed on time, respondents reported that this facilitated the timely processing of the budgets and ultimately, the timely release of funds for activities.

" The budgeting cycle is interrelated, with clearly set timelines. The moment you are late in one process, the other processes are affected. So timeliness has enabled the smooth flow of the timelines and the final implementation of the budget" County Finance Manager County D

Finally, interview respondents reported that timely ceilings allowed for the early identification of budgetary gaps. This gave the county health management team time to source alternative funds to bridge the budget gaps.

"Spending caps inform us of the budget limits. Thereafter, we can realize budgetary funding gaps. We then work with donors to plug in the deficits" Facility Health Manager County A

Respondents in all the counties at both county and facility levels noted that budget ceilings were not sufficient. The intergovernmental participation agreement recommends that counties allocate a minimum of 30% of the county budget to the CDoH. Document reviews show that allocation levels to the health sector varied across counties, with counties B and C exceeding the recommended minimum, while counties A and D allocated below the recommended minimum (Table 4.2). Respondents linked insufficient budget ceilings to the limited resources availed to counties from the exchequer.

Table 4.2: County Allocation to Health (KES Millions)

	County A	**County B**	**County C**	**County D**	**National lowest**	**National Highest**
County Resource Envelope	9,007.24	4,373.03	7,723.04	6,433.03	13,535.46	4,373.03
Department of Health ceiling	1,871.70	1,646.02	2,535.13	1,276.38	2,344.07	1,646.02
% allocated to health	**20.78%**	**38%**	**33%**	**20%**	**17%**	**38%**

Interview respondents felt that insufficient budget ceilings affected the efficiency of county health systems because some activities had to be left out of the budgets and were not implemented.

"Sometimes we exhaust the allocation, and we have to operate on credit. Hence, we must limit the services. For instance, maternal referrals require a fueled ambulance and an allowance for the accompanying nurse. If funds are limited, patients will have to pay for the services out of pocket. But often clients are not prepared" Facility Health Manager, County C

Budget ceilings were not cascaded to the lowest planning unit despite this being a requirement of the county budget operationalization manual. For example, in counties A and D, only ceilings for donor funds were cascaded down to level 2 and 3 (primary level) facilities while in counties B and C no ceilings were cascaded down to facilities. Some respondents from the County Health Management Team (CHMT) felt that it was difficult to cascade ceilings because the ceilings were not sufficient.

The CDoH's failure to cascade ceilings to the frontline was felt to influence health system efficiency in various ways. First, as there was no ceiling, frontline workers made unrealistic plans which were either partially funded or not funded at all. Also, it was the CDoH rather than the facilities that decided what was funded, which limited frontline autonomy.

"We are not given a budget ceiling; we budget based on our needs. As a result, budgets are not honored or less than 50% is honored hence we cannot implement our plans. For example, we do not get health products in the required quantities. When we exhaust the available products, patients have to purchase goods and services out of pocket" Facility Health Manager County C

Second, it was felt that failure to cascade down ceilings resulted in ad-hoc short-term budgeting at the health facilities. Facilities only made budgets when they received funds. This limited long-term planning which was geared towards achieving targets and goals.

"As facilities, we are using a line-item budget, because, a program-based budget would only be appropriate if we have an annual budget, which does not happen in health. Because we are not sure when the money will hit our account. So we only budget when the money hits the account" Facility Health Manager County C

4.4 Budget Structure

The Government of Kenya's (Kenyan government) budgeting legal and policy framework requires that entities develop programme-based budgets (PBBs). PBBs link resources to programmes, activities, and indicators thus enhancing efficiency. During the budget formulation process, the CDOH made PBBs. Funds for programmes were then broken down into sub-programmes and line items. Following approval of the budget, and once the budget was uploaded on Integrated Financial Management System (IFMIS), the finance office then generated a line-item budget which was then issued to the department for implementation. Further, respondents in all four selected counties noted that health facilities developed line-item budgets.

The formulation of line-item budgets was felt to influence health system efficiency in various ways. First, it was felt that the budget was reduced to a document that financed inputs rather than outcomes. The budgets were made to mitigate short-term input crises rather than achieve sector goals and objectives

“The challenge with line budgets is we ignore some activities. It is a reactive budget, when we run out of food we buy food, same applies to fuel. Programme-based budgeting is more inclusive, nothing is left behind. But even if we make programme budgets, we will never get the funds” Facility Health Manager County C

Second, respondents felt that line-item budgets limited accountability for service delivery outputs and outcomes. It made it difficult to link the budget to programmes that were implemented. The line budget was a financial accounting document that explained how resources were expensed, however, it did not provide an opportunity to evaluate indicators.

"Itemized budgets are majorly an accounting document which the accounting department can use to account for the money, but for us now, we cannot link it to the indicators." County Health Manager, County D

County health budgets were not aligned with plans and targets. Interview respondents felt that misaligned budgets and plans affected efficiency in various ways. First, it was felt that performance indicators were either not included in the PBB or, where they were included, they were linked to intermediary rather than final health system outputs (Figure 4.2). This limited the benefits of the PBB process thereby limiting efficiency. For example, it limited accountability for outputs and outcomes as resources were allocated but there were no tangible outputs or outcomes attached to it.

Program Name	**Programme 3: Preventive and Promotive**					
Objective	To increase access to quality promotive, preventive health care services					
Outcome	**Reduced morbidity and mortality due to preventable causes**					
Sub programmes	**Delivery Unit**	**Key outcomes/outputs**	**Key performance indicators**	**Targets**		
				2018/19	**2019/20**	**2020/21**
Preventive and Promotive						
Licensing and control of undertaking						
Program Name	**Programme4: Construction and rehabilitation of health facilities.**					
Objective	**To promote access to health care**					
Outcome	**Health community**					
Sub programmes	**Delivery Unit**	**Key outcomes/outputs**	**Key performance indicators**	**Targets**		
				2018/19	**2019/20**	**2020/21**
4.1 Construction and rehabilitation		Constructed and renovated health facilities	No of facilities constructed / rehabilitated	**10**	**15**	20

Figure 4.2: Sample county programme based budgets indicating outputs/outcomes

Table 4.3: Comparison of AWP and PBB budgets

	2019/2020		
	AWP	**PBB**	**Difference**
Trans Nzoia	948,763,543	2,234,612,472	1,285,848,929
Homabay	2,598,308,143	2,368,656,133	-229,652,010
Uasin Gishu	3,320,991,620	2,486,839,860	-834,151,760

Source: Office of the controller of budget and county annual work plans

Secondly, respondents felt that the misalignment of plans with budgets led to a mismatch in the inputs available to the health system leading to the wastage of resources. The input combination was targeted to maximize expenditure contained in the budget rather than outcomes that were in the plan. This resulted in an input mix that could not deliver the intended outcomes. For example, in county C, the government provided cervical cancer vaccines but did not budget for resources to conduct vaccination within schools to ensure vaccines reach the population. As a result, the vaccines expired.

"At the moment, we have 48 closed laboratories, because of staff [shortage]. The infrastructure and equipment are lying there unutilized because we don't have staff yet we present our needs every year in the annual work plan" County Health Manager County C

Third, respondents felt that misalignment between plans and budgets had a negative impact on health outcomes.

"Because XXXX borders the game park, we have many fatal snake bites. So in our annual work plan, we report the number of deaths and plan to purchase anti-snake venom. We have been putting this in our annual work plan for the past three years, but the county has never provided the anti-venom" Sub County Health Manager County C

Finally, misalignment in plans and budgets was felt to compromise accountability for results. Monitoring and evaluation of budgets against indicators could not be accomplished.

"We can't evaluate indicators because the activities of the indicators do not go hand in hand with the financing. The only indicators that you can evaluate are the donor-funded ones. If donors support reproductive maternal and child health, they are very clear on the specific indicators that they chase alongside that budget." County Health Manager County D

4.5 Pooling of Resources

Respondents noted that one key challenge for pooling across the various funding streams was the donors' failure to disclose their budgets. In all four counties, only two donors provided on-budget support to the counties and hence disclosed their resource envelopes (the World Bank and Danish International Development Agency (DANIDA). In county C, some respondents felt that the failure to disclose resource envelopes was because of fears of interference from political leaders. It was reported that if donors were to disclose their resource envelopes, then local leaders such as the MCAs would want to skew the allocation of resources to their advantage rather than the health system's advantage. Another reason given by donors was that the county expected information from them, but the counties were not forthcoming with information, they stressed the need for a two-sided rather than one-sided relationship.

Failure to provide budgets was felt to affect health system efficiency in multiple ways. First, it was felt to undermine the priority-setting process, as departments were either uncertain about allocating activities to donors who did not disclose their envelopes, or they made incorrect assumptions about the level and support of donors thereby leaving out key activities from their budget.

"Undisclosed envelopes are a problem because we make lots of assumptions when budgeting. For example, we do not budget for HIV and TB with the assumption that they are covered by a donor or the national government. But sometimes not everything is done yet on the budget we omitted it.

Besides there is a danger of duplication, this is worse because that money could have funded other activities" County Health Manager County B

Second, it was felt that it led to duplication of activities. This led to the wastage of resources, yet some key activities remained unfunded. For example, donors provided commodities that health facilities had already purchased, and they had no option but to accept the commodities. Also, donors facilitated outreach activities that facilities had already included in their budgets. While the facilities appreciated the input, they had to go through a long process to reallocate the budgeted funds.

Third, interview respondents stated that they were unaware of the donor support, and this limited sustainability of the donor-implemented activities. For example, in county D, it was reported that while the county received a lot of support, the county government was unaware of this as the donors did not disclose their envelopes.

"Donors provide a lot of support, but this is not felt because they do not disclose their contribution. For instance, within the nutrition department, organizations like XXX and XXX support us with nutrition commodities, they spend a lot of money but the county is unaware of the value. If the donors pulled out today, the county may not be able to take over because they lacked full information" County Health Manager County D

Funding to the CDoH was through fragmented channels. The funding sources for the four CDoHS can be categorized into three: exchequer allocations, county's own source revenue, and donor support. The exchequer support came in various forms. These included routine allocations (comprised of development budgets and recurrent budgets) and conditional grants. The conditional grants were mainly for user fees foregone by primary health centers and grants to county tertiary health (level 5) facilities. None of the four counties included in the study received a county tertiary health facility grant. Own source revenue, on the other hand, was funds generated from various

activities for the health sector. These included user fees, and insurance funds such as Linda Mama (MOH insurance for all pregnant mothers in Kenya), Edu Afya (MOH insurance for all Kenyan school children), National Health Insurance Fund (NHIF) capitation, and fee-for-service reimbursements. Donor support came through either on-budget support or off-budget support. On budget, support was from two sources i) the World Bank *transforming health systems* (THS) funds to the counties in general for improving Reproductive Maternal Neonatal Adolescent and Child Health (RMNCAH), and ii) the Danish DANIDA conditional grant to improve primary healthcare facilities. Off-budget support also came in multiple ways, some through direct financing via cheques to County Health Management Teams (CHMTs) commercial bank accounts, and in-kind support through the provision of inputs.

Fragmented financing of the health system was felt to be affecting health systems efficiency in various ways. First, it was reported that different sources of funds targeting specific areas of implementation led to the fragmented achievement of health system goals. For example, in County D, it was reported that one facility was unable to meet Immunization goals for the Bacillus Calmette Guerin (BCG) vaccine because they did not have a maternity wing. The funds they had could not be used for the construction of a maternity wing as they targeted only immunization activities. In County B also at the county level, the RMNCAH indicators were doing very well as they were supported by the donors, but other areas lagged.

Second, it was felt that fragmented funding sources led to fragmented decision-making for budget priorities. This resulted in duplication of activities and therefore wastage of resources. It also provided a loophole for informal priority setting which led to inefficiencies.

"We advise MCAs to have one model facility to serve people across political areas, however, they will hear none of it. Every MCA wants a facility for their area, even if there is a facility within a 1-kilometer radius of the population. The MCAs will go ahead and allocate finances to construct a facility in that location. When the CDoH disputes the allocation, the MCAs reallocate the funds to other departments therefore the health department loses out. Having fragmented development

funds for administrative wards is a wrong model, all these resources should be under the CDoH" County Health Manager County B

Finally, respondents felt that multiple accountability channels for the different resources led to challenges with accountability. For example, in county B, MCAs put support in the very same activities that were supported by donors. Thereafter they did not implement the activities budgeted by the counties, yet they still consumed the resources.

"I thought our county is bad, but I am informed that other counties are worse. Some counties own the donor-funded projects, they claim they paid for the project. Of course, we lose out. Someone will gain, someone will be paid. There was no contractor but someone said they did work which was done by someone else so, in essence, it is a double payment but because the processes are sort of independent whatever returns will be made to the donor and whatever returns will be made to the county they may never meet" County Health Manager County B

While there were several inefficiencies from fragmented funds, interview respondents felt that fragmented financing also helped the health facilities especially when the main source of funds was unreliable. Alternative financing sources such as off-budget donors, Linda Mama and NHIF came in handy.

"Other counties are performing. So, it makes us question the priorities of our county. Were it not for MSF providing services at the county hospital ...it would also be down and under. The county is over-reliant on MSF aid, for things that the county itself should be providing ..." Facility Health Manager County C

4.6 Participatory Budget Formulation

The Kenyan government's legislative framework requires a participatory budget process. In the period before the devolution of healthcare services, the Ministry of Health (MOH) constituted mechanisms for structured community involvement in decision-making within health facilities through health facility management boards and committees. These boards and committees involved community members and frontline health workers in the budget and planning process.

"…there shall be openness and accountability, including public participation in financial matters" – Constitution of Kenya 2010

From the document reviews, however, I found that the devolved government system introduced public participation into the budgeting process through sector working groups (SWG) and public barazas, in addition to the facility committees and boards. Interviews with county-level respondents reported that the health SWGs in most of the counties were not functional.

The respondents felt that while the public was involved in budget formulation, their involvement was unstructured. Public participation was felt to influence health system efficiency in various ways. First, it ensured that the health budget was responsive to the needs of the population. For example, in county C, it was reported that the public was keen that all the implemented activities were responsive to their needs.

"I have been in this system for 30 years but for the last 10 years, people have been very alert. You cannot go to the community and implement projects that are not in tandem with community expectations, they will reject the project. The days when doctor's word was final are long gone" County Health Manager, County C

Second, it was felt that the public was able to lobby for more resources on behalf of the county health department.

"they're [the public] the ones who lobby the county government to bring new projects to our facility" Facility Health Manager County B

Third, respondents felt that unstructured public participation led to conflicts between provider needs and community needs. For example, in County D, the finance department noted that there were differences between the public and facility needs, and finance had the responsibility to balance the different requests.

"There are these public participation forums that the county holds, we as the health workers, rarely attend. They are held when we are at work. Therefore, our views are not factored in, yet as a service provider we know what is needed to improve outcomes" Facility Manager County D

Respondents noted that before devolution, the MOH had clear structures that defined how the public was involved in the budgeting and planning process. However, some counties such as county D did not fully adopt the process, especially in sub-county hospitals.

Frontline workers were involved in the planning process during the development of the Annual Work Plan (AWP) but they were not involved in developing the PBB. In all four counties, the county health management team (CHMT) made all the decisions regarding budgets. The sub-county health management teams and the facility in-charges were left out of the budgeting process.

"It is a problem because we are the key makers concerning the budget. We must start from down going up. But often, I don't know if what I budgeted for was captured on the major budget. Is there a match or a mismatch on it, I can't tell"? Facility Manager County B

Failure to involve the frontline workers was felt to affect health system efficiency in various ways. First, most facilities had never seen the county budget and had no idea what was being implemented in the county. This limited accountability at the facility and county levels.

"they'll procure drugs and non-pharmaceuticals worth say 90,000,000 for the whole county. But you can't know exactly how much was spent on your facility. You can estimate based on the drawing rights but you can't be 100% sure that this is the money that was spent on my facility." Facility Health Manager, County A

Second, it was felt that because facilities were unclear about what was being implemented, they were unable to effectively evaluate their achievements against budgets.

"We can evaluate revenue from NHIF that we collect and spend at source and put in place measures to improve performance. But it's hard to evaluate what the county probably spends on us" Facility Health Manager, County A

Third, counties ended up making decisions that were not consistent with the needs of the health facilities. Blanket decisions wasted resources. For example, in county A, the department was not able to access materials for the orthopedic department because it was not something that was commonly used in the county, yet for their facility, this was an important need. The facility had an orthopedic surgeon whose skills would be wasted if these materials were not availed.

" They need to involve us, otherwise they waste resources. They should ask us, what do you need? What is not important? what will improve your performance? Other than just pushing, because yes, you've bought me drugs worth 2 million drugs, but what if my catchment population does not match the drugs that you bought me?" Facility Health Manager, County C

Overall, both public and facility involvement was said to improve transparency. Improved transparency enabled efficiency by enhancing accountability for results.

"To me, I think facility and public involvement is the best way of practice for accountability and transparency, that's the best way to become accountable. Whatever we are doing, everybody needs to be at par, they should know what is happening within the system." Facility Manager County B

4.7 Priority Setting and Resource Allocation Criteria

The priority-setting process was not evidence-based. Participants noted that priorities for the recurrent budget were decided based on historical expenditure and lobbying, while priorities for the development budget were set based on demands from political leaders which had a bias towards visible infrastructure expenditure that enhanced positive citizen perception about their performance as politicians. For example, it was reported that politicians prioritized the construction of new health facilities without considering the population's demand for health services. As a result, the CDOH developed more health facilities than were needed to meet the population demand for facility-based health services and stretched the other limited resources such as human resources for health.

"They [MCAs] say they want health centers. Right now, I've got about 30 health facilities that are complete. But, I'm not able to equip or staff. Every MCA wants to tell the electorate I have built this one, but why have a facility that is not functional? I hope as we mature in devolution, they'll understand that facilities should be constructed, in accordance with the population and the county's ability to staff and to equip them" County Health Manager County B

Second, the need to maximize revenue meant that the income-generating departments were given priority over other departments. For example, in county A, hospitals had access to only one source of the fund - reimbursement for maternal deliveries dubbed "Linda mama". As this was their only source of funds, they prioritized the allocation of budgets to the maternity department to raise more revenue. In some cases, this happened at the expense of other health system needs and goals.

"For Linda mama funds, priorities mainly go towards maternal care, their priorities are considered first. If they want a baby and mother package, we must budget for that. They have more power to decide what they want to do within the department. The other departments only benefit if they support maternity" Facility Health Manager County A

4.8 Budget Approval Process

Budgets were reprioritized during approval. As the budget went through the county treasury, the county executive, and the assembly, some health priorities were changed without the knowledge of the county department of health. Respondents noted that the changes further misaligned the budget from the plans. While the county executive made changes to the budget, these changes were not reflected in the developed plans. Second, in county C, the county assembly reduced the resources available to the CDOH in the budget approval process further exacerbating the resource challenges.

"The budget has been changing without us knowing. Whatever goes to the assembly is not what we get back. For a long time, we thought it was the assembly making the changes. But we discussed with the assembly last year and they told us the changes come from the executive" County Health Manager County B

"…And the budget goes to the county treasury then they, I don't know what they do if we budget, they reduce our budget and even the one, which is reduced is nowhere to be seen" County Health Manager County C

4.9 Summary

This study examined the relationship between budget formulation and the efficiency of county health systems in Kenya. A key finding is that the budget formulation process influences both technical and allocative efficiency directly or by influencing the implementation and/or evaluation of the budget. A well-formulated budget is therefore important in ensuring a well-implemented and evaluated budget which will in turn reduce inefficiencies. By enhancing the budget formulation process, the health system will get more health from the available resources. This study has highlighted six aspects of the budget formulation process that ought to be strengthened to enhance efficiency; budget ceilings, budget structure, participatory budget formulation, pooling of health funds, priority-setting processes, and the budget approval process. In the next chapter, I present the findings of the second thesis objective, on the influence of budget execution on county health system efficiency.

Chapter Five: Results (Part Two): How the Execution of Health Budgets Influences the Efficiency of County Health Systems

5.1 Introduction

In this Chapter I first present the budget execution process within county health systems in Kenya then I present the following five dimensions of the study's conceptual framework (Figure 9): 1) Budget credibility 2) Cash disbursement process 3) Procurement process 4) Provider autonomy and 5) Financial Management Information System. Summary findings per county are outlined in table 5.1.

Table 5.1: Summary of findings on budget execution processes per case study county

Issue	County A	County B	County C	County D
Honoring budget releases (from the national treasury)	Fully honored	Fully honored	Fully honored	Fully honored
The budget implemented as per plans developed	Executed as per plans	Not executed as planned	Not executed as planned	Not executed as planned
Timely payment for goods and services	Timely	Delayed	Delayed	Delayed
Competitive bidding for tenders	Competitive	Not competitive	Not competitive	Not competitive
The procurement process delivers goods and services timely	Timely	Delayed	Delayed	Delayed
CDOH gets value for money from procured goods and services	Value for money	No value for money	No value for money	No value for money
Frontline workers involved in procurement	Partially involved	Not involved	Partially involved	Not involved
Provider financial autonomy over own source revenue	Partial autonomy	Partial autonomy (until October 2020)	No autonomy	No autonomy
Access to IFMIS granted to the CDOH	Departmental access	Departmental access	Departmental access	No departmental access

5.2 Budget Execution Process

There was no standard approach to executing health budgets within county health systems in Kenya. The county government received revenue from multiple sources and used the revenue through multiple channels (Figure 5.1). There were five revenue sources; equitable share allocation by the national government, on-budget donor conditional grants from the Danish Development Aid Agency (DANIDA) and the World Bank's Transforming Health Systems project (THS), government conditional grants (User fee forgone and tertiary hospitals (Level 5) grants), own source revenue (user fees collected and insurance reimbursements) and off-budget partner support. Expenditure of the collected revenue also took place at multiple levels including county treasury (the county revenue fund - CRF and special purpose account - SPA), county health management team (CHMT), health facilities and at partner level by off budget partners.

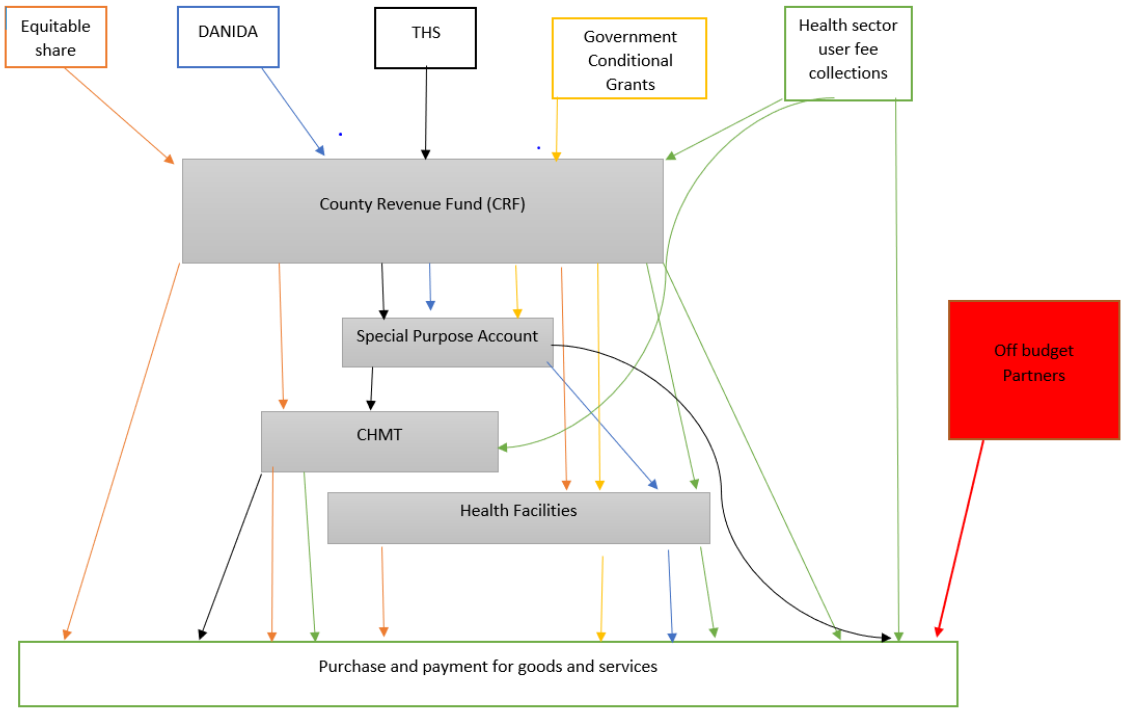

Figure 5.1: Budget execution process within counties in Kenya

5.3 Budget Credibility

Budget credibility influenced county health system efficiency through 1) the timely realization of expected revenue for budget execution, and 2) the implementation of the budget as per plans developed during formulation.

Despite counties receiving their full equitable share, they did not always disburse budgets allocated to county departments of health. CDOH respondents linked the failure to honor approved budgets to 1) county failure to realize revenue targets from some sources (Table 5.2) 2) limited transparency in the budget execution process 3) minimal departmental control over resources and 4) failure to meet conditions attached to conditional grants:

"we don't get money as a chunk from the national treasury it trickles in periodically. It is then the department of finance that decides how much to give to health from that disbursement. So budgeting is one thing, but executing that budget in the context of the counties is very difficult" County Health Manager County B.

Table 5.2: Actual County budget receipts as a percentage of Budget Allocation

Source of fund	Percentage released							
	County A		County B		County C		County D	
	2017/18	2018/19	2017/18	2018/19	2017/18	2018/19	2017/18	2018/19
Equitable share	100%	99.83%	100%	100%	100%	100%	100%	100%
Own Source revenue	84.39%	76.57%	61.51%	149%	90.12%	58%	145.70%	106%
THS	31.20%	47.30%	31.30%	40.90%	111%	48.10%	45.50%	51.10%
DANIDA Grant	47.00%	143.10%	64.50%	100%	100%	100%	100%	100%
User fee forgone grant	106.40%	100%	94.90%	100%	51%	100%	50.20%	100%

Source: County Governments Annual Budget Implementation Review Reports (2017/18, 2018/19)

Failure to receive disbursements of expected revenue influenced efficiency in various ways. First, CDoHs had to forfeit key budget items. This compromised the health system input mix and compromised the capacity of facilities to provide health services.

"We included the repair of our faulty solar system in the budget. However, it was not funded. During blackouts, we are forced to conduct maternal deliveries in darkness. The mothers leave the hospital with a negative perception. They discourage other mothers from coming to the hospital. We put a lot of effort in mobilizing mothers to deliver at the hospital but they don't come because we have challenges" Facility Manager County D

Second, failure to realize expected revenue resulted in late payment and nonpayment of bills from private suppliers of health commodities (Table 5.3). This led to private suppliers subsequently refusing to supply health commodities to the counties.

"Our Local Service Orders (LSO) are never honoured because disbursements were not honoured. Yet the goods/services were delivered. This results in debts. Because of this, some of our suppliers decline to furnish our orders." Facility health Manager County B

Table 5.3: Summary of Total County Pending Bills (KES Millions)

	2017/2018			2018/2019		
	Development	**Recurrent**	**Total**	**Development**	**Recurrent**	**Total**
County A	84.15	235.2	319.35	51.73	229.8	281.53
County B	313.3	468.28	781.58	421.71	317.51	739.22
County C	666.21	80.27	746.48	949.74	89.7	1039.44
County D	853.44	95.59	949.03	891.6	490.51	1382.11
National Total	28055.38	80356.05	108411.43	11626.34	22911.73	34538.07
National Average	596.92	1709.70	2306.63	247.37	487.48	734.85

Source: Controller of Budget

Third, it compromised the ability of the CDOH management to hold health facility managers accountable for performance. When disbursements to health facilities were not honored, the CDOH supervisors lacked the legitimacy to supervise to ensure the delivery of services.

"Supervision is very weak in health. The CHMT is embarrassed to visit health facilities to supervise what they've not funded. Besides i*f someone came here to supervise me, I would be very reluctant, and I believe any MOH (Medical Officer of Health) would be very reluctant to be supervised on what has not been funded despite budgeting and approval" Facility Health Manager County C*

The budget was not implemented as per the plans developed during budget formulation

In three of the four study counties, the utilization of funds deviated from the formulated budgets and plans. The CDOH respondents noted that the COB approved expenditures based on requests that were directly linked to approved budgets. However, once these funds were availed, they were used at the discretion of the county treasury.

Respondents noted that budget execution that deviated from existing budgets and plans without a clear need for reallocation influenced efficiency in several ways. First, expenditure deviated from the county's needs, compromising the achievement of health system targets.

"One can easily come up with a plan which is neither in the budget nor in the AWP. Our plans are made to achieve targeted indicators. So, if you conduct an activity that is outside your plan, you may not be working towards the intended goal" County Health Manager County D

Second, unapproved deviation from existing plans and budgets limited accountability. Departments spending the money were unable to track expenditures and verify service delivery.

5.4 Cash Disbursement Processes

CDOH and treasury respondents in county A noted that their cash disbursement processes were well organized and timely, and respondents from the other three study counties noted that their processes were bureaucratic and late. The challenges with cash disbursement processes influenced efficiency by influencing 1) the timeliness of payment and 2) how payments were prioritized.

In three of the four counties (B, C, D), cash disbursements were late. Lateness in the disbursement of finances hindered efficiency in several ways. First, it compromised service delivery and hence potentially negatively affected health outcomes.

"Our performance depends on the flow of funds. As the CEC I have a performance contract that should be executed within specified timelines... But the flow of funds has been the greatest challenge. Because if funds don't flow, you may plan but you can't implement" County Health Manager County B

Second, some disbursements came too late in the financial year influencing the ability to honor commitments for already incurred expenses (Table 5.4), absorption for un-incurred expenses (Table 5.5) and ultimately resulting in pending bills (Table 5.3).

Table 5.4: County Department of Health Total Outstanding Commitments at the End of FY 18/19

Details	**County A**	**County B**	**County C**	**County D**
Recurrent outstanding commitments	15,627,958.00	11,920,166.00	0	4,888,500.00
Development outstanding commitments	37,629,926.00	998,130.00	161,442,285.00	519,535.00
Total outstanding commitments	53,257,884.00	12,918,296.00	161,442,285.00	5,408,035.00
Outstanding commitments as a percentage of total commitments	2.7%	2.4%	6.5%	0.6%

Source: Office of the Controller of Budget

Table 5.5: County Health Budget Absorption FY 2018/2019

Details	**County A**	**County B**	**County C**	**County D**
Budget absorption recurrent	97%	98%	101%	63%
Budget absorption development	34%	86%	77%	104%
Total Budget absorption	89%	98%	97%	68%

Source: Office of the Controller of Budget

"The unutilized funds will be the opening balance for the next financial year. So your budget for the next financial year will be financed less the unutilized balance available in the account" Facility Health Manager County D

Third, it resulted in delays in the payment of staff salaries which resulted in staff demotivation that, among others manifested in absenteeism.

"Salaries are delayed by over a month. How should health workers continue working when they have not been paid? How should they cater to their daily needs? Once I asked a sonographer why he didn't report to work. He told me if he left the house for work, his landlord would lock him out for failure to pay rent" Facility Manager County C

"Salary delays have forced health workers to look for alternative sources of income. These are maintained as a cushion once salaries are paid. But they have a negative impact on the health system. The health workers' priorities shift resulting in absenteeism thereby lowering performance. " County Health Manager County B

In all four counties, there were unclear mechanisms for priority setting during cash disbursement. It was at the discretion of treasury accountants to decide who to pay first. This had several implications for efficiency. First, the payments reflected neither the health managers' nor the patients' needs. At the health facility level, the health facility managers felt demotivated. They reported that they often worked hard to raise revenue just for the money to be used in unclear ways.

"At both the department and county level, accountants have the ultimate say. As a director, I do not know the requisitions my accounting officer has sent to the treasury for payment. The accounting officer is not a medic. My priorities are not their priorities. So you end up with a very distorted payment schedule that does not address the patient needs" County health Manager County D

Second, it introduced corruption in the payment process as suppliers were forced to lobby for payment. This reduced competitive bidding as only suppliers who were able to lobby worked with the county.

"There are several complaints about payments of the suppliers within the CDOH. If the challenges are experienced frequently, then pending bills accumulate. This forces people to prioritize which in turn results in lobbying. Those who can lobby are given first preference but other small suppliers don't have the muscles to lobby" County Finance Officer County B

5.5 Procurement and Supply Chain

The respondents noted that the procurement process influenced the efficiency of health systems through various ways 1) tender management and competitive bidding 2) stakeholder involvement 3) Value for money 4) Timeliness of the process 5) supervision of suppliers 6) Quality of goods and services and 7) Accountability mechanisms and 8) Use of KEMSA as a single supplier.

Respondents in three of the four counties noted that tenders were not competitively awarded. For example, in counties B and D, contracts were awarded based on political patronage. In county C, contracts were awarded to companies that could pay kickbacks. This had several implications for efficiency. One, contracts were awarded to companies that were not qualified. This resulted in the delivery of substandard goods and services including buildings that would be uninhabitable less than 5 years after their completion.

"In my opinion, county contracts are not awarded competitively but rather, on political terms. As a result, most of the goods and services delivered are substandard. They build structures without toilets or running water. How can a theatre operate without running water?" Facility Health manager County D

Second, it was felt that failure to award tenders competitively exacerbated the problem of misplaced priorities during payment. Interview respondents reported that people who had links to government officials were more likely to be paid first. This resulted in a situation where neither the county nor the health workers were interested in patient needs and experiences.

"Some of the suppliers are relatives to the politicians so if you are a relative or friend you'll be paid. But the others are not paid. Whether the supplier's supply or not, we don't get involved. When they fail to supply food, patients either buy or their relatives bring food from home. Nobody cares." Sub County Health Manager County B

Third, it reduced accountability over services and goods procured. Because the suppliers had connections, it was impossible for the health workers to condemn substandard goods or to raise issues over the quality of the goods or services. The health workers faced sanctions when they raised questions about suppliers. Besides, suppliers were still paid even after supplying substandard goods and services.

"According to the public procurement act, procurement should be competitive. However, the top management interferes with the process. It might look competitive on paper because they don't want to be in problems, but it is not. If it was competitive and the contractor offers substandard services, then the county will not pay, but if they are offering substandard services and they are still paid it means there is an influence" Sub County Health Manager County B

Respondents noted that procurement processes were bureaucratic, lengthy, and characterized by delays. The lengthy bureaucratic process influenced efficiency in several ways. First, it resulted in delayed delivery of services. For example, in county C it was reported that the lengthy procurement process delayed services even when the resources were available.

"Delivery takes too long. This has affected service delivery. Currently, at the county referral hospital, patients are buying everything, including gloves, needles for anesthesia, betadine for cleaning the operation site before an emergency CS, sutures for stitching after surgery, and everything. If the patents do not have money, then we don't do the procedure" Facility Health Manager County C

Second, because of the long procurement process, then suppliers overpriced goods and services because they anticipated that the procurement process will consume more time and resources.

"Goods and services are overpriced because of the expected delay in payment. I may order in July then they're delivered in December. Suppliers adjust for inflation and the bureaucracies of getting a tender thereby increasing the cost. " County Health manager County C

Thirdly, health workers in emergencies and small health facilities were forced to contravene the procurement laws; because the process would increase the cost and timeliness of acquisition they opted for direct procurement. This direct procurement created loopholes for misappropriation of funds especially when left unmonitored.

"We procure small quantities so we avoid the policy of procurement protocols. What we have is little, taking it through procurement would not make sense. We do not do tendering and vetting; we just buy locally." Facility Health Manager County C

The procurement process did not result in value for money. Value for money was compromised in two ways. First, in some instances, the counties paid for poor quality or undelivered goods. Health workers were forced to work with poor quality products which still incurred the market price for high-quality goods:

"We have specifications that have to be met. Previously, I almost lost my job because I rejected reagents worth millions of shillings. The reagents did not meet our specifications neither did the supplier maintain the cold chain during transportation as required. I was condemned but I stood my ground. The supplier returned the goods. They were to replace but I don't know whether or not it was replaced but the supply was paid" County Health Manager County C

Second, the government paid more than the market price for commodities.

"It doesn't give value for money because sometimes the quotation made for renovating a building is worth another building ." Sub County Health Manager County C

"Whatever budget we have is less than what it should be. We can have a billion shillings but in terms of worth it is five hundred million. You end up doing very few things at a very high price. The budget and outcomes do not correlate" County health Manager County B

In two of the four counties, frontline users of goods and services were either not involved, or inadequately involved in the procurement. While the procurement process requires that frontline staff are involved in key steps of the procurement process, this did not always happen. Failure to involve the users in the procurement process led to the procurement of items that did not meet the user's expectations.

"Neither the CDOH nor the health facility managers are consulted before commencing construction. We come in during the inspection. Health facility managers find buildings coming up, when they question, they are told to mind their business. The building will be completed and then condemned at inspection." County Health Manager County B

Counties were required to procure from the Kenya Medical Supplies Agency (KEMSA) as their first source of medicines and medical products. KEMSA is the country's central public procurement and supplies agency for healthcare commodities. The requirement for counties to exclusively procure from KEMSA had both positive and negative implications for efficiency. Unlike private suppliers, KEMSA sustained supplies during cash disbursement delays. This enabled continuity of service provision thereby enhancing efficiency.

"we delayed paying KEMSA because of the delay in the disbursement of funds from the national treasury. The CEC persuaded KEMSA to supply us and they agreed despite us owing them 19 million." County Finance Manager County B

Second, KEMSA also offered cheaper prices than some of the local suppliers thereby providing value for money.

"KEMSA provides value for money because they supply at the quoted price. The prices and quantities are clearly outlined. When you procure from other traders you may not realise value for money, their pricing is a bit crazy. The cost per unit pack is higher." Facility health manager county D

However, KEMSA compromised efficiency when they were unable to supply all the required medicines and supplies leading to interruptions in health service delivery.

"KEMSA doesn't stock lab reagents. They cannot fully furnish our requests. They only provide grouping reagents, stool containers, and urine containers. Yet we cannot work without reagents." County Health Manager County B

5.6 Provider Autonomy

Health facilities in all four counties had either partial autonomy or no autonomy over their own source revenue. PFM rules required that all revenues generated are sent to the county revenue fund (CRF) rather than retained in health facility accounts. While both the respondents and the document review indicated that there were existing legal provisions for health facilities to retain their revenue, most counties were unwilling to explore this.

"All revenue generated by the CDoH goes back to the county. For a long time, finance was quoting the PFM act insisting that they require a law for CdoH to use its revenue at source. We finally

obliged and created the law that was passed by the assembly. But, it has not been operationalized to date" County Health Manager County B

"Patients are dissatisfied with our services because we do not have funds at the facility. Ideally, the money should go to the CRF, but it should be sent back to the health facilities in less than fifteen days but that has not happened since October." County Health Manager County B

Lack of financial autonomy, whether partial or complete had several implications on efficiency. First, health facilities had constrained access to resources. As a result, the health system was unable to adequately deliver health services.

"The County government used to purchase supplies for lab and radiology. But they no longer purchase. We buy all these supplies. They consume a lot of our money. We charge patients for laboratory and radiology services. The county collects all the money. Then we are left without resources to replenish supplies" Facility Health Manager County A

Second, the process for health facilities to access funds within the CRF was long and bureaucratic resulting in delays in the provision of health services.

"In case of an emergency, you might lose a patient because you lack essential commodities. And this happens frequently. That is the downfall of a health system that is not properly financed" Sub County Health Manager County B

Third, limited autonomy compromised the link between financial and performance accountability. Health facilities were unable to effectively evaluate their performance as they were unaware of the full extent of their expenditure.

"You see there is what the county spends on the facility and then there is what I spend. My expenditure comes from NHIF reimbursement. This I can evaluate what worked and what didn't work, and improve on subsequent expenditures. But it's hard to evaluate what the county probably spent on us." Facility Health Manager County A

In three of the four counties, the health department's control over the procurement process was limited. Power over what should be procured, and when, was with the county treasury. This compromised efficiency by limiting service delivery and misaligning procured commodities with needs at the health facility level.

"Finance issued a tender to purchase an anesthetic machine. The supplier was unable to get the specifications requested in the tender. He came to consult us, only to realize, the user, the anesthetist wasn't consulted on the specifications. Going forward, we want the users to decide what is to be bought. This decision should not be left to anyone who has access to the money " County Health Manager County B

5.7 Financial Management System

County governments used the Integrated financial management system (IFMIS) to process all government payments. The use of this system was rolled out in 2018 to enhance the accountability of funds. This system has had several effects on the efficiency of the county health system. Respondents noted that IFMIS has traceability and hence improved financial accountability. Respondents also felt that IFMIS also improved efficiency by digitizing PFM processes. However, this was limited by the requirement that counties provide printed documents to the national government for approval.

Access to the IFMIS was limited to a few people, and even amongst the few people, there were varying levels of access. As a result, it has limited access to information thereby exposing health funds to misuse and limiting the departments' autonomy over their resources.

"the chief officer of finance has more powers in the system, he can reallocate budgets between departments. There are instances when we request to execute part of our budget, but the request is declined because the allocation is exhausted. Yet the CDOH did not spend the resources. My chief officer cannot claim with certainty that we have resources on a certain vote. IFMIS payment powers should be devolved to the departmental level." County Health Manager County B

5.8 Summary

In conclusion, all five aspects of budget execution influence health system efficiency directly or by influencing the budget formulation evaluation processes. While a well-formulated budget is a good starting point for efficiency within the health system, the budget should be well-implemented to realize the desired outputs and outcomes. In the next chapter, I present the findings of the third thesis objective, on the influence of budget monitoring on county health system efficiency.

Chapter Six: Results (Part Three): How Budget Monitoring and Accountability Processes Influence the Efficiency Of County Health Systems

6.1 Introduction

This chapter begins by explaining the existent budget monitoring and accountability mechanisms within health systems in Kenya. Then it discusses the following four aspects of budget monitoring and accountability that were found to influence efficiency: accountability actors, accountability domains, accountability mechanisms, and reward systems.

6.2 Budget monitoring and accountability mechanisms in Kenya

The study noted two pathways of accountability existent in Kenyan budget systems public/external accountability, and internal accountability. Public accountability entails government officers' answerability to the citizens. The legislation of Kenya places ultimate sovereignty on the people of Kenya(Constitution of Kenya, 2010). In addition, the government has other internal mechanisms to ensure accountability. Internal accountability for resources allocated to the counties happens at both the national and county levels. At the county level, both executive and legislative actors provide monitoring over government budgets (Table 16). At the national level, the national treasury, the controller of the budget, and the auditor general are key players who are involved in the monitoring and evaluation of county budgets (Table 6.1).

Table 6.1: Budget monitoring and accountability actors within counties in Kenya

Actor	Role
External Actors	
Public	Social accountability All officers responsible for managing public funds are accountable to the public
Internal County Level Actors	
The County Treasury	Primary custodian of county resources. They ensure all county resources are used to promote efficiency
The Governor	The governor holds the CEC Finance Accountable The governor issues the authority to withdraw county funds
County Executive Committee	They are the executive control within the county
The County Executive Committee Member Finance	They oversee the financial administration of county finance They head the county treasury
County Chief Officers	Chief officers are the Accounting officers of ministries who oversee departmental financial aspects
The County Assembly	The county assembly provides oversight over the county executive committee and the county treasury
County Assembly Budget and Finance Committee	Monitors all budget matters within counties
Internal National Level Actors	
The National Treasury	The chief custodian of Kenya's financial resources
Office of the controller of budget	Provide oversight over the implementation of the budget Submits statutory reports to parliament on budget implementation
Office of the auditor general	Reviews the financial and operational performance of the county

Adopted from the county budget operational manual, the public financial management act, and the constitution of Kenya

The accountability actors listed above were accountable for both the funds available to them and the performance that resulted from the use of the funds. Financial accountability entails tracking and reporting on how public funds are used using accounting tools. In Kenya, this is achieved through financial reports and overseen by the Ministry of Finance, Office of the Controller of Budget (OCOB), and the auditor general. Performance accountability entails reviewing the attainment of targeted goals. Performance outputs are overseen by the ministry of health and monitored through performance reviews.

Kenya uses several mechanisms to ensure the public health system is held accountable. These mechanisms include financial audits, financial and performance reports, the requirement for public

participation, the requirement for budget transparency, and supervision. Table 6.2 below summarizes what each of the accountability mechanisms entails.

Table 6.2: Budget monitoring and accountability mechanisms

Mechanism	Description
Audits	Conducted by the office of the auditor general. The constitution requires that audit reports are availed within 6 months after the completion of every financial year
Budget Implementation Review Reports	Quarterly budget implementation review reports are made by the county treasury and sent to the controller of budget who then consolidates and publishes the report for public consumption
Supervision	One-on-one facility supervisions are conducted monthly by the county and sub-county health management teams
Annual Performance Review Reports	Done between August and September following the completion of the FY. It entails a detailed review of outputs achieved and it informs the next budget allocation.
Quarterly Public Expenditure Review Reports	Done quarterly, spearheaded by the department of health. Reviews both the use of financial resources and performance.
Budget transparency mechanisms	The constitution requires transparency and openness in all budget processes. Most counties publicize their budgets on their websites. These are also publicized by the controller of budget
Participatory budgeting	The constitution of Kenya requires public participation in budgetary decisions. This is achieved through the county budget and economic forum (CBEF) and public barazas At the CDOH level, this is achieved through County Health Stakeholders Fora and Health Sector Working Group
Budget controls	Budget controls are applied at all levels of budget execution from the facility level to the national level

There are several sanctions attached to various aspects of the budget monitoring and accountability process. These sanctions mainly centered around the judicial process, which may require a jail term or may impose fines for noncompliance.

6.3 Accountability actors and pathways

The respondents noted two pathways for health system financial accountability: accountability to the government ("bureaucratic/internal accountability") and accountability to the public ("external accountability"). Both of which had an impact on efficiency.

6.3.1 Internal Accountability

The personal interests of actors in the internal accountability process conflicted with the health system's goals of efficiency. The respondents felt that actors tasked with budget monitoring and accountability used their power to front personal goals. This they said compromised health system efficiency. For example, in counties B and C, the county assembly was termed "acidic" for using their oversight power to domineer rather than for system improvement. Also, in county C, the county health management team was faulted for using their supervisory power to settle scores rather than improve the health system.

"There's the oversight role of the county assembly if it is done properly. However, my experience with this assembly is that it's not being done properly. Sometimes I think it's even done for the wrong reasons. Looking at some of the questions they ask you might say it's more political than a way of system improvement." County Facility Manager, County C

Internal actors' conflicting roles within the budget process compromised efficiency. First, the members of the county assembly (MCAs) who were tasked with the role of providing oversight were also involved in budget execution. The MCAs received an allocation from the executive, the ward development fund which they budgeted and executed. Because of their role in budget execution, they either had "skeletons in their closets" or were keen on "getting more funds in their kitty". Consequently, their legitimacy to hold the executive accountable was severely compromised leading to inefficiency.

"you have MCAs constantly trying to agree with the executive that favors the ward development funds and lets off the executive easily on misappropriations. So, you hear a lot of gentlemen's agreements in the counties. MCAs are trying to get more money into the ward development funds. The governor is trying to get MCAs off their backs….So, the net effect is then you have this very weak legislative oversight across the board." National Level Development Partner.

Second, actors assigned the role of ensuring monitoring and accountability mechanisms were

enforced were those to be monitored. Because of this, they limited the data required for budget transparency and public participation. The county treasuries who oversaw public participation were also the key implementors of the budget. Hence, they did not welcome scrutiny.

"Again, the people who are tasked to ensure there's budget openness, would rather not have it done. So the accounting officers are the ones, for example, to organize public participation in the budget, and they are key beneficiaries of the lack of budget accountability. So it becomes difficult for them to do it" National Level Development Partner.

The proximity of internal actors to the health system enhanced efficiency. County assemblies were said to call out the health system for mis performance thereby enhancing efficiency. Besides, the presence of oversight power close to the health system meant that challenges were quickly and effectively addressed. For example, some county assemblies helped to lobby for increased resource allocation to the health sector thereby promoting sufficient budget allocation for specific health agendas. The other papers from this study document the importance of sufficient budget allocation for efficiency(Musiega et al., 2022c).

"The oversight role of the assembly has a two-prong effect. Sometimes the objectives of the county assembly could clash with the health system objectives. But there are times that county assemblies have called out the health sector when they are doing certain things in the wrong way. There are times the county assemblies have pushed for the change of CEC members for health, because of certain omissions that were being done in the health sector. There are times that the county assembly members have been able to advocate for increased resources for the health sector for specific priorities." National-level development partner.

6.3.2 Social/external accountability

The respondents noted that public participation was not effective in holding government officers accountable for public resources. The respondents linked the failure in public participation to 1) limited public knowledge and skills to criticise the budget and 2) limited budget transparency.

"The constitution has provided for budget public participation but then, it has not achieved its objectives of making sure that the public holds, the budget holders accountable. It has not succeeded. As a result, we've invested in devolution, but our return on investment is very low. We spend so much money on a small improvement in service delivery. I don't know if there are studies that show, for example, how much money we use to immunize one child, but we are inefficient. We are using more than we should immunize a child given these leakages along the budget process." National Level Development Partner

The public lacked the knowledge and skills to effectively identify and address sources of inefficiencies. The respondents felt that the public was unable to conduct a proper root-cause analysis of health system challenges. As a result, the public often blamed the wrong people for health system failures, hence health system challenges remained unresolved. For example, in County B, health workers were blamed for stealing medicine that was not supplied. Similarly, in county D, the health system was blamed for poor patient outcomes that resulted from the misappropriation of resources at a higher level.

"One of the biggest weaknesses with the public is if a patient complicates right now; they will be on social media asking the director of health to account for the condition of the patient. However, they are ignorant of the fact that somebody who mismanaged funds today is likely to cause a death of a patient one year from now. They don't look at it that way." County Health Manager County D.

"So I think what is needed is more budget literacy among frontline workers and the public. We need more people to understand the budget so that they demand accountability. Yeah, that is the only way we will improve performance. Everyone will know that they are being watched. People will know that this budget has been released, and this is the evidence for its release" National Level Development Partner.

The public lacked access to budget data. When those in government failed to provide sufficient information to the public to allow for critique, then social accountability was compromised which in turn compromised efficiency. The constitution of Kenya requires budget transparency to

enhance accountability. However, in all four counties, neither the public nor the facility managers in lower-level facilities had full information on the health budget or expenditure. It was therefore difficult to hold the county accountable for resources and outcomes.

It's a challenge. When we request budget implementation reports, you'll be asked, what use do you have for them? This is a very strange question from a government that is required by law to publish and publicize such reports. So there are gaps in the level of accountability that government officials have. And in some scenarios, it leads to this very opaque approach to which governments do their things. County XXX is a good example their website is full of photos of the governor launching things. But since we started doing our budget transparency survey in 2015, XXX has been one of the opaquest county governments when it comes to their budget documents. National Level Development Partner.

"You know controls are made by human beings. So I would say the systems we have in the county, are not perfect. For example, you might find that the facility is not getting the recurrent budget. And probably the department is getting it, but it's not trickling down. Mhm. So why is it not trickling down? Where is the problem? Who is sitting on that money? And why are there no follow-ups so that that money gets to where it's supposed to be? So those are the challenges. "Facility Health Manager, County C.

6.4 Accountability Domains

Participants noted that **parallel financial and performance accountability processes limited efficiency** by; compromising the identification of inefficiencies, limiting the use of data for decision-making, and limiting the answerability and responsibility of actors**.** Financial accountability within the department was spearheaded by the Chief Officer of Health while performance accountability was spearheaded by the Director of Health. Consequently, it was difficult to link resources allocated to indicators achieved. The health system failed to learn from past mistakes/achievements to improve performance.

"No, he is only responsible for accounts. For indicators, he will only inquire if the funds were used as per the donor's specifications. The sub-county teams, on the other hand, are the ones who deal

with the indicators. So, if they come for supervision. They will ask what's not happening. what are you doing, they look at the registers. But they never audit funds" Facility Manager County D.

Respondents also noted that parallel accountability systems compounded by limited provider autonomy(Musiega et al., 2022b) limited actors' responsibility over their (in)actions. In counties B and C, health workers declined to take full responsibility for performance because they lacked financial autonomy. In addition, in all four counties, mis performance was blamed on other entities.

"shortage of commodities is almost always a daily occurrence. Even right now as we speak, some commodities are out of stock. Patients expect us to provide medicine, but they don't get those commodities. We try to explain to them that at times their expectations are beyond our facility because we are not procurement. The hospital is not a procuring entity. If somebody else hasn't procured or there is delayed funding or something we might not help as such."

6.5 Accountability Mechanisms

The study found five budget monitoring and accountability mechanisms that influence efficiency: 1) Annual Performance Reviews (APR) 2) Quarterly budget reviews 3) Participatory budgeting 4) Annual financial audit processes.

6.5.1 Annual Performance Reviews (APR)

The respondents noted that APRs were either late, not done, or partially done. The APR process is mainly spearheaded by the ministry of health at the national level and the director of health at the county level. These actors have limited jurisdiction over financial resources. As a result, the process was either not done or partially done to include the performance data leaving out the financial data. Yet, this was the main process that reviewed targets achieved against set goals and availed resources. This process was to inform the subsequent year's resource allocations. Because of the failures in the APR processes, inefficiencies were carried forward to subsequent years.

"If you do the annual performance review properly, it will help you to improve the implementation of the next budget. For example, now we are in the financial year 2021/2022. If by the end of

August or by mid-September, you have already conducted the APR for last year, you would already be able to see inefficiencies that you should not carry over, to this current year. But because of not doing, proper evaluations at different stages or doing them late in the day, then you carry on inefficiencies" National Level Development Partner.

The health system lacked the power to implement APR recommendations. The respondents termed this a consequence of limited budget transparency and limited CDOH autonomy over their resources as identified in the budget execution paper. Hence, the health system missed out on key lessons from previous quarters or years that would have improved its performance.

"When we do it (APR) as health only, it's very difficult for us to understand what happened to the budget. Often, we do not have answers. We just know there was no money, why was there no money? we do not know. If finance was participating and we say we were able to realize sixty percent of the budget then we can discuss the forty percent. We can narrow down to the root cause – whether the problem was the department, the chief officers, or finance, that way we can improve subsequent budgets. But, the way it is done, we do not monitor the budget" County Health Manager County B.

6.5.2 Budget Expenditure Reviews

While quarterly budget reviews were completed on time, they were done to check a box rather than for system improvement. Quarterly budget reviews were a legal requirement that was enforced with repercussions. If county treasuries failed to submit the quarterly reviews, then they would be denied access to funds for subsequent quarters. The county treasury spearheaded the process, and they published the reports in time. However, the health department and the public could not make sense of the data as the figures were aggregated. The aggregation compromised transparency and accountability thereby limiting valuable feedback for improved service delivery.

"When the county assembly approves the budget, they approve the budget so that the nutrition officer can know I have 25 million for my program. But when the controller of budget publishes reports, they publish aggregated figures. They publish quarterly, and they have deadlines on how to do that and it's available online. So many counties will hide in the aggregation." National Level

Development Partner

6.5.3 Participatory Budgeting

Participatory budget and accountability fora such as the Health Sector Working Group were either partially functional or not functional. Hospital boards and committees at the facility level and the Health Sector Working Group (HSWG) at the county level were supposed to improve efficiency. However, these were not effective. First, in all four counties, both the HSWG and facility committees were either partially functional or not functional at all. As a result, the health system failed to benefit from both the oversight role and support from these entities.

"for example, the health sector working group is one of the structures that is supposed to help link resources with the results. This is because it is comprised of members who are conversant with the health needs of the specific counties. They will then have access to information on available resources and high-priority areas. But you will find that the health sector working groups are not fully effective in all the counties as we would want them to be. And so, because of that, they sometimes lag or come too late in the day to do their monitoring and evaluation." National Level Development partner.

Second, where these entities existed, they lacked the legitimacy to conduct their mandate. As a result, their recommendations were easily ignored. This further compromised oversight which compromised accountability.

"So they are there, but they are not powerful. They have not been given the legitimacy and the power to for their mandate. So they may have provisions but those provisions or those, if they have, if they, they have oversight recommendations, they can as well be ignored with zero consequences. So they're not powerful." National Level Development Partner.

6.5.4 Auditing

The respondents noted that the external audit processes were characterized by 1) corruption, 2) lateness 3) Limited feedback, and 4) perverse application, all of which limited their effectiveness as a system for improved efficiency.

The respondents noted that the external audit process was marred with corruption. Auditors were said to source for bribes rather than effectively audit to improve the health system. Consequently, the audit process led to limited feedback for efficiency and loss of resources from the health sector. For example, in County B, each department was required by the county executive to contribute KES 2 million each towards paying auditors for a credible audit report. Respondents also noted that the counties that failed to pay bribes would be subjected to negative publicity by auditors with claims of misappropriation.

"They(auditors) will tell you, even before they look at your books, do you think we want to go and peruse your dusty books? Do you think that is what brought us here? We need lunch. Use your common sense. We are not going to camp here. That is what they tell you. The person who should have audited you is the one who is asking you to go and withdraw public funds from the bank account "Facility Health Manager County C.

The respondents also noted that on some occasions, the audits came too late to influence subsequent budgets. This further limited the effectiveness of feedback received from auditors and the uptake of the recommendations for improved efficiency.

"There is a program we started implementing in 2017. For all those years they never audited us. Then, they started auditing us in 2021. They backdated the audit to 2017. Now, what would that audit tell? If it was timely, it would help us know our weak and strong areas so that we can improve in the subsequent years but there is no value in sending an auditor to cover three, four years" County Finance Manager County D.

Respondents noted that feedback following audits was either late or not forthcoming at all. Consequently, the health system missed out on key recommendations for improved efficiency. For example, in county B, respondents noted that they were subjected to interrogations, but it ended there, and no feedback was given. They were therefore unable to put in place any improvement measures from the interrogations. On the other hand, in County D, some reports were so late that the people involved had forgotten all about the audit and therefore could not implement the

recommendations.

"We submit reports, we take bank reconciliations, they don't give us reports. It Greatly affects performance, because you know, we are not perfect." Facility Manager County C.

Respondents noted that audits were used as a tool of intimidation rather than a tool for system improvement. The respondents noted that the county health management used auditors to intimidate managers who they deemed difficult to handle. For example, in counties B and C, auditors were sent to intimidate facility managers.

"They will only send auditors because they are targeting you. They want to punish you…Auditors in this county are sent with an ill motive. They are sent mainly to discipline managers, it's not objective at all. There's no objectivity in sending of the auditors" Facility Health Manager County C.

Occasionally, internal audits provided an opportunity to identify health system challenges and to give feedback to managers. This enabled the health system to identify and correct inefficiencies. For example, in county D auditors visited facilities to find out the facility challenges so that they could intervene. In addition, the county noted that through audit reports, they have been able to improve their financial performance over the years.

"We are health workers we are not procurement or finance officers. So often, we commit one, two, or three offenses ...knowingly or unknowingly. For example, the finance person will tell you, that you exceeded your expenditure on item X. But you will tell him this mother needed this. Or I needed this for my facility to keep on running. But we meet at the midpoint and they understand our circumstances." Facility Health Manager County D

"Yes. In fact, for us the county of XXXX ...we have been able to perform better ...in the subsequent financial years. We, started with a disclaimer and, uh, we endeavored to perform better. And at least, over the last years, I can say we have been able to get a favorable audit opinion. That shows,

improvement. Previously, we were performing quite badly. So it has helped us to improve on the gaps" County Finance Manager County D

6.6 The Reward System for Efficiency

The study found the reward system to influence efficiency through 1) the existence and enforcement of rewards and 2) whether the reward system.

The respondents noted that there were limited deterrents for inefficiency or rewards for efficiency. Good performers were unrewarded and sometimes victimized while poor performers would get away with inefficiency. Where sanctions existed, these were rarely implemented. This encouraged the misappropriation of health system resources and non-performance.

"Who will punish them [for inefficiency], and we have the bigger fish there, who are behind it? Who will punish them?" County health Manager County B.

"Definitely, yeah, if I can misuse money this year, next year, and the other year, and there is nothing that comes out of it in terms of accountability or punishment, the person who comes after me, will do the same. Yeah, so definitely, that means inefficiency in terms of converting finances to service delivery." National Level Development Partner.

Respondents also noted that the citizens failed to encourage efficiency by electing leaders who failed to deliver. Service delivery did not always influence the voter's choice of a leader.

"as it stands now, the public also does not connect low performance with bad budget performance. So service delivery does not translate to voting influence. So empowering the public person also may, may, may influence service delivery, because then the governor now is aware that if he underperforms then he may as well not be voted in. But of course, that is a long way coming given the peculiar ways that Kenyans choose their leaders." National Level Development Partner.

It was further noted that in isolated circumstances where sanctions were applied, the offenders found ways to avoid punishment. This limited the effectiveness of the sanctions. For example, in

county C, the county assembly impeached the CEC health for underperformance, however, the CEC used the judicial system to evade the impeachment.

Respondents noted that perversely applied sanctions limited efficiency. This happened when managers rushed to impose sanctions without proper investigations. This demotivated health workers thereby lowering their performance. For example, in county B, facility managers were sanctioned for using facility revenue at source to avert healthcare crises.

"if your boss is not supportive and he is in a hurry to sanction you for trying to solve a situation it does not auger well with the other staff who are also in the same scenario because I know most of the med sups are in the same scenario. They find themselves in a situation whereby there is nothing they can do, services have to continue, and they don't have the finances. So, when they see their colleague being sanctioned for trying to solve health system challenges, there is a tendency for people not willing to take up positions like med sups. Besides, people will fear spending at the source in the name of they will be victimized. But when they don't spend the service is not offered so you are in a fix. You can't help solve a problem because you are fearing, the only alternative that you have, that you can use is going to cost you as an individual a problem" County Health Manager County B.

Respondents noted that sanctions that were not punitive encouraged inefficiency. The offenders did not consider the sanctions harsh enough to discourage bad behavior such as misappropriation of public funds. For example, in counties, B and D health managers were transferred when they misappropriated public resources. The respondents noted that this sanction did not match the gravity of the mistake therefore it was not a deterrent for inefficiency.

"If funds are misappropriated, yes, I would say, but ah the actions I've seen taken so far just transfer from one station to the next. You know, this normally happens, because we don't have what we call performance contracts for public offices in this county. If we had performance contracts, then that feedback system program would be effective in ensuring that those who

perform are rewarded, and those who don't perform are probably demoted or taken somewhere else. Yeah. Yeah" Facility Health Manager County B.

6.7 Summary

This study has identified budget monitoring and execution issues within county health systems in Kenya that have implications for the inputs, outputs, outcomes, and ultimately the efficiency of the health systems. These implications are mediated through impacts on actor practices, evidence-based decision-making, and inefficient and efficient practices. Given the cyclic nature of the budget process, the interactions of the actors and laws in the budget monitoring and accountability processes lead to patterns of behavior that influence subsequent budget formulation and execution practices. Further research is needed on how public participation can be better enhanced for improved health system efficiency. In the next chapter, I provide a discussion of the thesis.

Chapter Seven: Discussion

7.1 Introduction

In this chapter, I discuss the findings of the thesis. The chapter is divided into three; section 1.2 presents a discussion of the findings along the three thesis objectives; 1.2.1 the influence of budget formulation structures and processes on the efficiency of county health systems in Kenya, 1.2.2 the influence of budget execution practices on the efficiency of county health systems in Kenya, 1.2.3 the influence of budget monitoring and accountability practices on the efficiency of county health systems in Kenya. This section ends with section 1.2.4 which brings together all three -the influence of PFM processes on the efficiency of county health systems in Kenya using a complex adaptive systems perspective. Subsequently, section 1.3 lays out policy and research implications, and section 1.4 outlines areas for further research. I conclude with section 1.5 which summarizes the entire chapter

7.2 Summary of Findings

7.2.1 The Influence of Budget Formulation on Health System Efficiency

My first objective was to examine how the budget formulation processes and structure influence the efficiency of county health systems in Kenya. I found several weaknesses across all 6 aspects of the budget formulation process that have potential implications for county health system efficiency. First, I found that in two counties of the study counties, budget ceilings were determined using historical allocations. In addition, ceilings were either late or not forthcoming, insufficient, and not cascaded to lower-level healthcare facilities. These findings resonate with findings from other settings. For instance, it has been reported that budget ceilings in Ghana and the Democratic Republic of Congo (DRC) were not indicative (Abekah-Nkrumah et al., 2009; le Gargasson et al., 2014).

In Thailand's civil servant scheme, ceilings were allocated historically (Patcharanarumol et al., 2018). The historical allocation of budgets undermines health system efficiency by ignoring the evolution of health sector priorities. When ceilings are not provided or provided late, it renders the

budgeting process moot since budgets are not aligned with the reality of resource availability. This disempowers health sector units (county department of health, health facilities) from effectively contributing to the budgeting process with the implication that budgets will not be aligned with actual health sector needs, thus compromising the optimal use of resources. When ceilings are insufficient, they compromise efficiency by constraining health system investments, and hence health system input mix with negative implications for health outcomes. The failure to cascade budget ceilings to peripheral healthcare facilities had the same effect: disempowering these budgeting units from contributing to the budgeting process. Given that peripheral healthcare facilities predominantly provide primary healthcare (PHC), their disempowerment in the budgeting process undermines PHC delivery, against a backdrop where PHC has shown to be cost-effective and hence efficiency enhancing (Anderson et al., 2018).

Second, on budget structure, I found that while on paper counties are supposed to use programme-based budgets, in practice, the budgets are still line-item based. The use of line-item budgets led to budget rigidities which limited the capacity of counties to respond to emergent healthcare needs. Further, we found that budgets were not aligned with plans. This echoes previous findings in Kenya where there was an institutionalized misalignment of the planning and budgeting processes at the national level (Tsofa et al., 2016). Similar findings have also been reported in Lesotho where budgets and plans were misaligned as they happened under different structures (Vian & Bicknell, 2013). The misalignment between budget and plans meant that budgets did not adequately represent health sector priorities, which could compromise allocative efficiency.

Third, the limited involvement of front-line service providers and the community in the development of county health sector budgets and plans led to the misalignment of budgets with population health priorities and limited budget accountability, with implications for both technical and allocative efficiency. This limited involvement of frontline providers and the community has also been documented in previous findings in Kenya where decentralization resulted in limited hospital autonomy (E. Barasa, Manyara, et al., 2017).

Fourth, I found that the persistence of off-budget donor funding compromised health sector planning because CDoHS were unaware of the total available resources in the health sector. This in turn led to duplication of efforts which compromised the technical efficiency of county governments. This finding is like findings in Sierra Leone where there were multiple funding sources with multiple bank accounts limiting transparency (World Health Organisation, 2018). I also found that health sector funding at the county level was fragmented. This is similar to China where there was fragmented financing of the health system by the government at the national and sub-national levels (Brixi et al., 2013; Piatti-Fünfkirchen & Schneider, 2018a). Fragmented funding limited effective planning and budgeting by limiting the pooling of resources and shifting decision-making over resources to entities outside the health sector.

Fifth, I found that the budget formulation processes were dominated by informal priority-setting criteria such as lobbying. This compromised the allocative efficiency of health systems by compromising the optimal allocation of health sector resources (Patcharanarumol et al., 2018; Waithaka et al., 2018).

Lastly, I found that the County Department of Health (CDoH) autonomy was usurped during the budget approval process where the county treasury and county assembly often revised the budgets without reference to the county department of Health. The reprioritization of the budget by the county assembly at the approval stage without reference to the county department of health and its stakeholders disempowered health sector stakeholders. This had the potential of misaligning final budgets with health sector priorities and hence compromising both technical and allocative efficiency (Piatti-Fünfkirchen & Schneider, 2018a).

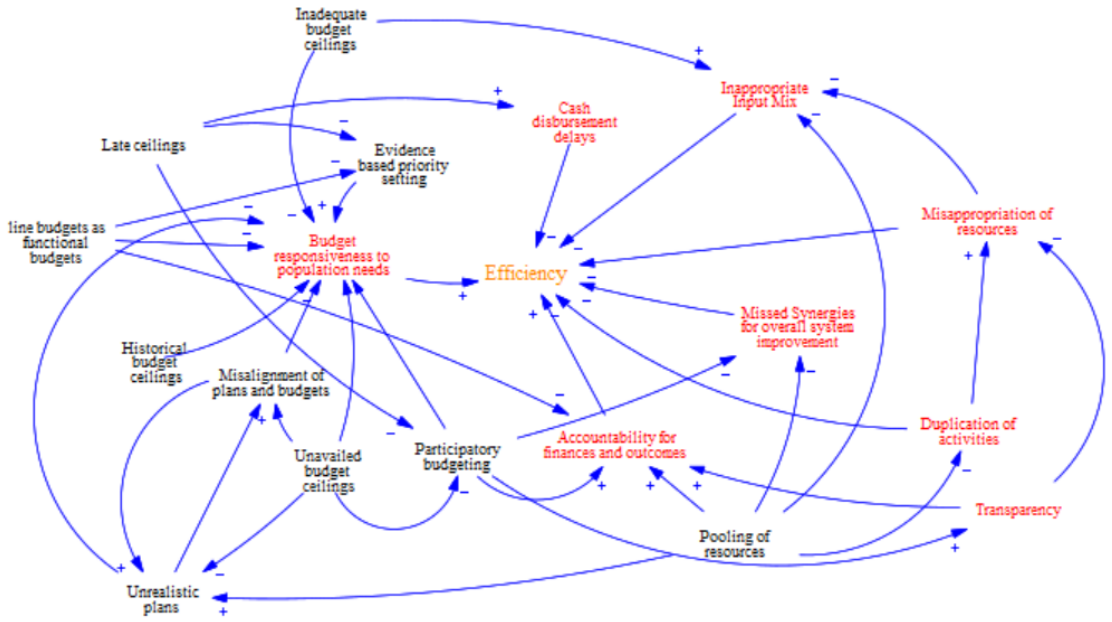

Figure 7.1: How Budget formulation influences efficiency

7.2.2 The Influence of Budget Execution on Health System Efficiency

My second objective entailed examining how the budget execution processes within county health systems influence efficiency. I set out to explore the relationship between budget execution processes and efficiency in two efficient and two inefficient counties. Challenges within the PFM system were generally cross-cutting, with no clear distinction between efficient and inefficient counties. However, one county stood out. County A, one of the efficient counties had more credible budgets, more efficient cash disbursement processes, partial provider autonomy, and more efficient procurement systems. This perhaps provides some evidence that effective PFM processes enhance the efficiency of health systems. However, while county B was ranked as efficient, I found that it shared similar PFM challenges with the inefficient counties. This mixed finding could be because the nature of PFM practices documented is perverse in Kenyan counties, with differences in degrees across countries that are difficult to tease out using a qualitative approach. It could also be because the counties that were ranked as efficient by the quantitative analysis by being on the efficiency frontier are inefficient in absolute terms, even though they are relatively more efficient than the counties that are at a distance from the efficiency frontier. This notwithstanding, the study found that county budget execution challenges could potentially influence the efficiency of the

county health system in several ways.

First, some budget execution practices are likely to compromise the input mix of county health systems with negative impacts on the capacity of county health systems to deliver healthcare services and consequently health outcomes. I found that county health budgets were hardly credible, characterised by the failure of county governments to honour budget allocations to county health departments, and delays in the disbursement of funds. These delays and non-disbursement of funds thus constrained the resources available to county health departments and reduced the county health departments budget absorptive capacity. Delays in procurement also impacted negatively on service delivery. Studies from other settings have documented how the lack of credibility of budgets limits efficiency by disrupting service delivery and impairing managers' ability to implement health system plans (Piatti-Fünfkirchen et al., 2021). It has also been shown by other studies that cash disbursement delays may lead to rushed spending and poor budget absorption when funds are availed at the end of the financial year (Abekah-Nkrumah et al., 2009; Glenngård & Maina, 2007; Piatti-Fünfkirchen et al., 2021).

Delays in funds disbursement and procurement were also because of the limited financial and managerial autonomy of county health departments and health facilities. Other studies in Kenya have demonstrated that limited provider autonomy over managerial and financial roles hinders service delivery (E. Barasa, Manyara, et al., 2017; de Geyndt, 2017). The main reason for the reduced autonomy of county health departments and health facilities is the requirement by the PFM laws for all funds to be managed centrally from the CRF account (Government of the Republic of Kenya, 2012). It has however been observed that it is possible to provide autonomy to county health departments and health facilities under existing PFM laws suggesting the potential that the lack of autonomy is an intentional misinterpretation of PFM laws informed by county leaders' interest to control resources centrally. This study found that autonomy was additionally compromised by several practices including limited access to the financial management information systems. Similar findings were reported in Tanzania where investment in a financial management information system that could be implemented to the lowest planning unit enhanced reporting and accountability thereby enhancing health system efficiency (Piatti-Fünfkirchen &

Schneider, 2018a).

Second, inefficiencies could also arise due to misalignment between county health needs and the use of resources. I found that actual county department of health expenditures deviated from approved budgets. Further, I found that cash disbursements by county treasury accountants used unclear considerations resulting in the prioritization of expenditures on activities that were not aligned with county health department priorities. In Kenya, one study reported the reallocation of health system resources to fund the governor's promises (Waithaka et al., 2018). In the Democratic Republic of Congo (DRC), health funds were used to finance administrative activities in the office of the governor (le Gargasson et al., 2014). Rent-seeking and political patronage of procurement processes also contributed to the misalignment of payments and the county department of health priorities. Misalignment also resulted from the inadequate involvement of frontline health workers in the procurement process for goods and services and the reduced financial and managerial autonomy of county health departments and health facilities.

Third, county health system efficiency could be negatively impacted by reduced staff motivation and productivity. I found that delays in funds disbursements resulted in late payment of staff salaries leading to demotivation. Health facilities managers were also demotivated by the lack of alignment between their stated priorities as articulated in approved budgets and plans and the county treasury accountants revealed priorities by disbursing funds for specific activities. In Yemen and Ghana, cash disbursement delays led to the halting of key activities and delays in salaries that demotivated employees (Asante et al., 2006; Elgazzar, 2011).

Fourth, procurement inefficiencies, which included the procurement of substandard goods and services, and the inflation of procurement prices by supplies of goods and services could negatively impact county health system efficiency. I found that county contracts were sometimes not competitively awarded, and instead influenced by political patronage and bribes, sometimes resulting in substandard goods and services. Also, suppliers of goods and services to counties often inflated procurement prices because of anticipated delays in payments by county

governments. Similar findings are reported Czech republic and South Africa where poor procurement practices resulted in inefficiencies (Global Access Partners, 2016; Munzhedzi, 2016; Transparency International Česká republika, 2016).

Lastly, inefficiencies could arise from compromised county accountability for finances and performance. Staff were not empowered to reject sub-standard goods and services because of the political patronage enjoyed by suppliers. Accountability for performance was also compromised by the reduced financial and managerial autonomy of county departments of health and managers. Further, delays or non-disbursement of funds, and the misalignment of the County Department of Health's plans and actual expenditures meant that county managers had reduced legitimacy to hold staff accountable for performance. In Tanzania and Zambia, reduced managerial autonomy limited their accountability over performance (Piatti-Fünfkirchen & Schneider, 2018b).

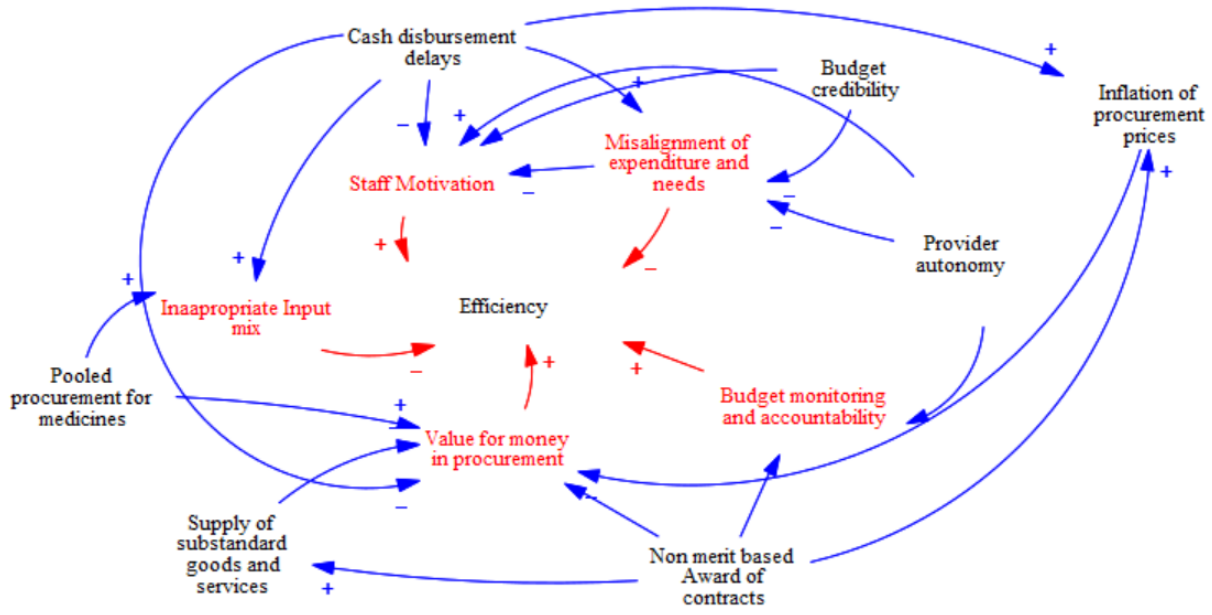

Figure 7.2: How budget execution influences efficiency

7.2.3 The Influence of Budget Monitoring and Accountability on Health System Efficiency

My third objective was to examine how the budget monitoring and accountability processes influence efficiency within county health systems in Kenya. I found that the existing budget

monitoring and accountability processes had several challenges. First, actors involved in monitoring and accountability had conflicts of interest, were corrupt, demotivated, or were not equipped to perform their roles. Second, there were parallel accountability structures for finances and performance. Third, while there were several mechanisms for budget monitoring and accountability, these were either partially implemented or not implemented at all. Finally, there were no incentives for efficiency nor disincentives for inefficiency. The challenges with the budget monitoring and accountability processes influenced efficiency in various ways. These challenges influenced the government culture towards efficiency, demotivated staff, encouraged misappropriation of funds, influenced the use of evidence for decision-making, and also influence influenced budget formulation and implementation practices with implications for efficiency.

Weak monitoring and accountability mechanisms potentially reduce the effectiveness of the budget formulation and implementation processes of the budgeting cycle which influences the efficiency of county health systems. Our previous work has demonstrated aspects of budget formulation that influence health system efficiency including, budget ceilings, the budget structure, participatory budget formulation, the pooling and allocation of resources, and budget approval processes (Musiega et al., 2022d). I also found that the following aspects of budget execution may influence health system efficiency – budget credibility, cash disbursement processes, procurement processes, provider autonomy, and financial management information systems (Musiega et al., 2022a). When these aspects of the budget cycles are inadequately monitored and held accountable, the efficiency of the county health system is likely compromised.

Weak monitoring and accountability mechanisms compounded by sanctions that were not deterrents encouraged the misappropriation of public resources during budget execution. Auditors paid to 'look away' took away resources from the health system leading to the wastage of health system resources. Similar findings were reported in South Africa where failure to impose sanctions for misuse of public funds led to years of non-performance and bad audit reports (Folscher & Kruger, 2013; Rispel et al., 2016). In Kenya, this is compounded by the conflict of interest among actors that are responsible for budget monitoring. When actors were tasked with both implementation and ensuring monitoring and accountability, they were unlikely to deliver on their

role of budget monitoring and accountability. The actors would limit budget transparency thereby frustrating efforts toward public accountability. That notwithstanding, actors would protect their cronies from facing sanctions for misappropriation thereby encouraging inefficiencies. In Thailand, enhanced public accountability, through active social media handles, was shown to improve health system efficiency (Patcharanarumol et al., 2018). In South Africa, because of conflicts of interest, most health workers were protected from sanctions (Folscher & Kruger, 2013).

Budget monitoring and accountability processes influenced the use of evidence-based decision-making. Monitoring and accountability processes failed to provide feedback to enable improved efficiency in the budget in subsequent years. Failure or incomplete monitoring limited the data available for decision-making. Lack of feedback from accountability processes such as audits denied the health system important information to inform budget decisions. Budget decisions that were not evidence-informed influenced health system efficiency by allocating resources with limited consideration for health system needs and priorities (Musiega et al., 2022c). Besides, monitoring and accountability processes and actors created patterns of behavior for (in)efficiency. The budget is a cyclic process, that is dependent on feedback from previous years to inform future choices and decisions. A culture of underperformance or misappropriation creates a pattern of behavior that encourages inefficiency. Similar patterns that led to years of inefficiency were reported in South Africa where inefficient practices were carried forward for 12 years despite audit reports. These patterns of interactions were finally resolved by extensive sanctions across the health system (Folscher & Kruger, 2013).

Budget monitoring and accountability processes influenced the health system culture toward efficiency. Because of the dysfunctional monitoring and accountability mechanisms, there were limited efforts to achieve the health system's goal of efficiency. On the one hand, ineffective annual performance reviews, and budget implementation reviews limited the evaluation of the budget as a means to achieve health outcomes. On the other hand, parallel performance and financial accountability processes limited the linkage of resources with performance. In addition, it created accountability loopholes as it was difficult for health workers to take ownership of their

performance when they had no control over their resources. Similar findings have been reported in Tanzania and South Africa where health workers, who lacked control over resources, refused to be responsible for poor outcomes that were linked to the budget process thereby limiting efficiency (Piatti-Fünfkirchen & Schneider, 2018a; Wishnia & Goudge, 2020). Also in Ghana, parallel structures limited the synergistic efforts required to move toward efficiency(Abekah-Nkrumah et al., 2009).

Besides the challenges, I found some positive practices around monitoring and accountability that enhanced health system efficiency. First, having accountability actors close to the ground meant that health system issues were resolved quickly, and the proposed solutions were more relevant to affected communities. These sentiments have also been shown by a systematic review of 25 countries, where having power "close to the ground" led to flexibility in resource allocation, and more relevant decision-making that was linked to efficiency (Abimbola et al., 2014).

Second, internal audit practices were said to be friendly and provided positive feedback to the health system. Besides, it provided an opportunity where facility managers would directly engage with county managers and share challenges, experiences, and proposed solutions. Punitive audits and financial management systems in South Africa were shown to create compliance out of fear and poor working relationships between finance and clinical teams which can likely compromise performance (Wishnia & Goudge, 2020).

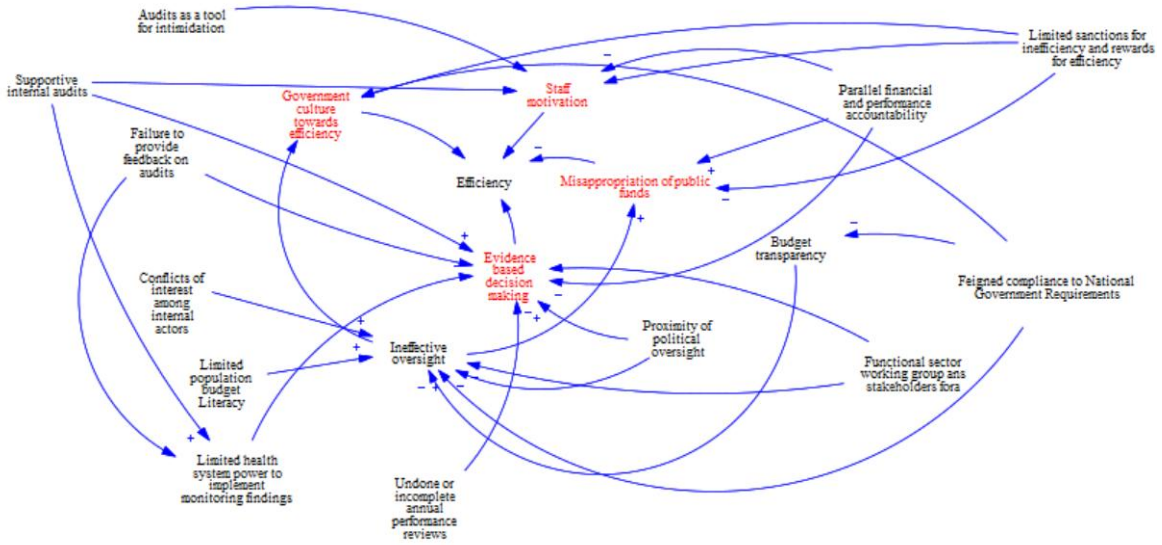

Figure 7.3: How budget monitoring and accountability systems influence health system efficiency

7.2.4 The Influence of PFM Practices on the Efficiency of the County Health System: a Complex Adaptive System Perspective

In this section, I explore how the three phases of the budget process influence county health system efficiency using a complex adaptive systems lens. Figure 13 presents the mechanisms across the budget formulation, execution, and monitoring processes that influence the efficiency of county health systems. These PFM processes all portray characteristics of complex adaptive systems: 1) PFM systems have multiple components 2) The relationship between PFM systems and efficiency is non-linear 3) PFM systems portray emergence and 4) The PFM systems have feedback loops. Figure 13 shows the mechanisms through which PFM influences efficiency in blue and the PFM components in black.

Consistent with CAS, the PFM systems within counties have multiple components cutting across budget formulation, execution, monitoring, and accountability. For example, stakeholder engagement across all levels of the budget process is important in ensuring the PFM process results in the efficient use of health resources. Limited stakeholder involvement across the various PFM processes influences the alignment of plans and needs, it also influences staff motivation and productivity, both of which result in inefficiency. Similarly, while misalignment between health system needs and health system resources is associated with inefficiency, it stems from multiple

factors including; limited stakeholder involvement, informal priority setting practices, deviation of plans from budgets, reprioritization during payment, historical ceilings, off-budget support and rent-seeking in procurement.

Secondly, exemplary of a CAS, the relationship between PFM components and health system efficiency is nonlinear. The specific components interact through multiple channels to influence each other and to influence; the input mix, the alignment of resources to needs, the cost of inputs, and the productivity and motivation of health workers. All of these interact to influence the efficiency of health systems

Third, as is characteristic of CAS, PFM systems within the county health department are emergent. PFM systems demonstrate emergent behavior in various ways: re-budgeting based on available funds, reprioritizing to address the most political needs, and centralizing funds to exercise control. These emergent behaviors result from poor budget credibility, unpredictable flow of resources, and the political nature of PFM, all of which push the health system to develop coping mechanisms. Rebudgeting happens when counties are uncertain of when or how much they will receive funds; they, therefore, opt to abandon initially developed budgets and make budgets that cater to the funds received. Reprioritizing happens to address the most political needs, where counties choose to pay for goods and services that are politically prioritized.

Finally, like CAS, county health systems manifest feedback loops (R1, R2 and R3 in Figure 13). Misalignment of plans and budgets results in an inappropriate input mix, and similarly an inappropriate input mix results in misalignment of needs and resources. On the other hand, inappropriate input mixes also result in increased costs of inputs while increased costs of inputs against a backdrop of limited resources encourage inappropriate input mixes. All in all, the PFM process is an annual process; the budget formulation process influences the budget execution process, and the budget formulation and execution process then influences budget monitoring and accountability. In subsequent years, how the budgets were monitored and accounted for influences how the budgets will be made and executed. The budget process mustn't be looked at in isolation

but rather the influence on the entire process. For example, the introduction of PBBs focused on the development of the budget, while these budgets were developed fairly well, they did not translate into the implementation of budgets as programs nor their monitoring and accountability as programs. These rendered the PBBs moot.

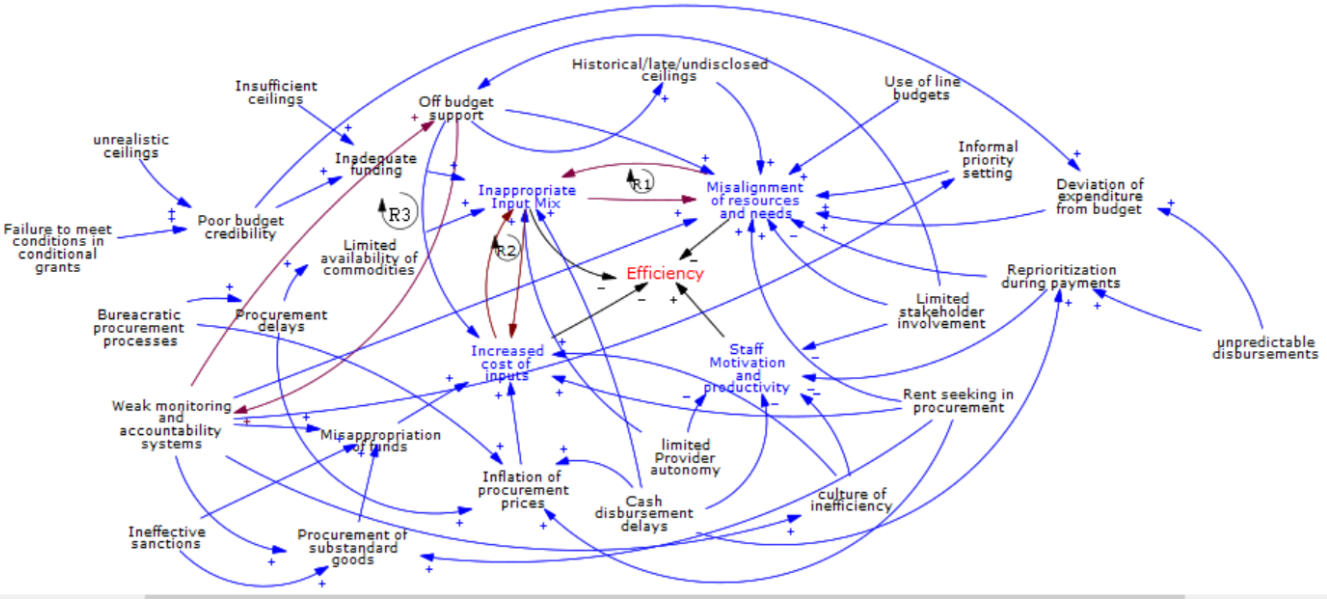

Figure 7.4: How PFM influences the efficiency of county health systems

7.3 Chapter Summary

In this chapter I have discussed the findings using a complex adaptive system lens. I have shown that the PFM processes within the health system are complex adaptive systems. In the next chapter I make conclusions and recommendations based on this reflection.

Chapter Eight: Conclusions and Recommendations

8.1 Introduction

This chapter distils policy levers for enhanced health system efficiency that emerged from this study. I also reflect on some of the exemplary practices within counties that were identified to work, and that can be replicated in other counties to enhance efficiency.

8.2 Recommendations

To address the budget formulation challenges that result in inefficiency, first, the county treasury should use the MTEF reports from the county departments as a guide to developing final budget ceilings. MTEF reports outlining the requests of the departments and the public for the health system over 3 years. They are the main mechanism for budget ceiling negotiations between county departments and the county treasury. Second, the county finance departments should provide timely ceilings to allow sufficient time for PBB development. The budget process guidelines require that the County Fiscal Strategy Paper (CFSP) containing the budget ceilings should be approved and disseminated by 14th March of the planning year. The treasury should adhere to these guidelines. Third, counties should allocate sufficient resources to the health sector. The intergovernmental collaboration agreement recommends a minimum of 30% of the total county budget allocation to the CDoH.

Fourth, the CDoHs should fully cascade the budget ceilings to the different planning units and allow each unit to make its own budget as guided by the county financing guidelines. Fifth, while the counties develop many budget formats, they should use the programme-based budget as the functional budget as required by the Public Financial Management Act (PFMA). Sixth, the CDoHS should develop the PBB to completion, and ensure that the plans and budgets align. Seventh, health sector stakeholders should pool all health sector funds from different sources to enhance efficiency. This can be achieved through empowering the forums created to strengthen joint planning and budgeting. These include the County Health Stakeholders Forums and the Health Sector Working Groups. Eighth, public participation should be better structured and guided to ensure that the public makes informed decisions. Ninth, health workers who are most aware of

health system needs should be at the center of the decision-making process in the health budgeting and planning process. This can be achieved through strengthening the health facility boards and committees. Tenth, priorities in the planning and budgeting decisions should be evidence informed. This will ensure resources are allocated to high-impact interventions. Finally, county assembly involvement in the budget process should be limited to oversight as is required by the legal framework.

To address the budget execution challenges that result in inefficiency, first, counties should make realistic own source revenue projections. This will ensure that budget ceilings are realistic and set the ground for a credible budget. Second, counties should strive to meet the conditions attached to conditional grants to enhance the credibility of conditional grants. Third, the CDOH should be involved in prioritizing payments to ensure that payments reflect the needs of the departments. Fourth, the government should improve timeliness in the procurement process including timely payments, this will reduce the cost of goods and services and encourage competitiveness as more suppliers will be motivated to participate in the procurement process. Fifth, county governments should implement mechanisms to ensure that providers have more managerial and financial autonomy. Sixth, the government should increase provider autonomy over both their financial and managerial functions. This will possibly increase transparency in the budget execution process, align budget execution to health systems needs, and increase health facility managers' accountability for performance. Finally, the government should roll out IFMIS to the lowest planning unit. This will increase transparency and enhance accountability over resources thereby enhancing efficiency.

To address the budget monitoring and accountability challenges that result in inefficiency, first, the government should have demarcated roles for implementing and monitoring actors. In addition, the government should empower all the oversight actors with the capacity and resources to perform their roles. Second, the government should provide civic education to the public on their role in public accountability and institutionalize public participation in the budget evaluation as is the case in budget formulation (*Boosting Accountability through Participatory Budgeting in Kenya*, n.d.; Danhoundo et al., 2018). Third, the health stakeholders' fora, working groups, and committees

should be fully operationalized. Fourth, the national and county governments should encourage the use of synchronous accountability mechanisms such as annual performance reviews for financial and performance monitoring. The health system should be held to account not just for adhering to procurement guidelines, but also for the outcomes that result from invested resources. Fifth, the national and county government should fully implement and provide feedback following budget monitoring and accountability mechanisms such as annual performance reviews, budget implementation reviews, participatory budgeting, and auditing. Sixth, the national and county governments should impose existent sanctions for inefficiency and implement and enforce rewards for efficiency. However, punitive sanctions should go hand in hand with supportive regulation which is equally effective in enhancing efficiency. Finally, the county and national governments should increase budget transparency, including access to detailed budget implementation reports. Transparency should be cut across the system, including internally to primary care centers and externally to the public.

8.3 Areas for Further Research

Several issues requiring further investigation have emerged from this research. First, a systems approach is needed to address the misappropriation of public funds. One challenge identified in this thesis is the increased cost of input resulting from the misappropriation of funds, duplications, and rent-seeking. This work has further shown that the existent mechanisms for budget monitoring and accountability have been ineffective, and have on some occasions exacerbated the loss of funds leading to inefficiency. Long-term and effective solutions may require an in-depth exploration of the value systems of the key actors, effective incentives, and deterrent sanctions.

Second, further research is needed to determine if social accountability can enhance efficiency in Kenya. Social accountability measures have been shown to work in other settings, but there are limited studies in Kenya that establish best practices for social accountability and how it can strengthen efficiency.

Third, additional research is required to examine how PFM processes influence other health system goals such as equity and quality. While this thesis touches on quality, it does not reflect on equity. Often efficiency is seen to conflict with equity. Understanding the relationship between PFM and equity will provide more knowledge to explain the differences in efficiency between counties and to make progress toward UHC.

Fourth, more research is needed to further analyze the depth of the PFM issues identified by each county. The study's design assumed that efficient counties would predominantly exhibit exemplary behavior, while inefficient counties would predominantly exhibit perverse behavior. However, the issues were found to be cross-cutting. Further research will help to unpack the depth of the issues in each county.

8.4 Chapter Summary

This chapter is the last of this thesis. The thesis presents a study that examines how Public Financial Management Practices influence the efficiency of county health systems in Kenya. This to my knowledge, is the second study to examine the relationship between Public Financial Management and the efficiency of health systems. The other study was conducted in Tanzania and Zambia and explored the relationship between PFM and all the health system goals -efficiency, quality, and equity. The other study was at a country level. To the best of my knowledge, this is the first study with a focus on the sub-national level. Given the dearth of literature on the determinants of efficiency, and how PFM influences efficiency, it is expected that this study will add to this body of knowledge.

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Appendices

Appendix A: In-depth Interview for County Health and Finance Officials

Study Title: Examining the Effect of Public Finance Management Arrangements on the Efficiency of County Health Systems in Kenya

Interviewer and note taker introduce themselves

Interview number	
Date of interview	
Name of county	
Profession/role of interviewee (Chief Officer, Accountant, County Director,)	
Gender of interviewee	

Introductory questions

- Tell me more about your role and how long you have been in this role?
- Have you heard of public finance management (PFM)?

  (If not read…PFM refers to the laws, guidelines, procedures, and institutions that governments have in place to collect, allocate, expend and account for public funds. It normally has three parts – Budget formulation, Budget execution and Budget monitoring)
- Have you heard of efficiency?

  (if not read efficiency means optimizing health outputs and outcomes using available resources or minimizing inputs for a given outcome)

I am now going to ask you questions around the three parts of PFM and their impact on the efficiency of county health systems

Section 1: Budget formulation

Budget ceiling/Spending caps

1. How are budget ceilings for the county health department determined within county health systems?
    a. How does the amount/ceiling influence the efficiency/performance of the county health systems?
    b. What are the avenues for negotiating the budget ceiling for the county health department?
2. What criteria is used to allocate budgets in the health sector? How does the allocation criteria influence the efficiency/performance of the county health system?
3. Is the communication of the budget ceiling from treasury timely? How does this influence efficiency/performance of the county health system?
4. From past experiences, does the budget ceiling predict the actual amounts allocated? Why or why not? How does this influence the efficiency/performance of the county health system?

Budget Structure

5. How is the county health budget structured? (Program based? Line-item budget?) Why is that structure preferred?
6. Does the budget link resources to performance targets? Why? or Why not? How does the linkage of resources to performance targets (or the lack of it) influence efficiency/performance of the county health system?
7. How are services to be funded by the county health budget costed? How does the costing process influence efficiency/performance of county health systems?
8. Does the budget link resources to your county health department plans/health policy priorities? How? How does the linkage of budgets to plans (or the lack of it) influence efficiency/performance of the county health system?
9. Does the budget structure allow county departments of health the flexibility to spend on emergent needs or is the structure rigid? How does the flexibility or the

inflexibility of the budget influence efficiency/performance of the county health system?

Stakeholder involvement /Actors

10. Who is involved in the PFM process from Budget formulation to Budget monitoring and execution?
11. What is the role of the different actors in the PFM process?
12. How do actors in the PFM process influence the efficiency of county health systems?

Pooling of resources

13. What sources of funds does the county health department have to implement annual activities? (probe; county government? National government? development partners? NGOs? Programme funds? Insurance? User fees?
14. Are all the resources that are used in the health system included in the county health budget? Why? Or why not? How does pooling (or the lack of it) influence the efficiency/performance of county health systems?
15. Does the county health department have the autonomy to budget for all the funds available to them? Why or why not? How does the flexibility in budgeting for pooled funds influence efficiency /performance of county health systems?
16. What are the accountability channels for the different sources of funds? How do the accountability channels for the different sources of funds influence the efficiency/performance of county health systems?

Section 2: Budget execution

Budget credibility

17. Are the health budgets honored? Why or Why not? Does the credibility of the budget influence efficiency of the county health system? How?
18. Does the implementation phase follow the plans made as per the budget? Why or why not? How does this affect the efficiency/performance of county health systems?

19. Are budget releases sufficient? Why or why not? How does the sufficiency of the budget releases influence the efficiency of county health systems?
20. Are there midyear reallocations of the budget? How do these midyear reallocations influence the efficiency/performance of county halth systems

Cash disbursement processes

21. How do you access budgeted funds for implementation of budgeted activities?
22. Are budgeted funds disbursed in good time to ensure timely provision of services? Why or why not? How does this affect the efficiency/performance of county health systems?
23. Are the suppliers within the county health department paid on time? Why or why not? How does this affect the efficiency/performance of the county health system?
24. Are health worker salaries paid on time? Why or why not? How does this affect the efficiency/performance of the county health system?
25. If there are delays, how does the health system cope with these delays? How do these coping mechanisms influence the efficiency/performance of the county health system?

Financial Management Systems

26. What financial management systems are used in the county and why? (Probe IFMIS? Manual?)
27. Does the financial management system result in timely release of funds? Why or why not? How does the efficiency of the financial management system influence performance of county health systems?
28. Does the county health department have access to the financial management system? Why or why not? How does the department's access (or the lack of) to the financial management system influence the performance of county health systems?
29. Do all the funds used in the county health system follow the same financial management process? Why or why not? How does the fragmentation of funds (or lack of) influence the performance of the county health system?

30. Does the financial management system enhance accountability? Why or why not? How do the accountability mechanisms in the FMS influence the performance of the county health system?

Provider Autonomy

31. Is the county health department aware of all the funds available to them? Why or why not? How does their awareness influence efficiency/performance?
32. Is the county health department aware of their expenditure throughout the financial year and the balance available to them? Why or why not? How does the awareness of the total budget (or the lack of it) influence efficiency/ performance?
33. Does the county health department lobby for more funds from other sources? Why or why not? How does their lobbying or lack of influence the efficiency of county health systems?
34. Does the county health department absorb its entire budget? Why or why not? How does the absorption rate affect the efficiency/performance of the health system?

Controls

35. Are there controls that guide the management of funds within the county health systems? Probe internal controls within the county and external controls
36. Do the controls work appropriately to ensure timely disbursement of funds? Why or why not? How does this influence the efficiency/performance of county health systems?
37. Do the controls work to enhance flexibility in budget execution? Why or why not? How does this influence the efficiency/performance of county health systems?
38. Do the controls have an impact on the allocation to the health department? How? How does the impact on the allocation influence the efficiency/performance of the county health system?
39. Are there instances when there was a conflict between the financial controls and the health system needs? When? How did this influence the efficiency/performance of the county health system?

Procurement and supply chain

40. How are goods and services procured within the county health system?

41. Are all the contracts within the county health department competitively awarded? Why or why not? How does this affect the efficiency/performance of county health systems?
42. Does the procurement process result in timely acquisition of medical products, buildings and equipment? Why or why not? How does this influence the efficiency/performance of the county health system?
43. Does the procurement process ensure value for money? Why or why not? How does this influence the efficiency/performance of the county health system?
44. What are the accountability mechanisms in the procurement process? Are they effective? How do the accountability mechanisms in the procurement process influence the efficiency/performance of the county health system?

Misappropriation of funds

45. Are there instances when funds meant for the department of health were misappropriated? Please give me an example. How does misappropriation of funds influence the efficiency/performance of the county health system

Ring fencing

46. Are health department funds ring fenced? Why or why not? How does the ring fencing or lack of it influence efficiency of county health systems?

Section 3: Budget monitoring

Accountability for results

47. Who does the county health department report to? (MOH? County executive? County Assembly? Treasury?) how do they report? How frequent?
48. What are county health departments accountable for? (resources? Outcomes?) How does this influence the performance/efficiency of county health systems?
49. How is the county health department held accountable? (Reports? Expenditure reports? Performance reports?) How does this influence the performance/efficiency of county health systems?

50. Are the financial and performance reports integrated into one health department report? Why or why not? How does the integration (or disintegration) influence the efficiency of county health systems?
51. Have the accountability mechanisms led to better use of resources?
52. Does the county health department receive feedback on reports? How is this feedback provided?

Incentives and Disincentives for efficiency

53. Are there incentives or dis-incentives for performance and efficiency in the use of public funds by the County health department? Which ones?
54. Are there repercussions for misusing public funds? Which ones? Has anyone in your department been sanctioned for misuse of public funds? How?
55. Are there repercussions for failing to meet planned goals? Has anyone in your department been sanctioned for not meeting the intended goals? How? In your opinion are the existing sanctions deterrent? Why or why not?
56. Are there rewards for efficiency? What are the rewards? Has anyone in your department been rewarded for optimizing the use of public resources? How?
57. How does the existence and enforcement of incentives and disincentives (or the lack of it) influence efficiency of the county health systems?

Section 5: Legal Requirements

58. What laws guide the PFM processes and the planning process within county health systems? How?
59. Are both the planning and budgeting processes backed by a legal framework? Why or why not? How does the legal backing of the PFM and the planning process influence the efficiency/performance of county health systems?
60. Are all the legal requirements of the PFM and planning process implemented? Why or why not? How does the implementation (or the lack of) influence the efficiency/performance of county health systems?

61. Are there instances when different laws have conflicting guides to the PFM and planning process? Which instances? How do these conflicts influence the efficiency/performance of the county health system

Appendix B: In-depth Interview for National Government Officials (Auditor general/Treasury/Office of the Controller of Budget/MOH)

Study Title: Examining the effect of Public Finance Management Arrangements on the Efficiency of County Health Systems in Kenya

Interviewer and note taker introduce themselves

Interview number	
Date of interview	
Name of organization	
Profession/role of interviewee	
Gender of interviewee	

Introductory questions

- Tell me more about your role and how long you have been in this role?
- Have you heard of public finance management (PFM)?

  (If not read…PFM refers to the laws, guidelines, procedures, and institutions that governments have in place to collect, allocate, expend and account for public funds. It normally has three parts – Budget formulation, Budget execution and Budget monitoring)
- Have you heard of efficiency?

  (if not read efficiency means maximizing health outputs and outcomes using available resources or minimizing inputs for a given outcome)

Note: Interviewer can revert to tool 1 to guide further probing

I am now going to ask you questions around the three parts of PFM and their impact on efficiency

1. What role does the national government (and its agencies) play in the **budget formulation** process within county health systems?
   a. Probe: Budget ceiling? Budget structure? Priority setting? Pooling?

b. In your opinion, how does the budget formulation process influence the performance of county health systems.?

2. What role does the national government (and its agencies) play in the **budget execution** process within county health systems?
    a. Probe: budget credibility? cash disbursement process? Financial management system? Provider payment methods? Procurement and supply chain? Services purchased? Ring fencing? External controls?
    b. In your opinion, how does the budget execution process influence the performance of county health systems?
3. What role does the national government (and its agencies) play in **the budget monitoring and evaluation** process within county health systems?
    a. Probe: Accountability for results? Incentives and Disincentives for efficiency?
    b. In your opinion, how does the budget monitoring and evaluation process influence the performance of county health systems?
4. Who in the national government is involved in the PFM process at the county?
    a. What is their role in the county PFM process?
    b. How do these national government actors enable or deter the efficiency of county health systems?

Appendix C: In-depth Interview for Development Partners

Study Title: Examining the influence of Public Finance Management Arrangements on the Efficiency of County Health Systems in Kenya

Interviewer and note taker introduce themselves

Interview number	
Date of interview	
Name of organization	
Profession/role of interviewee	
Gender of interviewee	

Introductory questions

- Tell me more about your role and how long you have been in this role?
- Have you heard of public finance management (PFM)?

  (If not read…PFM refers to the laws, guidelines, procedures, and institutions that governments have in place to collect, allocate, expend and account for public funds. It normally has three parts – Budget formulation, Budget execution and Budget monitoring)
- Have you heard of efficiency?

  (if not read efficiency means maximizing health outputs and outcomes using available resources or minimizing inputs for a given outcome)

Note: Interviewer can revert to tool 1 to guide further probing

I am now going to ask you questions around the three parts of PFM and their impact on efficiency

1. What role do development partners play in the **budget formulation** process within county health systems?
    a. Probe: Budget ceiling? Budget structure? Priority setting? Pooling?
    b. In your opinion, how does the budget formulation process influence the performance of county health systems.?
2. What role do development partners play in the **budget execution** process within county health systems?
    a. Probe: budget credibility? cash disbursement process? Financial management system? Provider payment methods? Procurement and supply chain? Services purchased? Ring fencing? External controls?
    b. In your opinion, how does the budget execution process influence the performance of county health systems?
3. What role do development partners play in the **budget monitoring and evaluation** process within county health systems?
    a. Probe: Accountability for results? Incentives and Disincentives for efficiency?
    b. In your opinion, how does the budget monitoring and evaluation process influence the performance of county health systems?

Appendix D: Document Review Data Abstraction Tool

Data to be Extracted	Notes by researcher	Possible Sources
Budget formulation	1. By whom and when is the budget ceiling given to county health departments? 2. Who are the actors involved in the budget formulation process and what power do they have over the process? 3. What structure is recommended for the county health budgets? and What structure is actually used? 4. What items/programmes are to be included in the budget and what is actually included? 5. What is the total budget allocated to the health sector as a percentage of total county budget? 6. What are the sources of funds that were included in the health department budget? 7. What are the county health department priorities as per the Annual Work plan and are they funded in the budget? 8. What percentage of funds is allocated to each of the programmes?	County Annual Development Plans County Fiscal Strategy Paper County Budget Proposal County Appropriation Act Public Finance Management Act (PFMA) County government Act
Budget execution	9. What is the budget credibility? 10. What Percentage of the total health budget is executed per quarter? 11. Were the County health departments planned activities implemented on time?	Procurement reports County budget implementation reports

Budget monitoring and evaluation	12. What are the reporting and accountability channels for the county health department? 13. Were any funds misappropriated within the health department? 14. Were any budget violations reported within the health department? 15. Were the planned targets achieved?	County Budget review and outlook paper Controller of budget reports County Audit Reports
Legal requirements	16. What Laws and legal processes guide the PFM process?	PFMA PPADA County Government Act

Appendix E: KEMRI Wellcome Trust Research Programme: Participant Information Sheet and Consent Form for Key informant Interviews: County and National level stakeholders

Study Title: Examining the influence of Public Financial Management Arrangements on the Efficiency of County Health Systems in Kenya

Lay title: A study to examine the extent to which the management of healthcare influence the performance of county health systems, and what can be done to enhance efficiency/performance

Principal investigator	Anita Musiega	KEMRI Wellcome Trust Research Program, Nairobi, Kenya Strathmore University

Who is Carrying out this Study and what is this Study About?

This study is being carried out by KEMRI, which is a government organisation that carries out health research to find better ways of preventing and treating illness in the future for everybody's benefit. Sometimes research involves only asking questions of patients, their parents, community members or health providers about what they know, feel or do. All research at KEMRI has to be approved before it begins by several national and international ethics committees who look carefully at the planned work. They must agree that the research is important, relevant to Kenya and follows nationally and internationally agreed research guideline. This includes ensuring that all participants' safety and rights are respected

In this research we want to learn more about your views about whether and the budget process within the county department of health influences efficiency/performance of the health system. We will learn this through listening to your ideas and opinions on:

- What is the process in county health budget formulation and how do these processes influence the performance/ efficiency of the health system?
- What are the processes in county health budget implementation and how do these processes influence efficiency/performance of the county health system?

- What are the processes in county health budget monitoring and evaluation and how do these processes influence efficiency/performance of the county health system?
- What actors are involved in the budget process within county health systems and how do they influence efficiency/performance?

We would like to carry out in-depth interviews with 60-80 stakeholders at the county and national level including the county department of health, the county treasury, public and private (for-profit and not-for-profit) health facility managers and non-governmental organisations supporting health at the county level. At the national level we would like to talk to the national treasury, the office of the auditor general, the office of the controller of budget and the ministry of health. We wish to interview between 60- 80 respondents at the county level.

Why do you want to talk to me about and what does it involve?

You have been selected to participate in this study due to your role and experience in this area. We believe you are in a good position to help us attain the objectives of our study.

I would like to ask you a number of questions about the issues that I have just explained above. If you do not want to answer any of the questions you may say so and I will move on to the next question. The discussion will take place at your place of work or any other place of your choice and at a time convenient to you. No one else but the interviewer will be present unless you would like someone else there.

We wish to audio record the discussions. The audio recording is voluntary. The audio recordings will be used to write up the information that you give but we will remove any information from these written records that could identify you in person. This includes removing your name and any other personal or professional information that might identify you. All data will be stored in accordance with KEMRI Wellcome Trust Research Program policy. We may also use your quotations in illustrating certain points in our publications- your name or any other aspect that may identify you will not be used.

Are there any disadvantages or benefits to me of taking part?

- The discussions should take approximately 45-60 minutes.

- There are no individual benefits to taking part. In talking to us, you will contribute information on factors that influence efficiency in Kenyan county health systems. This may help Kenyan policy makers in developing better policies towards improving performance of health systems.

Who will have access to the information I give?

- We acknowledge that answers about some aspects of your work can be confidential or sensitive. We will not share individual information about you or other participants with anyone except with the research team members. All of our documents/ recordings are stored securely in locked cabinets and on password-protected computers. All audio files will be kept securely and confidentially.
- Information from this study will only be shared with other researchers or health policy makers in a form where no individual can be identified and without identifying any individual roles for participants. This information may include summaries, full reports, publications in scientific journals, presentations at meetings and detailed records of findings.
- In future, information collected or generated during this study may be used to support new research by other researchers in Kenya and other countries on health systems research. In this case, we will only share information in ways that do not reveal individual participants' identities. For example, we will remove information that could identify people, such as their names and where they live, where necessary roles and positions, and replace this information with number codes. Any future research using information from this study must first be approved by a local or national expert committee to make sure that the interests of participants and their communities are protected.
-

What will happen if I refuse to participate?

All participation in research is voluntary. You are free to decide if you want to take part or not. If you do agree you can change your mind at any time without any consequences.

Who has allowed this research to take place?

All research at KEMRI has to be approved before it begins by several national and international committees who look carefully at planned work. They must agree that the research is important,

relevant to Kenya and follows nationally and internationally agreed research guidelines. This includes ensuring that all participants' safety and rights are respected.

What if I have any questions?

You are free to ask me any question about this research. If you have any further questions about the study, you are free to contact the research team using the contacts below:

Anita Musiega, KEMRI Wellcome Trust Research Programme, P.O. Box 43640-00100, Narobi. Telephone: 0718697886

If you want to ask someone independent anything about this research, please contact:

The Community Liaison Manager, KEMRI – Wellcome Trust Research Programme P.O. Box 230, Kilifi. Telephone: 041 7522 063, Mobile 0723 342 780 or 0705 154 386

The Head – Scientific and Ethics Review Unit (SERU), P. O. BOX 54840-00200, Nairobi; Telephone numbers: 0717 719 477; 0776 399 979 Email address: seru@kemri.org

The Secretary, Strathmore University – Institution Review Board – P.O Box 59857 – 00200, Nairobi, Kenya. Tel: +254 703 034 375. Email: ethicsreview@strathmore.edu

KEMRI Wellcome Trust Research Programme: Participant Consent Form: County and National level stakeholders.

Study Title: Examining the effect of public finance management arrangements on the efficiency of county health systems in Kenya

To be filled in by the interviewee

The study has been explained to me. I have understood all that has been read/explained and had my questions answered satisfactorily

☐ Yes please *tick* I agree to be interviewed

☐ Yes please *tick* I agree for the interview to be recorded

☐ I agree for my quotes to be used in publications or reports released on the study

I understand that I can change my mind at any stage and it will not affect me in any way.

Signature: _____ Date: _____

Participant's name: _____ Time: _____

(please print name)

To be filled in by interviewer

I certify that I have followed the study SOP to obtain consent from the participant. S/he apparently understood the nature and the purpose of the study and consents to participation in the study. S/he has been given the opportunity to ask questions which have been answered satisfactorily.

Signature: _____ Date: _____

Researcher's name: _____ Time: _____

(please print name)

THE PARTICIPANT SHOULD NOW BE GIVEN A SIGNED COPY TO KEEP

Appendix F: Summary of Papers Included in the Literature Review

Author	Year	Publication title	Country
Abekah-Nkurumah and Nomo (2012)	2012	In pursuit of a technical need or political compromise: reforms of public financial management practices in Ghana's health sector	Ghana
Afzali et al (2011)	2011	Exploring health professionals' perspectives on factors affecting Iranian hospital efficiency and suggestions for improvement	Iran
Alatawi et al (2022)	2022	Factors Influencing the Efficiency of Public Hospitals in Saudi Arabia: A Qualitative Study Exploring Stakeholders' Perspectives and Suggestions for Improvement	Saudi Arabia
Alebachew et al (2020)	2020	Public financial management perspectives on health sector financing and resource allocation in Ethiopia	Ethiopia
Asante et al (2006)	2006	Getting by on credit: how district health managers in Ghana cope with the untimely release of funds	Ghana
Barasa et al (2017)	2017	Recentralization within decentralization: County hospital autonomy under devolution in Kenya	Kenya
Barasa et al (2017)	2017	Setting healthcare priorities: a description and evaluation of the budgeting and planning process in county hospitals in Kenya	Kenya

Barroy et al (2018)	2018	Budget matters for health: key formulation and classification issues	All
Barroy et al (2018)	2018	Can Low- and Middle-Income Countries Increase Domestic Fiscal Space for Health: A Mixed-Methods Approach to Assess Possible Sources of Expansion	LMICs
Barroy et al (2019)	2019	Leveraging Public Finance Management for Better Health in Africa	Africa
Brendel et al (2020)	2020	Resource scarcity and prioritization decisions in medical care: A lab experiment with heterogeneous patient types	Germany
Duran (2018)	2018	Assessment of Public Hospital Governance in Romania: Lessons From 10 Case Studies	Romania
Elgazzar (2011)	2011	Raising Returns : the Distribution of Health Financing and Outcomes in yemen	Yemen
Ernest and Young		Possible directions of increasing efficiency of Healthcare system in the Republic of Serbia	Serbia
Ezenduka et al (2022)	2022	Examining healthcare purchasing arrangements for strategic purchasing in Nigeria: a case study of the Imo state healthcare system	Nigeria

Ezenwaka et al (2022)	2022	Strategic Health Purchasing in Nigeria: Investigating Governance and Institutional Capacities within Federal Tax-Funded Health Schemes and the Formal Sector Social Health Insurance Programme	Nigeria
Folscher et al (2013)	2013	When Opportunity Beckons: The Impact of the Public Service Accountability Monitor's Work on Improving Health Budgets in South Africa	South Africa
Frumennce et al (2014)	2014	The dependency on central government funding of decentralised health systems: experiences of the challenges and coping strategies in the Kongwa District, Tanzania	Tanzania
Glenngård and Maina 2007	2007	Reversing the trend of weak policy implementation in the Kenyan health sector? – a study of budget allocation and spending of health resources versus set priorities	Kenya
Global Access Partners (2016)	2016	Increasing efficiency and value in public healthcare procurement	Australia
Gwati (2015)	2015	Report of field survey of current purchasing practices for district health services in Zimbabwe	Zimbabwe
Jakab et al (2018)	2018	Health financing strategies to support scale-up of core noncommunicable disease interventions and services	All

Jowett et al (2015)	2013	Raising revenues for health in support of UHC: strategic issues for policy makers	All
Kiross et al (2020)	2020	The effects of health expenditure on infant mortality in sub-Saharan Africa: evidence from panel data analysis	Sub Saharan Africa
Kutzin (2013)	2013	Health financing for universal coverage and health system performance- concepts and implications for policy	All
Le Gargasson (2013)	2013	Budget process bottlenecks for immunization financing in the Democratic Republic of the Congo (DRC).	DRC
Leli et al (2019)	2019	Public hospitals' management systems, and accountability mechanisms in the context of decentralized health systems in low- and middle-income countries	LMICs
Liwanag (2018)	2018	What conditions enable decentralization to improve the health system? Qualitative analysis of perspectives on decision space after 25 years of devolution in the Philippines.	Philippines
Machira et al (2015)	2015	Integrating Social Accountability in Healthcare Delivery: Lessons Drawn from Kenya	Kenya

Mbau (2018)	2018	A critical analysis of health care purchasing arrangements in Kenya: A case study of the county departments of health	Kenya
Mbwasi et al (2022)	2022	Assessing public–private procurement practices for medical commodities in Dar Es Salaam: a situation analysis	Tanzania
Moses et al (2021)	2021	Performance assessment of the county healthcare systems in Kenya: a mixed-methods analysis	Kenya
Mugisha and Orem (2010)	2010	To what extent does recurrent government health expenditure in Uganda reflect its policy priorities?	Uganda
Musango (2012)	2012	Moving from ideas to action - developing health financing systems towards universal coverage in Africa	Africa
Nnaji (2010)	2010	The challenges of budgeting in a newly introduced district health system: A case study	Nigeria
Nxumalo et al (2018)	2018	Accountability mechanisms and the value of relationships: experiences of front-line managers at subnational level in Kenya and South Africa	Kenya and South Africa
Ochieng (2018)	2018	Who is responsible? Local Government and accountability for service delivery in Kenya's devolved health sector	Kenya

Ogubuabor and Onwujekwe (2019)	2019	Aligning public financial management system and free healthcare policies: lessons from a free maternal and child healthcare programme in Nigeria	Nigeria
Onwujekwe et al (2020)	2020	Characteristics and Effects of Multiple and Mixed Funding Flows to Public Healthcare Facilities on Financing Outcomes: A Case Study From Nigeria	Nigeria
Patcharanarumol et al (2018)	2018	Strategic purchasing and health system efficiency: A comparison of two financing schemes in Thailand	Thailand
Penn-Kekana et al (2004)	2004	'It makes me want to run away to Saudi Arabia'- management and implementation challenges for public financing reforms from a maternity ward perspective	South Africa
Piatti-Fünfkirchen & Schneider (2018)	2018	From Stumbling Block to Enabler: The Role of Public Financial Management in Health Service Delivery in Tanzania and Zambia	Tanzania and Zambia
Rasivhetshele and Govender (2014)	2014	Public Health Funding and Health Service Delivery: A Case Study of the Gauteng Province South Africa	South Africa
Asfaw et al	2020	Public financial management perspectives on health sector financing and resource allocation in Ethiopia	Ethiopia

Transparency International (2016)	2016	Analysis of public procurement in the health sector	Czech republic/ Bosnia and Herzegovina
Tsofa et al (2016)	2016	Health sector operational planning and budgeting processes in Kenya—"never the twain shall meet"	Kenya
Tsofa et al (2017)	2017	How does decentralisation affect health sector planning and financial management? a case study of early effects of devolution in Kilifi County, Kenya	Kenya
Vian (2012)	2012	Good governance and budget reform in Lesotho Public Hospitals: performance, root causes and reality	Lesotho
Vincente (2013)	2013	Supporting local planning and budgeting for maternal, neonatal and child health in the Philippines	Philippines
Waithaka et al (2018)	2018	Describing and evaluating healthcare priority setting practices at the county level in Kenya	Kenya

Waitzberg et al (2021)	2021	Effects of Activity-Based Hospital Payments in Israel: A Qualitative Evaluation Focusing on the Perspectives of Hospital Managers and Physicians	Israel
Walters et al (2022)	2022	Driving Efficiency Improvement (EI): Exploratory Analysis of a Centralised Model in New South Wales	Australia
WHO (2015)	2015	Public Financing for Health in Africa: from Abuja to the SDGs	Africa
WHO (2016)	2016	Budgeting for Health	All

WHO (2016)	2016	Fiscal Space, Public Financial Management and Health Financing: Sustaining Porgress Towards UHC	All
WHO (2017)	2017	Aligning Public Financial Management and Health Financing	All
WHO (2017)	2017	Towards Universal Healthcare Coverage- thinking public Overview of trends in public expenditure on health	All
WHO (2017)	2017	WHO Symposium on Health Financing for UHC Public Financing for UHC: Towards Implementation	All
WHO (2018)	2018	Building strong Public Financial Management Systems Towards Universal Health Coverage: Key bottlenecks and lessons learnt from country reforms in Africa	Africa

Barroy et al (2018)	2018	Transition to programme budgeting in health in Burkina Faso- status of the reform and preliminary lessons for health financing	Burkina Faso
Dale et al (2018)	2018	Budget Structure reforms and transition to programme budgeting in health: lessons form Armenia	Armenia
World Bank (2004)	2004	Risk Pooling in Health Care Financing: The Implications for Health System Performance	All
World Bank (2010)	2010	Fixing the public hospital system in China	China

World Bank (2014)	2014	Laying the foundation for a robust health care system in Kenya: Kenya Public Expenditure Review	Kenya

Appendix G: Ethics Approvals and Renewals

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P.O. Box 54840-00200, NAIROBI, Kenya
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E-mail: director@kemri.org, info@kemri.org, Website www.kemri.org

KEMRI/RES/7/3/1 **March 22, 2019**

TO: **DR. EDWINE BARASA**
PRINCIPAL INVESTIGATOR

THROUGH: **THE DIRECTOR, CGMR-C**
KILIFI

Dear Sir,

RE: **KEMRI/SERU/CGMR-C/154/3814** ***(RESUBMITTED INITIAL SUBMISSION)*****: EXAMINING THE LEVEL AND VARIATION IN THE EFFICIENCY OF COUNTY HEALTH SYSTEMS IN KENYA.**

Reference is made to your letter dated March 13, 2019. The KEMRI Scientific and Ethics Review Unit (SERU) acknowledges receipt of the following revised study documents on March 21, 2019.

1) Letter from the secretary CSC and minutes of the SCS meeting
2) SERU submission for new application.
3) Protocol version 2.0 dated 05 March 2019 (including information sheets and informed consent forms, Ethics certificates and study draft tools)

This is to inform you that the Committee noted that the issues raised during the 284th Committee A meeting of the KEMRI Scientific Ethics Review Unit (SERU) held on **February 12, 2019** have been adequately addressed.

Consequently, the study is **granted approval** for implementation effective this day, **March 22, 2019** for a period of one year. Please note that authorization to conduct this study will automatically expire on **March 21, 2020**. If you plan to continue data collection or analysis beyond this date, please submit an application for continuation approval by **February 07, 2020.**

You are required to submit any proposed changes to this study to the SERU for review and the changes should not be initiated until a written approval from the SERU is received. Please note that any unanticipated problems resulting from the implementation of this study should be brought to the attention of SERU and you should advice the SERU when the study is completed or discontinued.

Yours faithfully,

ENOCK KEBENEI
THE ACTING HEAD
KEMRI SCIENTIFIC AND ETHICS REVIEW UNIT

KENYA MEDICAL RESEARCH INSTITUTE

P.O. Box 54840-00200, NAIROBI, Kenya
Tel: (254) 2722541, 2713349, 0722-205901,0733-400003, Fax: (254) (020) 2720030
Email: director@kemri.org, info@kemri.org, Website. www.kemri.org

KEMRI/RES/7/3/1 **May 04, 2020**

TO: **DR. EDWINE BARASA**
PRINCIPAL INVESTIGATOR

THROUGH: **THE DIRECTOR, CGMR-C**
KILIFI

Dear Sir,

RE: **KEMRI/SERU/CGMR-C/154/3814 *(REQUEST FOR ANNUAL RENEWAL AND DEVIATION)*: EXAMINING THE LEVEL AND VARIATION IN THE EFFICIENCY OF COUNTY HEALTH SYSTEMS IN KENYA.**

Thank you for the continuing review report for the period **22nd March 2019** to **21st March 2020** and **22nd March 2020** to **6th April 2020.**

The Committee noted that a protocol deviation form has been submitted as the request for annual renewal was done after the expiration date of the last approval. Measures taken to preclude recurrence are deemed adequate.

This is to inform you that the Expedited Review Team of the KEMRI Scientific and Ethics Review Unit (SERU) was of the informed opinion that the progress made during the reported period is satisfactory. The study has therefore been granted **approval**.

This approval is valid from **May 04, 2020** for a period of **one (1) year**. Please note that authorization to conduct this study will automatically expire on **May 03, 2021**. If you plan to continue data collection or analysis beyond this date, please submit an application for continuation approval by **March 22, 2021.**

You are required to submit any amendments to this protocol and any other information pertinent to human participation in this study to the SERU for review prior to initiation.

You may continue with the study.

Yours faithfully,

ENOCK KEBENEI,
THE ACTING HEAD,
KEMRI SCIENTIFIC AND ETHICS REVIEW UNIT.

KENYA MEDICAL RESEARCH INSTITUTE

P.O. Box 54840-00200, NAIROBI, Kenya
Tel: (254) 2722541, 2713349, 0722-205901,0733-400003, Fax: (254) (020) 2720030
Email: director@kemri.org, info@kemri.org, Website. www.kemri.org

KEMRI/RES/7/3/1 **April 26, 2021**

TO: **DR. EDWINE BARASA**
PRINCIPAL INVESTIGATOR

THROUGH: **THE DEPUTY DIRECTOR, CGMR-C**
KILIFI

Dear Sir,

RE: **KEMRI/SERU/CGMR-C/154/3814 *(REQUEST FOR ANNUAL RENEWAL)*: EXAMINING THE LEVEL AND VARIATION IN THE EFFICIENCY OF COUNTY HEALTH SYSTEMS IN KENYA.**

Thank you for the continuing review report for the period **4th May 2020** to **22nd March 2021.**

This is to inform you that the Expedited Review Team of the KEMRI Scientific and Ethics Review Unit (SERU) was of the informed opinion that the progress made during the reported period is satisfactory. The study has therefore been granted **approval**.

This approval is valid from **May 04, 2021** for a period of **one (1) year**. Please note that authorization to conduct this study will automatically expire on **May 03, 2022**. If you plan to continue data collection or analysis beyond this date, please submit an application for continuation approval by **March 22, 2022.**

You are required to submit any amendments to this protocol and any other information pertinent to human participation in this study to the SERU for review prior to initiation. You may continue with the study.

Yours faithfully,

ENOCK KEBENEI,
THE ACTING HEAD,
KEMRI SCIENTIFIC AND ETHICS REVIEW UNIT.

Appendix H: NACOSTI Approval

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **735678**

Date of Issue: **30/March/2021**

RESEARCH LICENSE

This is to Certify that Prof.. Edwine Wafula Barasa of CENTRE FOR GEOGRAPHIC MEDICINE RESEARCH-COAST (CGMRC), has been licensed to conduct research in Bungoma, Homabay, Isiolo, Kisumu, Laikipia, Migori, Transnzoia, Uasin-Gishu on the topic: Examining the level and variation in the efficiency of county health systems in Kenya for the period ending : 30/March/2022.

License No: **NACOSTI/P/21/9670**

735678

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

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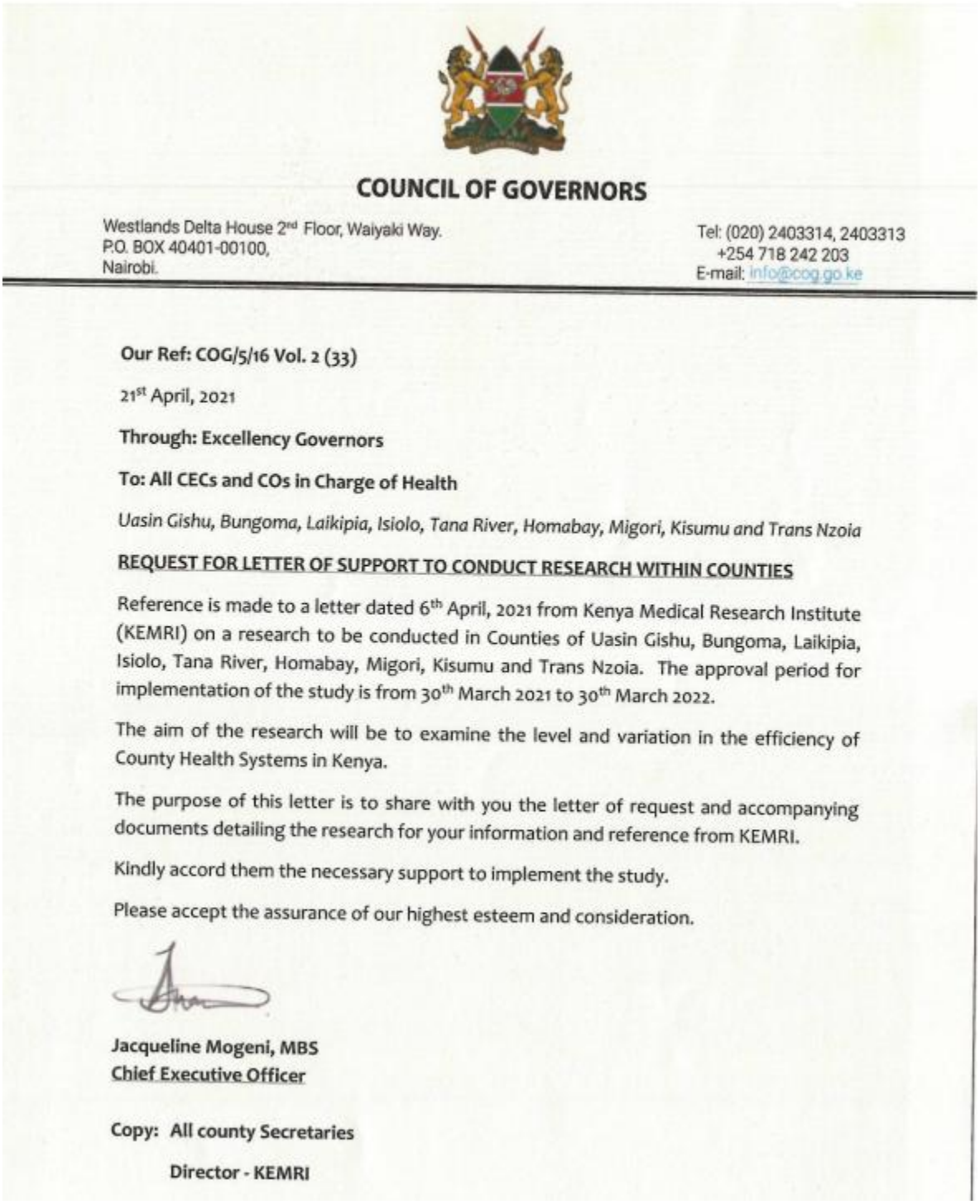
Appendix I: Council of Governors letter of Support



COUNCIL OF GOVERNORS

Westlands Delta House 2nd Floor, Waiyaki Way.
P.O. BOX 40401-00100,
Nairobi.

Tel: (020) 2403314, 2403313
+254 718 242 203
E-mail: info@cog.go.ke

Our Ref: COG/5/16 Vol. 2 (33)

21st April, 2021

Through: Excellency Governors

To: All CECs and COs in Charge of Health

Uasin Gishu, Bungoma, Laikipia, Isiolo, Tana River, Homabay, Migori, Kisumu and Trans Nzoia

REQUEST FOR LETTER OF SUPPORT TO CONDUCT RESEARCH WITHIN COUNTIES

Reference is made to a letter dated 6th April, 2021 from Kenya Medical Research Institute (KEMRI) on a research to be conducted in Counties of Uasin Gishu, Bungoma, Laikipia, Isiolo, Tana River, Homabay, Migori, Kisumu and Trans Nzoia. The approval period for implementation of the study is from 30th March 2021 to 30th March 2022.

The aim of the research will be to examine the level and variation in the efficiency of County Health Systems in Kenya.

The purpose of this letter is to share with you the letter of request and accompanying documents detailing the research for your information and reference from KEMRI.

Kindly accord them the necessary support to implement the study.

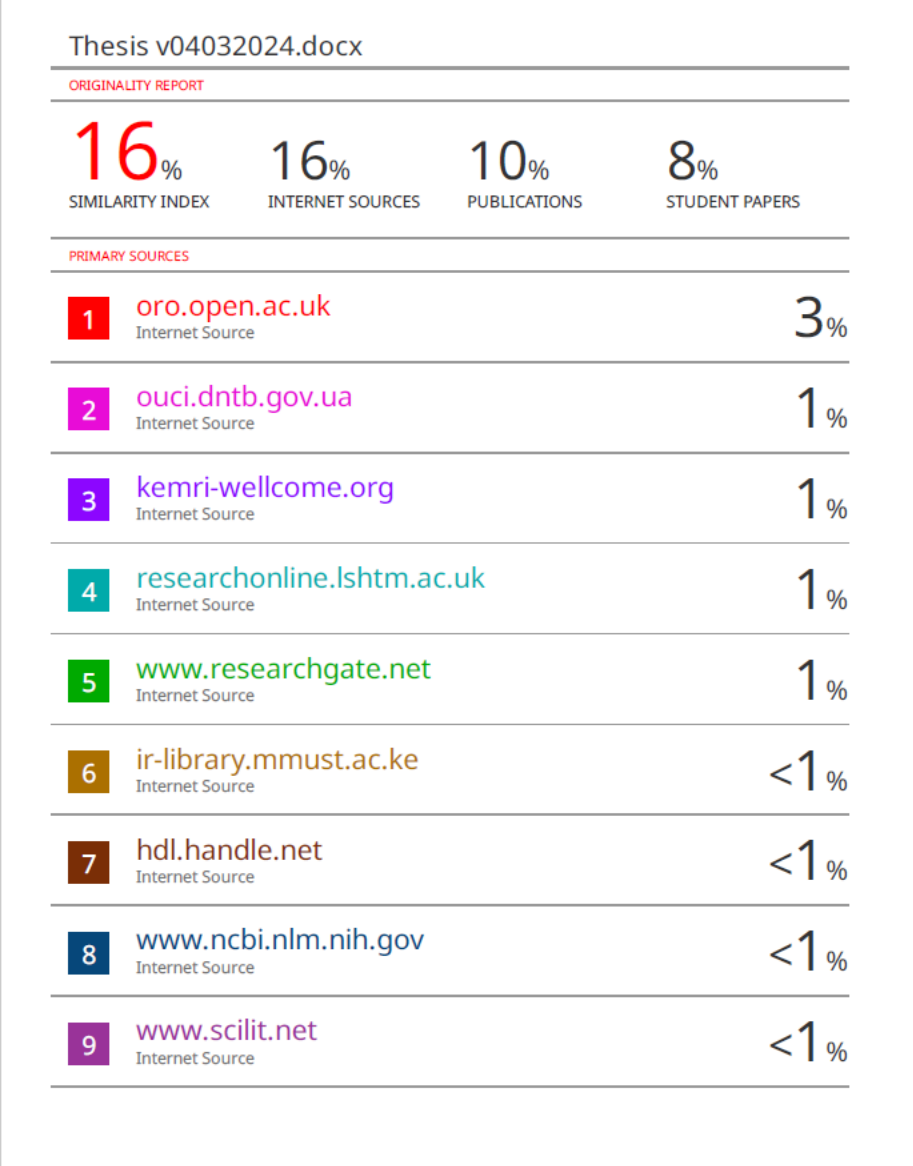
Please accept the assurance of our highest esteem and consideration.

Jacqueline Mogeni, MBS
Chief Executive Officer

Copy: All county Secretaries

Director - KEMRI

Appendix J: Turnitin Report



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