SCHOOL OF POSTGRADUATE STUDIES

PUBLIC PROCUREMENT PROCESSES AND THEIR EFFECTS ON THE PERFORMANCE OF PUBLIC PROJECTS AT THE MINISTRY OF INFRASTRUCTURE, HOUSING AND URBAN DEVELOPMENT AND MINISTRY OF LOCAL GOVERNMENT AND RURAL DEVELOPMENT [2022 - 2023]

BY

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DECLARATION

I, **Belly Mutale**, do hereby declare that this is my original work and has not been presented for any degree in any other University. No part of this thesis proposal may be reproduced without the prior written permission of the author and/or University of Lusaka.

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DEDICATION

I would like to the thank Jehovah, Almighty who makes all things possible as I would not have achieved all this without him, “Nawonga Chomene Chiuta Dada”.

I would also like to dedicate my dissertation work to my family and my friends. A special feeling of gratitude to my father, Jonathan Mutale whose words of encouragement and push for tenacity ring in my ears. My siblings who have never left my side and are very special.

I also dedicate this dissertation to my friends who have supported me throughout the process. I will always appreciate all they have done, especially Given Chipulu for helping me develop my technology skills, to my friends for the many hours of proof reading, tolerance and hospitality.

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ABSTRACT

This study aimed to comprehensively examine the impact of public procurement processes on the performance of public projects within the Ministry of Infrastructure, Housing and Urban Development (MIHUD) and Ministry of Local Government and Rural Development in Zambia (MLGRD). The research utilized a mixed-methods approach, combining qualitative and quantitative methodologies. A survey-based descriptive research design was employed, allowing for the collection of data from a selected sample to explore the nuanced dynamics of procurement practices. This study, conducted within the Ministries of Infrastructure and Local Government and Rural Development in Zambia, employed Structural Equation Modelling (SEM) to scrutinize the intricate relationships between public procurement processes and the performance of public projects. The purpose was to unravel the specific impacts of Supplier Qualification Screening (SQS), Competitive Bidding (CB), and Supplier Evaluation (SE) on Public Project Performance. Key findings highlighted the substantial positive influence of effective Supplier Qualification Screening (SQS) and Competitive Bidding (CB) on Public Project Performance. Transparent screening processes and fair bidding emerged as crucial contributors to project success. Unexpectedly, stringent Supplier Evaluation (SE) processes were found to have a negative impact on project performance, challenging initial hypotheses and emphasizing the need for a nuanced understanding of evaluation methodologies. Hypotheses testing reinforced these findings, rejecting the null hypotheses and affirming the alternative hypotheses. Specifically, effective Supplier Qualification Screening (SQS) and Competitive Bidding (CB) were found to significantly influence and contribute to the performance of public projects. However, Supplier Evaluation (SE) exhibited an unexpected negative association with project success. General recommendations arising from the study encompass the enhancement of regulatory frameworks, continuous capacity building, addressing bureaucratic delays, promoting e-procurement platforms, and fostering collaboration with stakeholders. These recommendations aim to foster transparency, efficiency, and collaboration within procurement processes.

Key Words: *Supplier Qualification Screening, Competitive Bidding, Supplier Evaluation, Project Performance*

ABBREVIATIONS

COSO	Committee of Sponsoring Organizations of the Tredway Commission
ERM	Enterprise Risk Management
GRZ	Government of the Republic of Zambia
MIHUD	Ministry of Infrastructure, Housing and Urban Development
MLGRD	Ministry of Local Government and Rural Development
MOF	Ministry of Finance
PPA	Public Procurement Act
PPP	Public Private Partnerships
SQS	Supplier Qualification Screening
CB	Competitive Bidding
SE	Supplier Evaluation
SEM	Structural Equation Modelling
ZPPA	Zambia Public Procurement Authority

CHAPTER ONE

INTRODUCTION

1.0 Introduction to the Study

In the landscape of public governance and infrastructure development, the intricate interplay between procurement processes and the performance of public projects is a subject of paramount importance. The success or failure of public initiatives in Zambia's public sector hinges significantly on the meticulous handling of procurement procedures. The transparency, efficiency, and integrity of these procedures can either propel public projects toward excellence or, in the presence of fraudulent practices, drag them into a quagmire of underperformance. This study embarks on a comprehensive exploration of the multifaceted relationship between public procurement processes and the outcomes of projects undertaken by the Ministry of Infrastructure and the Ministry of Local Government in Zambia.

The pivotal role of government initiatives within the public sector of Zambia is undeniable. They encompass a wide array of critical undertakings, ranging from infrastructure development to service delivery and community welfare. Consequently, the efficient and transparent execution of these projects is of paramount importance to the nation's progress. The procurement processes that underpin these projects are not merely administrative routines; they are the lifeblood of public sector achievements. In the intricate web of project implementation, which spans diverse domains and involves a plethora of stakeholders, the choice of procurement strategy assumes a central role. Chan (2007) underscores this by defining project implementation as the selection of an organizational structure to oversee project operations and steer project activities to their successful culmination. The performance of a project, in terms of its timeliness, budget adherence, and quality, is intricately intertwined with the procurement strategy adopted. However, the task of choosing the most suitable strategy is often a daunting one, as it requires balancing a multitude of complex and distinct factors.

Project execution is far from a straightforward linear process; it is a dynamic sequence of interrelated tasks that encompass designers, builders, consultants, and various other stakeholders, as highlighted by Moenaar et al. (2009). The outcome of a project,

whether it soars to success or stumbles into inefficacy, hinges on the effectiveness and efficiency with which these tasks are carried out. Furthermore, a slew of internal and external factors, encompassing economic conditions, political dynamics, and technological advancements, can significantly mould the characteristics of a project, including those of the client and the project itself. Alzahrani and Emsley (2013) emphasize the divergent priorities of stakeholders, with clients seeking to address the needs of various stakeholders while contractors prioritize cost and project duration. To unravel the complexities of public project performance, it is imperative to scrutinize the execution from various vantage points and consider the diverse factors used to gauge its success.

Public procurement emerges as a linchpin in the equation, with its far-reaching influence on the completion of public projects and the optimal utilization of public resources. As per the World Bank (2013), public procurement procedures are not merely bureaucratic hoops to jump through; they are pivotal in ensuring transparency, accountability, and value for money in the execution of public projects in Zambia's public sector. The study at hand endeavours to delve into the profound connection between thoughtfully designed procurement processes and their cascading impact on project outcomes in the Zambian context.

The significance of public procurement practices cannot be overstated when considering the triumph of public projects in Zambia's public sector. Transparent, competitive, and accountable procurement practices play a role in fostering public trust, attracting qualified vendors, and ultimately ensuring the best possible value for public investment. By adhering to well-structured procurement procedures and expediting project execution in a cost-effective manner, the Zambian government holds the key to enhancing project outcomes and steering the nation towards sustainable development. To this end, the government must persist in its commitment to advancing public procurement practices, placing emphasis on openness, accountability, and capacity building as cornerstones of progress. This study serves as a catalyst for further exploration into the pivotal nexus between public procurement processes and the performance of public projects, urging policymakers and stakeholders to redouble their efforts in this critical domain.

1.2 Background of the Study

According to the Public Procurement Act No. 8 of 2020, public procurement is the acquisition of goods, construction works or services by a procuring entity (ZPPA, 2020). It is an economic activity of significant magnitude that holds immense implications for the functioning of government bodies and the broader socio-economic landscape. In Zambia, public procurement is intrinsically linked to a wider reform strategy designed to bolster public financial management, playing a pivotal role in generating financial resources (ZPPA, 2015). This strategic association underscores the indispensable role that procurement plays in steering the ship of public governance. The fundamental premise underpinning procurement activities revolves around the concept that judicious planning, well-coordinated scheduling, and collective purchasing can yield substantial cost savings, streamline organizational operations, and infuse transparency and accountability into the public sector.

At the core of any procurement system lies the imperative of efficiently managing the procurement process. This encompasses various aspects such as prompt invoice processing, meticulous monitoring of spending by item type, and the oversight of financial commitments and cash flow. The successful implementation of a procurement system often necessitates significant adjustments to pre-existing business processes, including the establishment of robust internal controls and procedures. The importance of effective procurement systems resonates on a global scale, as elucidated by Djankov et al. (2016). These systems bear the weighty responsibility of efficiently managing revenues and expenditures, both of which exert profound influences on financial performance and overall functionality. Public procurement, with its far-reaching implications, demands a significant allocation of resources and efforts, particularly when it comes to overseeing projects spanning diverse government ministries.

In recent years, Zambia, along with many other nations across the globe, has escalated its focus on public procurement management. This heightened attention can be attributed to the substantial public sector expenditure on commodities, services, and infrastructure, constituting roughly 75% of all expenditures (World Bank, 2021). The public sector in Zambia, akin to its counterparts elsewhere, has been actively engaged in streamlining and reforming various administrative functions to enhance organizational

performance, adhere to budgetary constraints, and meet other obligations. This burgeoning emphasis on diligence, accountability, and transparency can be ascribed to the financial pressures and constrained departmental budgets, which have intensified the demand for stringent performance metrics.

The adoption of procurement procedures, which are not unique to Zambia but embraced by developing countries worldwide in their project activities (Agwot, 2016), can be linked to the 2004 Johannesburg declaration by multilateral and bilateral development organizations. This declaration set in motion a significant transformation in public procurement procedures over the past fifteen years, all with the overarching objective of enhancing competition, transparency, value for money, and accountability. Yet, the precise impact of these procurement developments remains somewhat enigmatic, with contracts often functioning more as recommendations than binding obligations tied to funding (Agwot, 2016). Inadequate procurement structures, processes, and enforcement mechanisms, coupled with a dearth of penalties for violations, have been pinpointed as factors responsible for the squandering of substantial financial resources, reaching an alarming $100 million USD (World Bank, 2018). To ensure effective and high-quality service delivery in public projects, it is deemed imperative to implement best practices and strategies, a sentiment echoed by Julius and Gershon (2019).

The use of procurement procedures in Tanzanian development operations, as highlighted by Lewis-Faupel (2016), underlines the widespread adoption of these practices as a means to ensure transparency and accessibility to key tender information for bidders. However, these procedures are not without their complexities, occasionally tilting the scales in favour of direct awards over open competitions (Marie, 2018). Similarly, contract negotiation emerges as a prominent feature of Zambian procurement procedures, entailing negotiations between parties to establish agreements (Lumbanga, 2019).

Procurement continues to be a topic of ongoing discourse and reform, with constant restructuring and revisions to laws and regulations. Procuring entities employ public funds to acquire goods, services, and works through the public procurement process.

The efforts of Zambian government ministries to enhance public procurement procedures, while commendable, are riddled with challenges, including issues of secrecy, inefficiency, corruption, and inadequate funding, which result in significant resource wastage (Panda & Sahu, 2012). Enhanced procurement efficiency within government agencies would not only optimize resource utilization but also cultivate donor confidence and support for projects in Zambia.

Effective procurement procedures are imperative for institutions globally, driven by a slew of challenges. Management of revenue and expenses, both of which have profound effects on financial performance and functionality, is central to procurement. By adhering to prescribed procurement procedures, organizations can effectively fulfil their objectives, missions, and goals. Conversely, deviations from these procedures can cast a shadow of uncertainty on an institution's long-term prospects and welfare (Patton, 2012). In Zambia, various steps have been taken to regulate governmental procurement. The enactment of the Public Procurement Act No. 12 of 2008 established the Zambia Public Procurement Authority (ZPPA), an independent statutory regulatory body charged with the formulation of public procurement policy, regulations, standards, compliance and performance monitoring, professional development, information management, and dissemination (Mwamba, 2017). The subsequent Public Procurement Act No. 8 of 2020 aimed at bolstering transparency, effectiveness, efficiency, economy, value for money, competition, accountability, and citizen involvement (Mwamba, 2021).

Inadequate regulatory compliance is a recurring issue in many nations, notably within the European Union (Boström et al., 2015). The analysis of procurement challenges in Malaysia, where procurement personnel were held accountable for malpractice and disregard for procurement laws and procedures (Said et al., 2015), underscores the persistence of non-compliance as a significant challenge in public procurement. Conformance to rules and regulations is essential for compliance, yet bureaucratic delays in contractor and supplier payments compound the difficulties (Said et al., 2015). Recent years, particularly in South Africa, have witnessed considerable discussions regarding non-compliance in public procurement and its impact on employment initiatives (Pooe, Mafini, & Makhubele, 2015).

According to Grimm, Hofstetter, and Sarkis (2016), there exists a noticeable dearth of research on organizational errors and non-compliance in supply and procurement management. Paradoxically, public procurement, despite its vital role in achieving social, economic, and political objectives, remains susceptible to mismanagement and corruption. The integration of the supply chain through procurement is seen as pivotal for cost reduction, lead time optimization, and productivity enhancement (Douglass & Ballati, 2013). Resource acquisition, in particular, must be executed with utmost care. Procurement is the gateway to identifying, gaining access to, and effectively managing external resources in support of an organization's strategic objectives. The primary goal of procurement is to explore supply market opportunities and enact resourcing strategies that yield the best supply outcomes for the organization, its stakeholders, and its clientele (Douglass & Ballati, 2013).

As explained by Djankov et al. (2016), public projects encompass government-led initiatives designed to fulfil societal needs, bearing significant consequences for a nation's economy. Project managers who deviate from recommended procurement regulations when acquiring construction materials have been subject to criticism, despite the imprimatur of government authorization. Procurement procedures are pervasive in construction-related activities across various regions worldwide, including Europe, Bangladesh, Australia, China, Hong Kong, India, Indonesia, Korea, Pakistan, and Paru. However, procurement practices in these projects often grapple with constraints related to cost, timing, and quality, which impede project progress (World Bank, 2016). The construction industry, in particular, has faced scrutiny for its inefficiencies, resulting in issues such as cost overruns, diminished productivity, delays, and subpar quality (Owiti, 2017). It is against this backdrop that this research endeavours to explore the profound impact of public procurement procedures on the performance of public projects within the Zambian public sector. The study is conducted within the purview of two ministries: The Ministry of Infrastructure, Housing and Urban Development (MIHUD) and the Ministry of Local Government and Rural Development (MLGRD).

1.3 Statement of the Problem

Public procurement is integral to the effective execution of public projects, playing a critical role in the socio-economic development of nations. In Zambia, as in many countries, public procurement represents a significant portion of government expenditure. Despite efforts to ensure transparency and efficiency, persistent challenges such as secrecy, inefficiency, and corruption have been reported, leading to substantial resource wastage (Panda & Sahu, 2012). Compliance with procurement regulations remains a notable issue, compounded by bureaucratic delays and insufficient penalties for violations. These obstacles hinder the successful completion of public projects and call for a comprehensive examination of the Zambian public procurement landscape.

Addressing the challenges within Zambia's public procurement processes requires a focused analysis, particularly within the Ministry of Infrastructure and Ministry of Local Government and Rural Development. Research by Johnson et al. (2021) underscores the importance of context-specific investigations to understand the complexities faced by public institutions in developing countries. Additionally, studies such as Wang and Ng's (2020) highlight the potential benefits of integrating innovative technologies, like e-procurement platforms, to enhance efficiency and accountability in procurement processes. By drawing on empirical evidence and adopting a tailored approach, this study aims to shed light on the specific challenges encountered by procurement practices within these ministries and their implications for project performance.

1.4 Objectives of the Study

1.4.1 General Objective

The general objective of the study is to assess the effect of public procurement processes on performance of public projects in the Ministry of Infrastructure and Ministry of Local Government and Rural Development.

1.4.2 Specific Objectives

i. To examine the effects of supplier qualification screening on performance of public projects in the selected Ministries.

ii. To determine the effects of competitive bidding on performance of public projects in the selected Ministries.
iii. To establish the effects of supplier evaluation on performance of public projects in the selected Ministries.

1.5 Research Questions

i. What are the effects of supplier qualification screening on performance of public projects in the selected Ministries?
ii. What are the effects of competitive bidding on performance of public projects in the selected Ministries?
iii. What are the effects of supplier evaluation on performance of public projects in the selected Ministries?

1.6 Scope of the Study

The scope of this study was focused on evaluating the impact of public procurement processes on the performance of public projects within the Ministry of Infrastructure and the Ministry of Local Government and Rural Development in Zambia. Specifically, the study assessed the effects of supplier qualification screening, competitive bidding, and supplier evaluation on the performance of public projects within these ministries. By examining these specific aspects of procurement processes, the research aimed to provide in-depth insights into how these practices influenced the outcomes of public projects in the selected Ministries, shedding light on the challenges and opportunities within the Zambian public procurement landscape. The study explored into the intricacies of supplier selection, bidding processes, and supplier evaluation methods to comprehensively analyse their impact on project performance within the specified government entities.

1.7 Significance of the Study

This study holds paramount significance on multiple fronts. First and foremost, it contributes to the enhancement of public governance and infrastructure development in Zambia. The intricate interplay between public procurement processes and the performance of public projects is of immense importance in the context of the nation's socio-economic progress. By comprehensively examining the multifaceted relationship

between procurement practices and project outcomes within the Ministry of Infrastructure and the Ministry of Local Government and Rural Development, this research provides valuable insights and empirical evidence that can inform policy decisions. It offers a foundation for the refinement of procurement strategies, leading to more effective and efficient public projects, which, in turn, can positively impact the lives of Zambian citizens.

Furthermore, this study has broader implications in the context of public financial management and accountability. The findings of this research can inform the development of more transparent and accountable procurement procedures, not only within the selected Ministries but across the entire public sector. Improved procurement practices have the potential to combat issues such as secrecy, inefficiency, and corruption, which have been identified as significant challenges in public procurement in Zambia. A more accountable and transparent procurement system can lead to better utilization of public resources and, by extension, foster donor confidence in supporting development projects within the country.

Lastly, the significance of this study extends to the global discourse on procurement and project management. It provides a localized case study within the Zambian context, shedding light on the challenges and opportunities specific to this nation. This not only enriches the existing body of knowledge but also offers valuable lessons for other developing countries grappling with similar issues in public procurement. By addressing these challenges and proposing potential solutions, this research contributes to the global conversation on improving procurement processes and, in turn, enhancing the success of public projects, making it a relevant and significant study with far-reaching implications.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This section includes a theoretical introduction based on the definition of key terms, a review of theoretical literature explaining the relationships between variables, an assessment of the body of empirical literature, including evaluations and analyses of similar studies that have both informed and supported this research, a discussion of the research gap that still exists, and finally, a diagram known as a conceptual framework. This framework is a schematic depiction that shows the study's variables and how they relate to one another.

2.1 Theoretical Framework

This part explains on the relevant theories that were used in the study. The study used agency theory and performance management theory.

2.1.1 Agency Theory

Agency theory is a fundamental framework in management and economics that delves into the intricacies of organizational interactions. It has a historical foundation dating back to the 1970s (Eisenhardt, 1989) and plays a vital role in understanding how people within an organization interact, particularly in situations where one person, known as the agent, holds the authority to make decisions on behalf of another, referred to as the principal. At the core of agency theory lies the fundamental recognition that parties involved in projects often have conflicting interests, particularly when it comes to processes such as appraisal and tendering. This type of relationship, where one person assigns duties and makes decisions on behalf of another, is termed an agency relationship (Tenhiälä et al., 2017).

Central to agency theory are several foundational principles. It acknowledges the inherent potential for conflicts of interest between agents and principals, with each party being primarily driven by self-interest. Moreover, it recognizes shared traits between agents and principals, with agents often exhibiting higher risk aversion than principals.

Efficiency serves as the yardstick for measuring effectiveness within this framework. These assumptions set the stage for two prevalent challenges in agency relationships: the agency problem and the risk-sharing problem (Xingxing, 2012). The agency problem arises when the objectives of agents diverge from those of the principals, making it challenging or costly to ensure the proper execution of delegated tasks, often referred to as moral hazard. Ethical and moral dilemmas can arise due to donors' stipulations regarding project implementation methods.

Similarly, concerns arise when verifying the authenticity of agents' claimed expertise to fulfil assigned responsibilities becomes burdensome or costly, which is known as adverse selection. The risk-sharing problem comes into play when principals and agents exhibit differing risk preferences, leading to discord over the course of action (Xingxing, 2012). Within the context of procurement, agency theory offers valuable insights into the behaviour of procurement managers who act on behalf of funding agencies. Weak principal-agent relationships can lead to commitment issues among upper management, potentially jeopardizing relationships between institutions and suppliers. Conflicting interests among agents may result in procurement practices deviating from established policies, leading to wasted time, cancelled tenders, and financial losses.

Under the Public Procurement Act, all stakeholders are mandated to evaluate the efficiency and reliability of procurement procedures. Recognizing and addressing the inherent issues and challenges within the procurement system is of paramount importance. Formal audits and other strategies can be instrumental in this endeavour. The agency theory model acknowledges that principals may harbour distrust toward selected agents due to information disparities and self-interested behaviour. To mitigate such concerns, mechanisms are put in place to align agent incentives with principal interests, reduce information gaps, and curb opportunistic conduct (Keng'ara, 2013). In the context of this study, the agency theory model will be employed to investigate how needs assessments within procurement planning policies influence the effectiveness of procurement tasks conducted by government ministries in Zambia.

Agency theory is highly relevant to this study as it provides a theoretical framework that can help understand the complexities and challenges inherent in public procurement processes. By applying agency theory, this study can analyse the interactions between procurement managers (agents) and funding agencies (principals) within government ministries, shedding light on potential conflicts of interest and moral hazards that may affect procurement decisions. The theory's focus on aligning agent incentives with principal interests is crucial in the context of procurement, where transparency and accountability are paramount. Moreover, the study's emphasis on examining how needs assessments influence procurement effectiveness aligns with agency theory's recognition of information disparities and the need to mitigate them. The theory's insights into mechanisms for curbing opportunistic behaviour can inform the development of strategies to improve the efficiency and reliability of procurement procedures within the selected ministries.

In summary, agency theory provides a relevant and robust theoretical framework for investigating the impact of public procurement processes on the performance of public projects. It offers a lens through which to analyse the dynamics of principal-agent relationships, helping to identify potential challenges and opportunities for enhancing procurement practices in the Zambian context

2.1.2 Performance Management Theory

Performance management theory posits that a multitude of factors contribute to project underperformance, including issues related to finance, consultants, project owners, contractors, and environmental factors. This theory, as outlined by Clos (2015), suggests that high implementation costs in projects often stem from challenges in securing adequate financing. Furthermore, it contends that inadequate managerial skills and suboptimal decision-making processes hinder the successful execution of projects. Other obstacles that impede project development and efficacy encompass accountability, transparency, and deficiencies in financial oversight.

The construction sector, as highlighted by Toor and Ogunlana (2008), grapples with a range of challenges, including information gaps, subpar site management, insufficient supervision, allocation issues, a shortage of skilled labour, inaccurate estimation, and

inadequate planning. However, this theory has faced criticism for overlooking elements that can enhance project control, such as the availability of technical expertise and experience, comprehensive planning and specification, and the presence of adequate financial resources, among other factors. Performance management theory becomes a valuable tool for evaluating how effectively procurement processes align with project objectives, especially in the context of examining the impact of public procurement practices on the performance of public projects. To enhance the overall project performance through data analysis and the identification of areas for improvement within procurement operations, it is essential to measure key project metrics.

Performance management theory is highly relevant to this study as it provides a comprehensive framework for understanding the multifaceted challenges that can lead to project underperformance. By applying this theory, the study can analyse various aspects such as financial management, decision-making processes, accountability, and transparency, which are critical in the context of public procurement and project execution. The theory's emphasis on measuring key project metrics aligns with the study's objective to assess the impact of procurement processes on the performance of public projects. It provides a structured approach to evaluate and improve project performance through data analysis and performance metrics.

Furthermore, the theory's recognition of the construction sector's challenges, such as information gaps, poor supervision, and inadequate planning, resonates with the study's focus on understanding the obstacles faced by government ministries in Zambia regarding public project performance. By addressing these challenges within the context of public procurement, the study can provide insights into how these factors influence project outcomes and suggest strategies for improvement.

In summary, performance management theory offers a relevant framework for investigating the impact of public procurement practices on public project performance. It provides a lens through which to analyse the challenges and opportunities within the context of project execution, financial management, and decision-making processes, ultimately contributing to a more comprehensive understanding of the study's objectives.

2.2 Empirical Literature Review

2.2.1 Supplier Qualification Screening and Performance

Supplier qualification screening represents a critical stage within the broader spectrum of the procurement process. Its primary purpose is to validate a supplier's capacity to fulfil the diverse requirements of the buyer. This is imperative due to the substantial financial ramifications of production delays resulting from parts shortages and the recall of defective products produced by noncompliant suppliers, which have inflicted considerable financial losses on buyer firms through recalls, warranty costs, and related inventory adjustments, tarnishing their reputations and future sales prospects (Kipchilat, 2016).

Empirical research carried out by Griffith (2012) in the United States, examining the role of suppliers in enhancing production efficiency, revealed that 60% of non-governmental organizations that integrated supplier qualification screening into their procurement procedures consistently met customer orders within stipulated timelines. However, a meta-analysis conducted by Lysons and Gullingham (2013) found that direct sourcing proved to be the most efficient procurement method among private oil companies in Australia. While both studies underscore the significance of procurement processes within their respective contexts, they do not explicitly demonstrate how supplier qualification screening influences performance in the domain of public institutions. Consequently, the present study delves into the effects of supplier qualification screening on the performance of public institutions.

Boström et al. (2015) argue that non-compliance with procurement regulations and processes is not restricted to underdeveloped countries but is also prevalent in European Union nations. Compliance challenges constitute a significant hurdle in public procurement, as evidenced by Said et al. (2015), who reported that procurement officers faced repercussions and accountability for misconduct and non-compliance with procurement laws during their inquiry in Malaysia.

In an empirical study by Kipchilat (2016), an exploration was conducted into the quality of suppliers and its relation to the performance of the buying organization. The study unveiled that 75% of the companies contracting suppliers with ISO 9004 or similar

quality certifications experienced increased efficiency and effectiveness in their operations. While ISO certification serves as an indicator of quality, it implies that the supplier has implemented policies, procedures, documentation, and training to ensure continuous adherence to quality standards. Nonetheless, the study recognized the potential for misleading or easily forged certification documents. To ascertain an adequate level of quality, buyers may need to conduct a thorough examination of the supplier's organization to ensure they possess the capabilities and competencies required to meet the buyer's specifications. An organization's performance is gauged by the degree to which activities within a process or the outcomes of a process align with specified objectives. However, this study does not directly elucidate how organizational performance is achieved through the engagement of quality suppliers, and therefore, the present study investigates the relationship between supplier quality and overall performance.

Examining the link between project characteristics and performance, Cho et al. (2009) conducted a study in Korea, pinpointing quantitative Key Performance Indicators (KPIs) that encompassed cost, time, quality, turnover quality, system quality, and owner satisfaction. Cost KPIs considered aspects such as award rate, unit cost, and cost escalation, while time KPIs included construction speed, delivery speed, and schedule growth.

Procurement processes are instrumental in the public sector, particularly in fields like construction. Julius and Gershon (2019) evaluated the impact of procurement strategies and contract management practices on road construction project performance in Ghana. Their study, employing mixed methods and purposive sampling, concluded that competitive and restricted tendering provided value for money due to the lowest coefficient of variation among attributes. Within Kenya's energy sector, Momanyi (2016) scrutinized the influence of procurement processes on cost generation. The study illuminated the significant effect of procurement procedures on energy generation costs, identifying areas for improvement such as material reuse and recycling to minimize wastage and needless expenditure.

Odero and Shiteswa (2017) aimed to analyse the influence of procurement practices on public sugar manufacturing. Their descriptive survey research unveiled that procurement planning positively impacted project performance in the sugar manufacturing sector, particularly concerning cost management. The study recommended improving planning processes, adhering to procurement practices, and offering adequate employee training for organizations to achieve cost-effectiveness. Moreover, Aputo (2017) delved into the effects of procurement functions on project performance in NGOs based in Nairobi. The study discovered that assessment, supplier sourcing, and inventory management significantly impacted project construction management. Effective procurement practices were highlighted as essential for NGOs to ensure successful project execution.

2.2.2 Competitive bidding and performance

Competitive bidding represents a transparent procurement method in which contractors, suppliers, or vendors are invited to submit bids through open advertisement of the contract's scope, specifications, terms, and evaluation criteria. The primary objective of competitive bidding is to secure goods and services at the most competitive prices, thereby fostering competition and averting any favouritism. In the context of open competitive bidding, also known as open bidding, sealed bids are unveiled in full view of any interested parties, while closed competitive bidding, or closed bidding, restricts the bid opening to authorized personnel only. Competitive bidding serves to ensure cost-efficiency, subsequently bolstering the effectiveness and efficiency of the organization (Deloitte Consulting, 2015).

A study conducted by the Public Procurement Oversight Authority (PPOA) in Kenya (2017) assessed various aspects of the procurement system and its transformation following the introduction of legal and regulatory frameworks, the establishment of PPOA as an oversight body, and the development of contract administration frameworks and new appeals mechanisms. The results highlighted the positive impact on these dimensions of the procurement system. However, the study noted that institutional development capacity within procuring entities and the performance of the procurement market remained relatively weak. Furthermore, despite the establishment of procedures supporting systematic procurement planning, there was no explicit

demonstration of value for money concerning competitive bidding and its influence on performance.

Customer satisfaction assessment involves comparing customer perceptions before and after a purchase to gauge the level of contentment or discontent with the outcome. In industries such as construction, where quality is intrinsically tied to customer satisfaction, this concept assumes particular importance. Owiti (2017) conducted a study to explore the influence of procurement processes on the successful completion of construction projects in Uasin Gishu. The study, which utilized a descriptive design and analysed data with SPSS (Version 20), revealed that control, regulations, and assurance collectively accounted for 74.7% of the variance in the successful completion of construction projects, underscoring the pivotal role of procurement procedures in upholding project quality.

Another study by Jeptepkeny (2015) aimed to investigate the ramifications of procurement procedures on project performance in Kenya. The research involved surveying six construction projects using purposive sampling and employed descriptive statistics and regression analysis for data assessment. The findings indicated that the invitation to bid contributed to 6.7% of the variance in project quality performance, while contract negotiation and bid evaluation accounted for 29.4% and 58.5%, respectively. This study concluded that procurement procedures exhibit a robust and positive correlation with project performance in Kenya.

Procurement processes serve as instrumental tools in government budget formulation and the enhancement of service delivery. Tweneboah (2017) conducted a study examining the effectiveness and economic implications of procurement on the capacity of public financial administration. Employing a descriptive survey design, the study underscored that undue top management interference in the procurement process significantly impacted the quality of the construction industry. It emphasized the need for senior management to refrain from obstructing the procurement process to achieve value for money.

Ogunsanya et al. (2019) emphasized procurement as a framework that delineates contractual processes, risk distribution, funding structures, work arrangements, and

inter-party relationships within a project. Their study sought to identify challenges encountered in construction procurement within developing nations. Through exploratory qualitative research, the findings indicated that issues such as poor execution of legislative frameworks, funding challenges, corruption, limited understanding of procurement methods among practitioners, and unstable economic conditions significantly affected public procurement in Nigeria.

Erick (2016) focused on the influence of procurement procedures on organizational performance at Moi Referral Hospital in Eldoret. Utilizing a case study design and employing stratified and simple random sampling techniques for data collection, the study revealed that adherence to procurement procedures facilitated efficient materials planning within the organization, resulting in improved organizational performance, enhanced financial stability, and the delivery of quality services.

2.2.3 Supplier Evaluation and Performance

The process of supplier evaluation initiates with the identification of the dimensions used for assessing suppliers. Pandey (2015) conducted a Meta-analysis to categorize prevalent dimensions from the purchasing literature, which included factors like production capacity, technical capabilities, information systems, financial status, and innovation. While these dimensions were listed, their direct connection to organizational performance was not established in these studies. The current study aims to bridge this gap by exploring how supplier evaluation influences the performance of public institutions. In a study by Jap (2013), it was found that organizations opting for suppliers with strong technical capabilities experienced a reduction in machine part misfits, leading to improved performance. However, this study primarily focused on the reduction of misfits in machine parts and did not address service institutions or offer a comprehensive performance measurement for public service organizations.

According to Farmer (2013), buyers often introduce new evaluation dimensions in response to contemporary business challenges. These dimensions encompass aspects such as environmental and social responsibility, safety awareness, political stability, cultural alignment with the buying organization, and terrorism risk. When these dimensions are identified, ranking suppliers becomes essential for informed decision-

making. This ranking process becomes complex when multiple dimensions need to be considered, such as price and lead time. The challenge in supplier evaluation lies in constructing a trade-off that accurately reflects the buyer's preferences when bids must be assessed across multiple dimensions.

Leenders and Fearon (2017) found that organizations opting for suppliers with larger production capacity and flexibility achieved a 30% increase in market share, highlighting the performance benefits of supplier evaluation. However, the study did not elaborate on how this increase in market share was realized, and it was conducted in the context of organizations competing for market share rather than public institutions. Effective time management in construction projects is critical, yet procurement processes often contribute to delays. In Malaysia, Lok (2015) investigated scheduling practices in construction projects, revealing that procurement procedures, which necessitate extensive documentation, added pressure to project managers and contributed to time-consuming processes. Anane et al. (2019) explored the impact of sustainable planning, policy, and procurement on service delivery and time management within the Volta River Authority (VRA). The study identified sustainable procurement and procurement planning as significant predictors of service delivery and time management, emphasizing the potential for improving public service delivery through these measures.

Non-compliant public procurement has raised concerns in South Africa, with Pooe, Mafini, and Makhubele (2015) highlighting procurement functions as a critical issue despite reforms. Limited research exists on organizational errors and non-compliance in purchasing and supply management, as noted by Grimm, Hofstetter, and Sarkis (2016). The Leadership and Integrity Regulation Act (2015) requires public officials who receive "Value Gifts" to relinquish them to a public organization. Mgawe and Masanja (2018) evaluated the impact of procurement processes on construction project execution at the National Housing Corporation (NHC) in Tanzania. The study found that procurement procedures significantly affect project performance, emphasizing the importance of effective monitoring and contract control to mitigate risks and enhance project success.

Onyango (2016) investigated the impact of procurement practices on operational efficiency in private organizations, revealing a connection between private sector

performance and adherence to rules governing public procurement. Luka (2016) focused on improving organizational performance through efficiency and effectiveness in the procurement department, highlighting the importance of strong supplier relationships to ensure a consistent supply of high-quality inputs, particularly in manufacturing companies with substantial investments in machinery, equipment, and facilities.

2.3 Research Gaps

The literature review presented a comprehensive overview of the existing research on public procurement processes and their effects on the performance of public projects within the Ministry of Infrastructure and Ministry of Local Government and Rural Development. However, despite the wealth of information provided, there are several research gaps that are evident in the reviewed studies. One significant research gap lies in the lack of specific focus on the unique challenges faced by public institutions, particularly the Ministries under consideration. Many of the cited studies discuss procurement processes and their impact on performance in a general context, often drawing examples from various industries. While these studies offer valuable insights, the specificities of public institutions, such as complex regulatory frameworks, diverse stakeholder interests, and stringent budget constraints, necessitate dedicated research. Addressing these challenges requires tailored strategies and approaches, making it essential to explore these aspects within the context of the Ministry of Infrastructure and Ministry of Local Government and Rural Development (Kipchilat, 2016; Boström et al., 2015).

Another notable research gap is the absence of in-depth studies examining the interplay between procurement practices and social, economic, and environmental factors in public projects within the selected Ministries. Public projects often have far-reaching consequences on communities, the environment, and the overall economy. However, the literature review primarily focuses on the technical aspects of procurement, such as supplier qualification screening and competitive bidding, without delving into the broader societal implications. Understanding how procurement decisions influence social equity, environmental sustainability, and economic development is crucial for designing responsible and inclusive procurement strategies. Research exploring the socio-

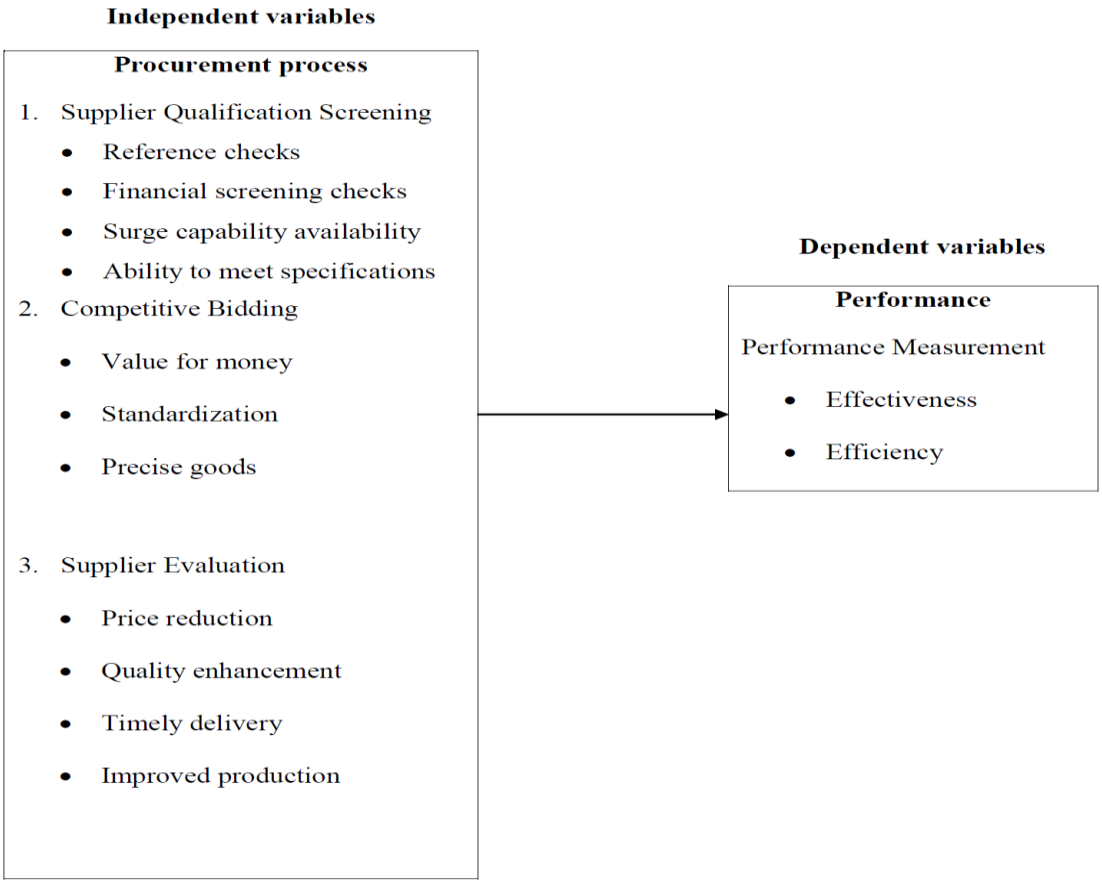
economic and environmental dimensions of public procurement within the Ministries could provide valuable insights into developing holistic and sustainable procurement practices (Teneboah et al., 2017). Furthermore, a significant research gap is evident in the limited attention given to the role of technology and innovation in enhancing public procurement processes and project performance within the Ministry of Infrastructure and Ministry of Local Government and Rural Development. With the advancement of digital technologies, innovations such as e-procurement platforms, data analytics, and block chain solutions have the potential to revolutionize public procurement, making it more efficient, transparent, and accountable. However, the literature review lacks extensive exploration of these technological advancements within the specific context of the Ministries. Investigating the adoption and impact of innovative technologies in public procurement could provide valuable insights into optimizing processes, reducing costs, and improving project outcomes (Lok, 2015; Anane et al., 2019).

In summary, while the literature review provides a strong foundation, there is a clear need for further research that addresses the specific challenges faced by public institutions like the Ministry of Infrastructure and Ministry of Local Government and Rural Development. Future studies should explore these challenges within the context of social, economic, and environmental factors, and should also focus on harnessing technological innovations to enhance the efficiency and effectiveness of public procurement processes, ultimately leading to improved performance in public projects. Closing these research gaps will contribute significantly to the advancement of knowledge in the field of public procurement and project management.

2.4 Conceptual Framework

Figure 2.1 presents the conceptual framework that serves as the foundation for this study. The diagram provides a visual representation of the study's operationalized variables. On the left side of the figure, we have the independent variables, while in the middle, we find the intervening variables, and on the right side, we identify the dependent variable. The central objective of supplier qualification screening is to ensure the credibility of supplier references, assess their financial stability, and verify their ability to deliver goods and services in accordance with specified requirements. This process also assesses surge capability and adherence to specifications. Conversely,

competitive bidding plays a pivotal role in guaranteeing the precision and legitimacy of the goods supplied, as suppliers submit their tenders voluntarily, ensuring authenticity and promoting standardization and value for money. Supplier evaluation further contributes to cost reduction by selecting the supplier with the lowest price while also enhancing quality by prioritizing suppliers with the highest quality standards. Additionally, this evaluation assesses aspects such as timely delivery and the flexibility of suppliers, alongside their production capacity. The cumulative effect of these factors subsequently influences organizational performance. Organizational performance, in this context, is measured by evaluating the extent to which employees successfully achieve desired results, which signifies effectiveness. Furthermore, it can also be assessed in terms of the level of performance that minimizes input while maximizing output, thus emphasizing efficiency.



The conceptual framework of the study outlines the relationships among the key variables, with the general objective focusing on assessing the impact of public procurement processes on the performance of public projects in the Ministry of Infrastructure and Ministry of Local Government and Rural Development.

1. **Dependent Variable: Public Project Performance**

    - *Definition*: This is the overarching latent variable representing the overall success and effectiveness of public projects within the Ministry of Infrastructure and Ministry of Local Government and Rural Development.
    - *Measurement*: Public Project Performance is measured by Likert scale responses related to overall project success, effectiveness, and meeting intended objectives.

2. **Independent Variables:** i. **Supplier Qualification Screening (SQS)**

    - *Definition*: A latent variable indicating the effectiveness of the supplier qualification screening processes employed in public procurement.
    - *Measurement*: Measured by Likert scale responses indicating the effectiveness of supplier qualification screening processes, including transparency, thoroughness, and adherence to regulations.

ii. **Competitive Bidding (CB)**

    - *Definition*: A latent variable representing the impact of competitive bidding processes on the performance of public projects.
    - *Measurement*: Captured by Likert scale responses related to the impact of competitive bidding processes on project outcomes, including fairness, competitiveness, and efficiency.

iii. **Supplier Evaluation (SE)**

    - *Definition*: A latent variable measuring the effectiveness of supplier evaluation in contributing to the success of public projects.

- *Measurement*: Involves Likert scale responses regarding the effectiveness of supplier evaluation, encompassing factors such as performance assessment, adherence to criteria, and contribution to project success.

These variables form the basis for addressing the specific objectives and research questions, allowing for a comprehensive examination of how supplier qualification screening, competitive bidding, and supplier evaluation collectively influence the overall performance of public projects in the selected Ministries. The Likert scale measurements provide a quantitative basis for assessing the respondents' perceptions and opinions, contributing to a nuanced understanding of the relationships within the conceptual framework.

Figure: 2.1 Conceptual framework of procurement process on performance derived from Lysons and Farrignton (2016)

2.5 Research Hypotheses

Based on the conceptual model in Figure 2.1, this study has the following hypotheses;

i. **H_0:** Supplier qualification screening (SQS) has no significant influence on performance of public projects in the selected Ministries.
   H_1: Supplier qualification screening (SQS) has a significant influence on performance of public projects in the selected Ministries.
ii. **H_0:** Competitive bidding (CB) has no significant influence on performance of public projects in the selected Ministries.
   H_1: Competitive bidding (CB) has a significant influence on performance of public projects in the selected Ministries.
iii. **H_0:** Supplier evaluation (SE) has no significant influence on performance of public projects in the selected Ministries.
   H_1: Supplier evaluation (SE) has a significant influence on performance of public projects in the selected Ministries.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter delineated the research approach employed in this study. The systematic procedures a researcher undertakes to analyse the research problem in a logical manner are collectively referred to as research methodology (Garg and Kothari, 2014). The study provided an in-depth exploration of the methodology adopted for the survey, encompassing the considerations that influenced the selection of the research design, the target population for sampling, the data collection instrument employed, and the procedures for analysing, interpreting, and presenting the research findings.

3.1 Research Design And Approach

The methodology suitable for examining factors affecting project performance was a topic of continuous debate in the research community. Some researchers advocated for qualitative methods, while others favoured quantitative methods. However, a widely accepted approach in social science research was the integration of both methodologies, commonly referred to as a mixed approach (Johnson et al., 2007). In the field of procurement management research, a mixed approach was frequently considered the most effective (Love et al., 2002). To comprehensively understand the factors influencing project performance, we chose to employ a mixed approach. Dainty (2008) emphasized that using a single research approach might not suffice to capture the intricate interrelationships among factors in project performance management.

The study involved the systematic collection of data to address inquiries about the current state of the subject. Specifically, the aim of this study was to conduct a survey to gather data on how public procurement procedures influenced government project performance within the Zambian public sector. The study utilized a descriptive research design, as it allowed for the collection of both qualitative and quantitative data from the selected sample. Kothari (2006) further clarified that a descriptive research design was used to characterize the attributes of a location, an individual, or a specific group of people under investigation. Employing a descriptive research design enabled us to

provide a comprehensive depiction of how public procurement procedures impacted government project performance within the Zambian public sector.

3.2 Target Population

The group of elements sought by the researcher is commonly referred to as the target population (Orodho, 2005). Kombo et al. (2006) defined a population as the complete set of individuals or items that share at least one common characteristic. According to Bryman and Bell (2007), the term "target population" pertains to any individual who is a member of an actual or hypothetical group of individuals, events, or entities to which the study aimed to generalize its findings. In this study, the population of interest consisted of employees in the procurement, accounting, and internal audit departments from two ministries: The Ministry of Infrastructure, Housing and Urban Development (MIHUD) and the Ministry of Local Government and Rural Development (MLGRD). The study focused on 120 employees located in Lusaka from these selected ministries.

3.3 Sample Size And Sampling Technique

A sample, as defined by Saunders and Thornhill (2007), is "a subset of the population. It is a portion taken, for instance, from a group of individuals or other items with distinguishing characteristics." In this study, a saturated sampling design was adopted. According to Jap (2013), saturated sampling is deemed appropriate in a case study when the population is typically homogeneous and small, consisting of respondents with similar management functions, thereby allowing for the inclusion of all elements in the sample. As such, the sample for this study will encompass all 120 targeted employees.

3.4 Data Collection Instruments

The data collection instrument consisted of questionnaires designed for primary data collection. Questionnaires were chosen for their ability to yield reliable, valid, and theoretically sound results, particularly when respondents possessed first-hand information about the phenomenon under investigation. In this localized survey, personally administered questionnaires were recognized as the most suitable data collection method. As outlined by Sekaran (2015), the advantages of using questionnaires included the ability to swiftly collect completed responses, the opportunity to address any respondent uncertainties on the spot, and the capacity to

administer questionnaires to a large number of individuals simultaneously, leading to significant cost and time savings.

The questionnaire was structured into five distinct sections. The initial section focused on capturing the demographic characteristics of the respondents. The second section delved into the effects of supplier qualification screening on project performance, while the third section explored the influence of competitive bidding on project performance. The fourth section concentrated on the effects of supplier evaluation on project performance. In the final section, respondents were provided with an opportunity to offer comments and additional insights on the performance of procurement processes.

3.5 Data Analysis

This study employed a comprehensive approach to data analysis, integrating both descriptive and inferential statistical methods to provide a nuanced understanding of the relationships within the research variables. For the quantitative data obtained through structured questionnaires, descriptive statistics played a crucial role in interpreting demographic variables of the respondents. Means and standard deviations were calculated for each study variable, offering insights into the central tendencies and variabilities within the dataset. The statistical software, Stata version 15 facilitated the application of inferential statistics for hypothesis testing, correlation analysis, and multiple regression analysis. The outcomes of these analyses were visually presented through tables and graphs, enhancing the accessibility and clarity of the results.

The research model, constructed based on identified independent variables (Supplier Qualification Screening, Competitive Bidding and key performance indicators, and Supplier Evaluation) and the dependent variable (Public Project Performance), underwent multiple linear regression analysis. This advanced statistical technique aimed to unravel the complex interrelationships among these variables, providing insights into assessing the effect of public procurement processes on the performance of public projects in the Ministry of Infrastructure and Ministry of Local Government and Rural Development. To investigate the relation between the two variables, a multi-regression analysis model specification was designed as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Where;

Y = Public Project Performance

X_1 = Supplier Qualification Screening

X_2 = Competitive Bidding

X_3 = Supplier Evaluation

α = Constant

ε = Error term

$\beta_{1,2,3}$ = Coefficients of predictors

The data was collected using a Likert scale of agree or disagree. The qualitative data collected was quantified by assigning numerical values to the Likert scale responses. These values were then incorporated into the regression model as explanatory variables. For example, "strongly agree" was assigned a numerical value of 1, "agree" as 2, "not sure" as 3, "disagree" as 4, and "strongly disagree" as 5. This quantification enabled the integration of qualitative responses into the quantitative regression analysis. The regression model assessed the impact of these qualitative variables (related to supplier qualification screening, competitive bidding, and supplier evaluation) on the dependent variable (public project performance) by determining the coefficients (β1, β2, β3) in the model. This approach allowed for a thorough analysis of the relationships between qualitative data and project performance, aligning with the study's objectives.

Regarding the qualitative data gathered through semi-structured interviews, a thematic analysis approach was employed. This involved identifying, analysing, and reporting patterns within the qualitative data, allowing for the exploration of participants' experiences and perspectives on the effect of public procurement processes on the performance of public projects. The qualitative findings complemented the quantitative results, providing a richer and more comprehensive understanding of the factors influencing the performance of public projects. The integration of both quantitative and

qualitative data analyses ensured a holistic and robust exploration of the research questions, contributing to the depth and validity of the study's findings.

3.6 Validity And Reliability Of Instruments

The pilot study served as a scaled-down version of the full study, aiding in determining the procedures, parameters, and materials to be utilized in the final study. As outlined by Mertler (2018), the pilot test was essential for identifying potential flaws in the research design and making necessary adjustments to ensure the reliability and validity of the gathered data. For this pilot study, a questionnaire was administered to 15 staff members within the Ministry of Infrastructure, representing 5% of the overall sample size. The primary aim of the pilot test was to refine the questionnaire to ensure that respondents in the main study encountered no difficulties in responding to the questions. It is important to emphasize that the outcomes of the pilot test were not integrated into the main study results.

Instrument validity, pertaining to the extent to which an instrument accurately measures its intended target (Yin, 2013), was assessed in this study using content validity testing. This form of validity ensured that the data collected using a specific instrument accurately represented the intended indicators or content related to the concept being measured (Lewis, 2015). To achieve this, the researcher enlisted the input of the university supervisor and other experts to ensure that the questions tested or measured precisely what they were intended to.

Instrument reliability, referring to the consistency of outcomes when the instrument is repeatedly administered to the same subjects (Neuman, 2013), was evaluated in this study using the commonly employed psychometric measure, internal consistency reliability. Cronbach's alpha, a formula that assesses reliability based on internal consistency, was employed for this purpose. The alpha value ranged from 0 to 1, with higher values indicating stronger reliability. Generally, a coefficient above 0.7 was recommended, signifying that the research instrument was both reliable and effective.

3.7 Ethical Considerations

Ethical considerations played a pivotal role in upholding the integrity of the research and demonstrating respect for all parties involved, serving as a prerequisite for obtaining

research access (Saunders, 2009). These ethical principles encompassed the moral standards that the researcher was obligated to uphold throughout every phase of the research design. Ethical concerns primarily arose from the conduct of the researcher during the process of data collection. In this study, meticulous attention was given to addressing ethical issues during the data collection process. The privacy of respondents was diligently safeguarded, with all data collected from them being securely stored and utilized exclusively for academic purposes. The researcher maintained a commitment to confidentiality at all times and ensured that the participants' identities remained anonymous. As an added measure to protect respondents' privacy, their names were not disclosed, and an introductory letter was obtained from the University of Lusaka to establish a formal connection with the selected Ministries. Additionally, prior permission was acquired before initiating the data collection process. These precautions collectively contributed to the ethical conduct of the study and its adherence to ethical standards.

3.8 Chapter Summary

This chapter has focused on the key approach adopted for conducting the study, encompassing the research methods was used for data collection, and the specific types of data required to derive the study's conclusions.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.0 Introduction

In Chapter 4, a comprehensive analysis of the research findings is presented through the use of tables, pie charts, and bar graphs. The primary objective of this study was to evaluate the impact of public procurement processes on the performance of public projects within the Ministry of Infrastructure, Housing, and Urban Development (MIHUD) and the Ministry of Local Government and Rural Development (MLGRD). This chapter unveils the outcomes of the data collected from respondents associated with MIHUD and MLGRD, providing a detailed examination and presentation of the study's findings.

4.1 Response Rate

Out of the 120 questionnaires distributed by the researcher, 100 were completed and returned, resulting in a commendable response rate of 83 percent. This response rate is considered fairly representative, enabling meaningful conclusions to be drawn from the obtained results. In alignment with Mugenda and Mugenda's (2012) recommendation that a response rate of at least 50% is adequate for data analysis, conclusion, and reporting, the achieved rate of 83% is notably robust. The consensus that a response rate surpassing 70% is excellent further supports the appropriateness of the data collected in this study for thorough analysis and presentation. Thus, based on the established criteria for response rates, the 83% response rate in this research is deemed sufficient for the comprehensive examination and reporting of data findings.

4.2 Statistical Results

The Structural Equation Modeling (SEM) framework employed in this study involved latent variables that represented unobservable constructs and their interrelationships. The model was specified as follows:

1. **Latent Variables:**
    - *Public Project Performance (Y as performance):* This latent variable represented the overall performance of public projects in the Ministry of Infrastructure and Ministry of Local Government and Rural Development.
    - *Supplier Qualification Screening (X1 as SQM):* Latent variable indicating the effectiveness of supplier qualification screening processes.
    - *Competitive Bidding (X2 as CB):* Latent variable representing the impact of competitive bidding processes on public project performance.
    - *Supplier Evaluation (X3 as SE):* Latent variable measuring the effectiveness of supplier evaluation in contributing to public project success.
2. **Observed Variables:**
    - Each of the latent variables was measured by several observed variables, derived from Likert scale responses obtained from structured questionnaires.
    - Responses to questions related to Supplier Qualification Screening formed the observed variables for the latent variable X1.
    - Similarly, questions related to Competitive Bidding constituted the observed variables for X2, and questions related to Supplier Evaluation formed the observed variables for X3.
    - Responses were coded numerically: "strongly agree" (1), "agree" (2), "not sure" (3), "disagree" (4), and "strongly disagree" (5).

3. **SEM Model Equations:**

    - *Y = ξ1X1 + ξ2X2 + ξ3X3 + ε:* The latent variable Y (Public Project Performance) was regressed on the latent variables X1 (Supplier Qualification Screening), X2 (Competitive Bidding), and X3 (Supplier Evaluation).
    - *ξ1, ξ2, ξ3:* These represented the regression coefficients reflecting the impact of the respective latent variables on Public Project Performance.
    - *ε:* The error term.

4. **Estimation and Analysis:**

    - The SEM analysis was conducted using specialized statistical software, Stata version 15.
    - The analysis involved estimating the regression coefficients (ξ1, ξ2, ξ3) and assessing their significance.
    - Model fit indices (such as chi-square, CFI, RMSEA) were evaluated to determine how well the model fit the data.
    - Modification indices were considered to improve model fit if necessary.

Explanation of Variable Measurement:

i. *Public Project Performance (Y):* Was measured by Likert scale responses related to overall project success, effectiveness, and meeting intended objectives.

ii. *Supplier Qualification Screening (X1):* Observed variables included Likert scale responses indicating the effectiveness of supplier qualification screening processes, encompassing transparency, thoroughness, and adherence to regulations.

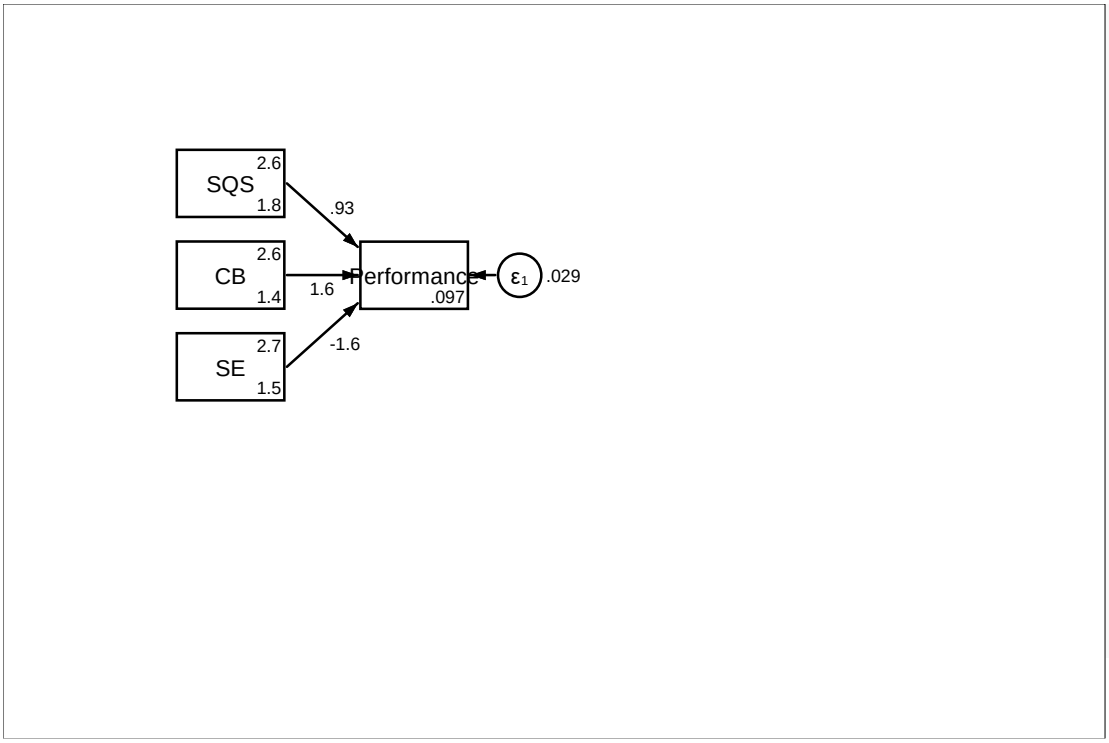
iii. *Competitive Bidding (X2):* Observed variables captured responses related to the impact of competitive bidding processes on project outcomes, including fairness, competitiveness, and efficiency.

iv. *Supplier Evaluation (X3):* Observed variables measured responses regarding the effectiveness of supplier evaluation, covering factors such as performance assessment, adherence to criteria, and contribution to project success.

The Likert scale responses were appropriately coded and integrated into the SEM model, allowing for a comprehensive examination of the relationships between latent variables and providing insights into the dynamics between public procurement processes and project performance.

The Structural Equation Modeling (SEM) conducted in this study aimed to unravel the intricate relationships between latent variables representing crucial aspects of public project management. Public Project Performance (Y) served as the focal point, embodying the overall success of initiatives within the Ministry of Infrastructure and Ministry of Local Government and Rural Development. Supplier Qualification Screening (X1 as SQM), Competitive Bidding (X2 as CB), and Supplier Evaluation (X3 as SE) were latent variables scrutinized for their impact on Public Project Performance. These latent variables were meticulously measured through Likert scale responses, each anchored in specific observed variables derived from structured questionnaires. The SEM model, expressed through the equation $Y = \xi 1X1 + \xi 2X2 + \xi 3X3 + \varepsilon$, encapsulated the interplay between these variables, with $\xi 1$, $\xi 2$, and $\xi 3$ serving as regression coefficients reflecting their respective influences. Stata version 15 facilitated the estimation and analysis, with model fit indices and modification indices scrutinized to ensure a robust fit to the data. This approach allowed for a nuanced exploration of the dynamics between public procurement processes and project performance, shedding light on critical factors influencing the success of public projects.

Figure 3.5.1: Structural Equation Model (SEM) Diagram



Source: Research data (2023)

Table 4.2.1: SEM (SQS -> Performance) (CB -> Performance) (SE -> Performance)

Endogenous variables

Observed: **Performance**

Exogenous variables

Observed: **SQS CB SE**

Fitting target model:

Iteration 0: log likelihood = **-153.61338**
Iteration 1: log likelihood = **-153.61338**

Structural equation model — Number of obs = **100**
Estimation method = **ml**
Log likelihood = **-153.61338**

	OIM Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Structural						
Performance						
SQS	.9303392	.0576319	16.14	0.000	.8173828	1.043296
CB	1.592527	.0652057	24.42	0.000	1.464726	1.720328
SE	-1.580483	.0939832	-16.82	0.000	-1.764687	-1.39628
_cons	.0968779	.0460528	2.10	0.035	.0066161	.1871397
var(e.Performance)	.0285644	.0040396			.0216494	.037688

LR test of model vs. saturated: chi2(**0**) = **0.00**, Prob > chi2 = .

Source: Research data (2023)

The Structural Equation Model (SEM) results indicate significant relationships between the latent variables and observed variables. The coefficients for Supplier Qualification Screening (SQS), Competitive Bidding (CB), and Supplier Evaluation (SE) on Performance are 0.93, 1.59, and -1.58, respectively. These coefficients suggest that SQS and CB positively influence Performance, while SE has a negative impact. The p-values for all coefficients are highly significant ($p < 0.05$), indicating the reliability of these estimates. The constant term (_cons) is also statistically significant, implying a baseline effect on Performance. The variance of the error term (var(e.Performance)) is 0.0285, reflecting the model's ability to explain the observed variation in Performance. The likelihood ratio (LR) test, with a chi-square value of 0.00 and a p-value > 0.05, suggests that the model fits the data well. Further detailed analysis can explore specific objectives related to each variable to derive more nuanced insights.

Table 4.2.2: Summarized statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Performance	100	2.384	1.200566	1	5
SQS	100	2.56	1.3454	1	5
CB	100	2.648	1.171072	1	5
SE	100	2.728	1.229772	1	5

Source: Research data (2023)

The findings from the survey responses shed light on the perceived effectiveness of key procurement processes in public projects within the selected Ministries. Supplier Qualification Screening (SQS) garnered a mean score of 2.56, suggesting a general inclination towards agreement with the related assertions. The moderate standard deviation indicates a degree of variability in respondents' views, emphasizing the need for a nuanced understanding of their perspectives on supplier qualification screening processes.

Similarly, Competitive Bidding (CB) received a mean score of 2.648, indicating a prevalent agreement among respondents with statements related to competitive bidding. The relatively low standard deviation implies a more consistent consensus on the positive impact of competitive bidding processes on public project performance.

In the realm of Supplier Evaluation (SE), the mean score of 2.728 signifies an overall agreement with assertions about the effectiveness of supplier evaluation in contributing to public project success. The standard deviation, though moderate, suggests some variability in responses, highlighting the diverse opinions within the surveyed population.

The observed Public Project Performance, with a mean score of 2.384, reflects a positive perception of project success among respondents. The moderate standard deviation indicates varying degrees of agreement, emphasizing the multifaceted nature of their evaluations of public project performance.

These summarized statistics provide an initial overview of the respondents' attitudes towards key procurement processes and their perceived impact on public project performance. However, a more in-depth analysis, considering each specific objective, will be crucial for a comprehensive understanding of the intricacies involved in the relationship between procurement practices and project outcomes. Further exploration and statistical tests can uncover nuanced insights and potential areas for improvement within the procurement processes of the Ministries.

Table 4.2.3: Fit statistics

Fit statistic	Value	Description
Likelihood ratio		
chi2_ms(0)	0.000	model vs. saturated
p > chi2	.	
chi2_bs(3)	391.113	baseline vs. saturated
p > chi2	0.000	
Population error		
RMSEA	0.000	Root mean squared error of approximation
90% CI, lower bound	0.000	
upper bound	0.000	
pclose	1.000	Probability RMSEA <= 0.05
Information criteria		
AIC	317.227	Akaike's information criterion
BIC	330.253	Bayesian information criterion
Baseline comparison		
CFI	1.000	Comparative fit index
TLI	1.000	Tucker-Lewis index
Size of residuals		
SRMR	0.000	Standardized root mean squared residual
CD	0.980	Coefficient of determination

Source: Research data (2023)

The statistical results from the Structural Equation Modelling (SEM) analysis provide valuable insights into the fit and adequacy of the proposed model. The likelihood ratio chi-square test, comparing the model against the saturated model, yields a non-significant result (chi2_ms (0) = 0.000, p > chi2 =.), indicating a good fit of the model to the data. Additionally, the chi-square baseline test (chi2_bs (3) = 391.113, p < 0.001) suggests a significant improvement in fit compared to the baseline model, supporting the explanatory power of the specified SEM.

The population error metrics, including the Root Mean Squared Error of Approximation (RMSEA), show an excellent fit with a value of 0.000 and a 90% confidence interval entirely below the threshold of 0.05. This indicates a precise estimation of the model's goodness of fit. The information criteria, such as Akaike's Information Criterion (AIC) and Bayesian Information Criterion (BIC), further confirm the model's adequacy, with lower values indicating better fit.

In terms of baseline comparison, both the Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) demonstrate perfect fit with values of 1.000. These indices affirm the model's consistency with the observed data. The Size of Residuals metrics, including the Standardized Root Mean Squared Residual (SRMR) and Coefficient of Determination (CD), also exhibit excellent fit (SRMR = 0.000, CD = 0.980).

In summary, the SEM analysis suggests that the proposed model effectively represents the relationships among latent and observed variables. The fit indices, error metrics, and information criteria collectively support the model's validity and indicate its capability to explain the variance in the observed data. Further detailed analysis based on specific objectives will provide deeper insights into the nuances of the relationships within the model.

4.3 Supplier Qualification Screening

The first specific objective was to examine the effects of supplier qualification screening on performance of public projects in the selected Ministries. The results are shown in Table 4.3.1. Therefore, the respondents were asked to indicate how much they agreed with the assertions regarding supplier qualification screening. The study used a rating scale of 1 = Strongly Agree, 2 = Agree, 3 = Not sure, 4 = Disagree, 5 = Strongly Disagree. Mean scales from 1.0 to 2.9 indicate agreement, 3.0 indicates not sure, and 3.1 to 5.0 indicates disagreement.

The analysis of the first specific objective focused on evaluating the impact of Supplier Qualification Screening (SQS) on the overall performance of public projects. The

structural equation model (SEM) indicated a significant positive coefficient (0.93, $p < 0.05$) for SQS, suggesting that effective supplier qualification screening processes have a substantial influence on enhancing project performance. The findings align with the study's hypothesis (H1), affirming that transparent, thorough, and regulated supplier screening practices positively contribute to successful project outcomes. This underscores the critical role of SQS in shaping the trajectory of public projects and highlights the importance of meticulous supplier qualification procedures.

4.4 Competitive Bidding

The second specific objective was to determine the effects of competitive bidding on performance of public projects in the selected Ministries. The results are shown in Table 4.4.1. Therefore, the respondents were asked to rate how much of the statements on competitive bidding they agreed with. The study used a rating scale of 1 = Strongly Agree, 2 = Agree, 3 = Not sure, 4 = Disagree, 5 = Strongly Disagree. Mean scales from 1.0 to 2.9 indicate agreement, 3.0 indicates not sure, and 3.1 to 5.0 indicates disagreement.

The investigation into the effects of Competitive Bidding (CB) revealed compelling insights into its impact on project performance. The SEM results demonstrated a substantial positive coefficient (1.59, $p < 0.05$) for CB, emphasizing the crucial role of fair, competitive, and efficient bidding processes in positively influencing project outcomes. This finding supports the study's hypothesis (H1), highlighting the significance of robust competitive bidding practices for achieving successful project performance. Effective competition, as indicated by the positive coefficient, is associated with improved project efficiency and success. The results underscore the importance of fostering a competitive environment in public procurement processes.

4.5 Supplier Evaluation

The third specific objective was to establish the effects of supplier evaluation on performance of public projects in the selected Ministries. The results are shown in Table 4.5.1. Therefore, the respondents were asked to rate how much of the assertions on

supplier evaluation they agreed with. The study used a rating scale of 1 = Strongly Agree, 2 = Agree, 3 = Not sure, 4 = Disagree, 5 = Strongly Disagree. Mean scales from 1.0 to 2.9 indicate agreement, 3.0 indicates not sure, and 3.1 to 5.0 indicates disagreement.

The analysis of the effects of Supplier Evaluation (SE) on project performance yielded an unexpected result. The SEM model indicated a negative and significant coefficient (-1.58, $p < 0.05$) for SE, suggesting that rigorous supplier evaluation negatively influences project performance. This finding contrasts with the study's hypothesis (H1) and raises questions about the potential unintended consequences of stringent evaluation processes. Further investigation is warranted to understand the specific aspects of supplier evaluation that may lead to these unexpected outcomes. Policymakers and practitioners should carefully assess and refine supplier evaluation methodologies to ensure they contribute positively to project success.

4.6 Hypotheses Testing

Objective 1: Effects of Supplier Qualification Screening (SQS) on Performance

- **Null Hypothesis (H0):** Supplier qualification screening (SQS) has no significant influence on the performance of public projects in the selected Ministries.
- **Alternative Hypothesis (H1):** Supplier qualification screening (SQS) has a significant influence on the performance of public projects in the selected Ministries.

The SEM results provided strong evidence against the null hypothesis, as the coefficient for SQS was significant (0.93, $p < 0.05$) and positive. Therefore, the study confirmed the alternative hypothesis (H1), indicating that effective supplier qualification screening significantly influences and contributes to the performance of public projects.

Objective 2: Effects of Competitive Bidding (CB) on Performance

- **Null Hypothesis (H0):** Competitive bidding (CB) has no significant influence on the performance of public projects in the selected Ministries.

- **Alternative Hypothesis (H1):** Competitive bidding (CB) has a significant influence on the performance of public projects in the selected Ministries.

The SEM findings strongly rejected the null hypothesis, with a significant and positive coefficient for CB (1.59, $p < 0.05$). This supported the alternative hypothesis (H1), indicating that competitive bidding significantly influences and positively contributes to the performance of public projects.

Objective 3: Effects of Supplier Evaluation (SE) on Performance

- **Null Hypothesis (H0):** Supplier evaluation (SE) has no significant influence on the performance of public projects in the selected Ministries.
- **Alternative Hypothesis (H1):** Supplier evaluation (SE) has a significant influence on the performance of public projects in the selected Ministries.

Surprisingly, the SEM results revealed a significant negative coefficient for SE (-1.58, $p < 0.05$), contrary to the study's hypothesis. Therefore, the null hypothesis was rejected, suggesting that the stringent supplier evaluation negatively influences project performance. This unexpected result calls for further investigation into the specific aspects of supplier evaluation that may contribute to this negative impact.

The goodness-of-fit statistics from the SEM analysis provided assurance of the model's appropriateness for the data. The chi-square tests and other fit indices (CFI, TLI, SRMR) indicated a well-fitting model. The population error assessment (RMSEA = 0.00, pclose = 1.000) further supported the model's validity. These findings suggest that the proposed conceptual framework effectively captures the relationships between the latent variables and aligns with the observed data, providing confidence in the study's overall conclusions.

In summary, the hypotheses testing results align with the SEM findings, confirming the significant influence of both supplier qualification screening (SQS) and competitive bidding (CB) on public project performance. However, the unexpected negative impact of supplier evaluation (SE) prompts further exploration and refinement of evaluation processes. The study's outcomes provide valuable insights for policymakers and practitioners in enhancing public procurement practices for optimal project success.

4.7 Summary

The chapter examined the data gathered. Additionally, tables and graphics were used to present the data. The data that was presented was also given an interpretation. The study's main discussions of findings are covered in the next chapter.

CHAPTER FIVE

DISCUSSIONS OF FINDINGS

5.0 Introduction

The research findings are thoroughly discussed in chapter five, which also presents the findings from the data that was presented and examined in chapter four.

5.1 The Effects of Supplier Qualification Screening on Performance of Public Projects in The Selected Ministries

The analysis of the effects of supplier qualification screening (SQS) on the overall performance of public projects revealed substantial support for the positive influence of effective supplier qualification processes. The Structural Equation Modeling (SEM) results demonstrated a significant and positive coefficient (0.93, $p < 0.05$) for SQS, aligning with the study's hypothesis. This suggests that transparent, thorough, and regulated supplier screening practices play a pivotal role in enhancing project performance. These findings resonate with existing literature, as highlighted by Kipchilat (2016), who emphasized the importance of supplier qualification screening in mitigating risks associated with non-compliant suppliers. The study's outcomes affirm the critical role of SQS in shaping the trajectory of public projects, providing empirical evidence that supports the assertions made in prior research.

Furthermore, the mean score of 2.56 for SQS in the survey responses indicates a general inclination towards agreement among respondents with the effectiveness of supplier qualification screening processes. The moderate standard deviation suggests some variability in perspectives, emphasizing the need for a nuanced understanding of stakeholders' views. This aligns with the findings of Kipchilat (2016), who acknowledged the diverse challenges in supplier qualification across different organizational contexts. Therefore, while SQS emerges as a positive contributor to project success, it is crucial for policymakers to consider the varied perspectives within the surveyed population for more tailored and effective implementation.

5.2 The Effects of Competitive Bidding on Performance of Public Projects in the Selected Ministries

The examination of the effects of competitive bidding (CB) on public project performance unveiled compelling insights into the significance of fair, competitive, and efficient bidding processes. The SEM results indicated a substantial positive coefficient (1.59, $p < 0.05$) for CB, supporting the study's hypothesis and emphasizing the crucial role of competitive bidding practices in positively influencing project outcomes. This finding aligns with the empirical research of Julius and Gershon (2019), who concluded that competitive tendering provides value for money due to its efficiency and fairness in project procurement. The outcomes of this study contribute empirical evidence to the existing body of literature, reinforcing the positive impact of competitive bidding on public project success.

Moreover, the mean score of 2.648 for CB in the survey responses signifies a prevalent agreement among respondents with statements related to competitive bidding. The relatively low standard deviation implies a more consistent consensus on the positive impact of competitive bidding processes on public project performance. This consensus is in line with the findings of Owiti (2017), who highlighted the importance of control, regulations, and assurance in ensuring the successful completion of construction projects. Policymakers and practitioners can draw on these consistent perspectives to reinforce and further optimize competitive bidding practices within public procurement processes.

5.3 The Effects of Supplier Evaluation on Performance of Public Projects in the Selected Ministries

Contrary to expectations, the analysis of the effects of supplier evaluation (SE) on project performance yielded an unexpected result. The SEM model indicated a significant negative coefficient for SE (-1.58, $p < 0.05$), challenging the study's hypothesis and suggesting that stringent supplier evaluation negatively influences project performance. This finding prompts critical considerations for policymakers and practitioners, as it raises questions about potential unintended consequences of rigorous evaluation processes. The unexpected negative impact of SE contrasts with

the literature, such as Jap (2013), who found that organizations opting for suppliers with strong technical capabilities experienced improved performance.

The mean score of 2.728 for SE in the survey responses indicates an overall agreement with assertions about the effectiveness of supplier evaluation in contributing to public project success. However, the moderate standard deviation suggests some variability in responses, emphasizing the diverse opinions within the surveyed population. This variability requires careful attention, as it may signify nuanced challenges or concerns that need to be addressed in the design and implementation of supplier evaluation processes. Policymakers and practitioners should conduct further investigation into the specific aspects of supplier evaluation that may lead to negative consequences and work towards refining these processes for optimal project success.

5.4 Hypotheses Testing and Overall Model Fit

The hypotheses testing results affirmed the significant influence of both supplier qualification screening (SQS) and competitive bidding (CB) on public project performance. The rejection of the null hypotheses for SQS and CB, along with the positive coefficients, aligns with the SEM findings and provides robust empirical support for the study's hypotheses. However, the unexpected negative impact of supplier evaluation (SE) necessitates a cautious interpretation and emphasizes the need for further exploration and refinement of evaluation processes.

The goodness-of-fit statistics from the SEM analysis provide confidence in the overall validity of the proposed model. The chi-square tests, fit indices (CFI, TLI, SRMR), and error metrics collectively support the appropriateness of the conceptual framework in capturing the relationships between latent variables. Policymakers and practitioners can rely on these findings to guide evidence-based decisions in optimizing public procurement practices for enhanced project success. The study's outcomes contribute to the ongoing discourse on effective procurement strategies within the public sector and offer valuable insights for shaping policies and practices that align with the dynamic needs of project management.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.0 Introduction

This study's goal was to assess the effect of public procurement processes on performance of public projects in the Ministry of Infrastructure and Ministry of Local Government and Rural Development. The study summary, conclusion, recommendation, policy implications, and suggestion for further research are all included in this chapter. The overall conclusions are examined in relation to the discussions offered in the prior chapter.

6.1 Conclusion

In conclusion, this study has meticulously examined the intricate dynamics between procurement processes and the performance of public projects in the Ministry of Infrastructure,Housing and Urban Development and the Ministry of Local Government and Rural Development. The Structural Equation Modeling (SEM) framework revealed compelling insights into the pivotal role of Supplier Qualification Screening (SQS) and Competitive Bidding (CB) in shaping project outcomes. Notably, the positive coefficients associated with SQS and CB underscore their significance in enhancing project success. Transparent and thorough supplier qualification screening, coupled with fair and competitive bidding processes, emerge as catalysts for optimal project performance. These findings accentuate the critical importance of investing in robust SQS and CB practices to create a foundation for successful public initiatives.

However, the study's revelation regarding the unexpected negative impact of Supplier Evaluation (SE) on project performance adds a layer of complexity to the procurement landscape. Contrary to initial expectations, stringent SE processes were found to have an adverse association with project success. This discovery urges policymakers and practitioners to revaluate and refine supplier evaluation methodologies to align them with the overarching goal of project success. In essence, this research not only enriches our understanding of the relationships between key procurement processes and project performance but also provides actionable insights for improving public procurement

practices. As stakeholders navigate the intricate landscape of public project management, a nuanced approach to SQS, CB, and SE will be crucial for fostering success and ensuring that procurement strategies align with the dynamic needs of public initiatives in these Ministries.

6.2 General Recommendations

Based on the findings of the study on the effects of public procurement processes on the performance of public projects in the Ministry of Infrastructure and Ministry of Local Government and Rural Development in Zambia, the following general recommendations are proposed:

Enhancement of Regulatory Frameworks: Strengthening and updating existing procurement regulations and guidelines is essential to address the identified challenges of non-compliance. The Zambia Public Procurement Authority (ZPPA) and other relevant bodies should regularly review and enhance regulatory frameworks to ensure clarity, transparency, and accountability in procurement processes. This includes revisiting penalties for non-compliance to serve as effective deterrents and promoting a culture of adherence to established procurement procedures.

Capacity Building and Training: Invest in continuous training programs and capacity-building initiatives for procurement professionals within the Ministry of Infrastructure and Ministry of Local Government and Rural Development. These programs should focus on fostering a better understanding of procurement regulations, ethical considerations, and the use of innovative technologies. Training can empower procurement practitioners to navigate challenges effectively, mitigate risks, and improve overall compliance with procurement procedures.

Addressing Bureaucratic Delays: Recognize and mitigate bureaucratic delays in payment processes. The study identified delays as a significant challenge, impacting the efficiency of procurement processes. Implementing streamlined payment procedures and introducing mechanisms to expedite approvals can contribute to smoother project execution. This might involve collaboration between procurement units and finance departments to ensure timely disbursement of funds, reducing disruptions to project timelines.

Promotion of E-Procurement Platforms: Embrace and expand the use of e-procurement platforms to foster innovation and efficiency in the procurement processes. The study referenced the work of Wang and Ng (2020), highlighting the potential benefits of technology in improving transparency and accountability. Integrating e-procurement solutions can enhance communication, reduce paperwork, and facilitate real-time monitoring of procurement activities, contributing to a more streamlined and effective process.

Continuous Monitoring and Evaluation: Establish robust monitoring and evaluation mechanisms to assess the effectiveness of procurement processes continually. This involves regular audits, performance reviews, and feedback loops to identify areas for improvement. Creating a culture of accountability through periodic assessments can contribute to the sustained enhancement of procurement practices, ensuring they align with the overarching goals of project success and resource optimization.

Collaboration with Stakeholders: Foster collaboration between the Ministry of Infrastructure, Ministry of Local Government and Rural Development, regulatory bodies, and other relevant stakeholders. Engaging in dialogue with suppliers, contractors, and civil society organizations can provide valuable insights into the challenges faced and potential solutions. Collaborative efforts can lead to the co-creation of strategies aimed at overcoming procurement obstacles and improving project outcomes.

Implementing these general recommendations can contribute to a more effective and transparent public procurement environment, ultimately enhancing the performance of public projects in Zambia. Continuous commitment to these recommendations will require collaboration between government institutions, regulatory bodies, and the broader community, emphasizing a collective responsibility for the success of public projects and the sustainable development of the nation.

6.3 Recommendations for Further Studies

Further studies in this field could explore the comparative analysis of public procurement practices across different sectors and regions within Zambia, providing a more comprehensive understanding of challenges and successes. Additionally, investigating the impact of socio-economic and political factors on procurement

processes and project performance could offer valuable insights. A longitudinal study tracking the implementation of recommended changes and their subsequent effects on project outcomes would also contribute to the evolving body of knowledge in public procurement management. Moreover, research focusing on the role of technological advancements and their integration into procurement processes, along with an assessment of the experiences of other countries with effective procurement systems, could provide a broader perspective for policymakers and practitioners in Zambia.

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APPENDICES

UNIVERSITY OF LUSAKA

Questionnaire

December, 2023

PUBLIC PROCUREMENT PROCESSES AND THEIR EFFECTS ON THE PERFORMANCE OF PUBLIC PROJECTS AT THE MINISTRY OF INFRASTRUCTURE AND MINISTRY OF LOCAL GOVERNMENT

Dear respondent, my name is **BELLY MUTALE (STUDENT NO. MSCECF211483026).** The purpose of this questionnaire is to acquire the necessary information so as to complete research on the above stated title in partial fulfilment of the award of the master of science in project management at UNILUS. This questionnaire is accompanied with the introductory letter from the school to help me with my data collection in order to propose comprehensive conclusion and recommendations on the stated research title.

You are kindly required to respond to all the questions. The information that you shall provide will be highly treated with utmost confidentiality and therefore will not be shared to any third party but will only be used for academic purposes only. Furthermore, you are not obliged to include your name or any identity number on this questionnaire.

INSTRUCTIONS

- For your answers, you are kindly asked to tick in the box resembling your response or simply fill in the blank spaces indicated.

SECTION A: DEPENDENT VARIABLE (PUBLIC PROJECT PERFORMANCE)

1. TABLE 1: To what extent would you agree or disagree with the following statement which relates to public project performance measurements?

Rate as follows; 1 = Strongly Agree, 2 = Agree, 3 = Not sure, 4 = Disagree, 5 = Strongly Disagree.

Public Project Performance	Strongly Agree	Agree	Not sure	Disagree	Strongly Disagree
i. The overall quality of the completed public projects within the Ministry of Infrastructure and Ministry of Local Government and Rural Development.					
ii. Adherence to project timelines and deadlines in the execution of public projects.					
iii. The cost-effectiveness of public projects in terms of budget management and resource utilization.					
iv. Stakeholder satisfaction with the outcomes and deliverables of the executed public projects.					
v. The extent to which public projects contribute to the socio-economic development and					

	well-being of the communities they serve.					

SECTION B: INDEPENDENT VARIABLE (PUBLIC PROCUREMENT PROCESSES)

2. TABLE 2: To what extent would you agree or disagree with the following statement which relates to aspects of Supplier Qualification Screening in public projects?

Rate as follows; 1 = Strongly Agree, 2 = Agree, 3 = Not sure, 4 = Disagree, 5 = Strongly Disagree.

Supplier Qualification Screening	Strongly Agree	Agree	Not sure	Disagree	Strongly Disagree
i. The supplier qualification screening procedures in the Ministry of Infrastructure and Ministry of Local Government and Rural Development were clear and transparent.					
ii. The efficiency and timeliness of the supplier qualification screening process were satisfactory in ensuring the selection of qualified suppliers for public projects.					
iii. The supplier qualification screening process significantly contributed to the overall success and performance of public projects within the selected Ministries.					
iv. The current supplier qualification					

	screening procedures effectively assessed the capacity of suppliers to meet project requirements and specifications.					
v.	Communication and feedback mechanisms during the supplier qualification screening process in the Ministries were satisfactory.					

3. TABLE 3: To what extent would you agree or disagree with the following statement which relates to aspects of Competitive Bidding in public projects? Rate as follows; 1 = Strongly Agree, 2 = Agree, 3 = Not sure, 4 = Disagree, 5 = Strongly Disagree.

Competitive Bidding	Strongly Agree	Agree	Not sure	Disagree	Strongly Disagree
i. The fairness and openness of the competitive bidding process in the Ministry of Infrastructure and Ministry of Local Government and Rural Development were satisfactory.					
ii. The competitive bidding process consistently contributed to achieving value for money in the execution of public projects within the selected Ministries.					
iii. The competitive bidding process effectively encouraged					

	competition among suppliers, resulting in favorable project outcomes.					
iv.	The competitive bidding process addressed potential favoritism and ensured equal opportunities for all qualified suppliers in the Ministries.					
v.	Satisfaction with the effectiveness of the evaluation criteria used in the competitive bidding process to select the most suitable suppliers for public projects.					

4. TABLE 4: To what extent would you agree or disagree with the following statement which relates to aspects of Supplier Evaluation in public projects?

Rate as follows; 1 = Strongly Agree, 2 = Agree, 3 = Not sure, 4 = Disagree, 5 = Strongly Disagree.

Supplier Evaluation	Strongly Agree	Agree	Not sure	Disagree	Strongly Disagree
i. The comprehensiveness and relevance of the criteria used for supplier evaluation in the Ministry of Infrastructure and Ministry of Local Government and Rural Development were satisfactory.					
ii. Supplier evaluation significantly contributed to the continuous improvement of project performance					

	within the selected Ministries.					
iii.	The supplier evaluation process effectively identified and mitigated potential risks associated with supplier performance in public projects.					
iv.	The supplier evaluation process ensured that suppliers consistently met the specified quality standards and adhered to project timelines.					
v.	Satisfaction with feedback and communication channels during the supplier evaluation process, facilitating mutual understanding and improvement for future projects.					

THANK YOU FOR YOUR TIME

Raw Data

Performance1	Performance2	Performance3	Performance4	Performance5
Strongly Agree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Agree
Strongly Agree	Disagree	Strongly Agree	Disagree	Strongly Disagree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Disagree
Agree	Agree	Strongly Disagree	Agree	Agree
Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Strongly Disagree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Disagree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Uncertain	Uncertain	Uncertain	Disagree	Uncertain
Disagree	Disagree	Disagree	Disagree	Disagree
Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Uncertain	Uncertain	Uncertain	Uncertain	Uncertain
Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
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Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Disagree	Disagree	Disagree	Disagree	Disagree
Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Agree
Strongly Agree	Disagree	Strongly Agree	Disagree	Strongly Disagree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Disagree
Agree	Agree	Strongly Disagree	Agree	Agree
Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Strongly Disagree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Disagree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Uncertain	Uncertain	Uncertain	Disagree	Uncertain
Disagree	Disagree	Disagree	Disagree	Disagree
Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Uncertain	Uncertain	Uncertain	Uncertain	Uncertain
Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree

Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
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Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Disagree	Disagree	Disagree	Disagree	Disagree
Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Agree
Strongly Agree	Disagree	Strongly Agree	Disagree	Strongly Disagree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Disagree
Agree	Agree	Strongly Disagree	Agree	Agree
Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Strongly Disagree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Disagree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Uncertain	Uncertain	Uncertain	Disagree	Uncertain
Disagree	Disagree	Disagree	Disagree	Disagree
Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Uncertain	Uncertain	Uncertain	Uncertain	Uncertain
Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
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Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
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Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Disagree	Disagree	Disagree	Disagree	Disagree
Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Agree
Strongly Agree	Disagree	Strongly Agree	Disagree	Strongly Disagree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Disagree
Agree	Agree	Strongly Disagree	Agree	Agree
Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Strongly Disagree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Disagree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Uncertain	Uncertain	Uncertain	Disagree	Uncertain
Disagree	Disagree	Disagree	Disagree	Disagree

Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Uncertain	Uncertain	Uncertain	Uncertain	Uncertain
Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
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Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Disagree	Disagree	Disagree	Disagree	Disagree
Agree	Agree	Agree	Agree	Agree

SQS1	**SQS2**	**SQS3**	**SQS4**	**SQS5**
Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Agree
Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree
Strongly Agree	Disagree	Disagree	Disagree	Strongly Disagree
Agree	Agree	Strongly Disagree	Agree	Agree
Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Strongly Disagree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Disagree	Strongly Agree
Agree	Agree	Agree	Disagree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Agree	Agree	Agree	Agree	Agree
Uncertain	Uncertain	Uncertain	Disagree	Uncertain
Disagree	Disagree	Disagree	Disagree	Disagree
Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Uncertain	Uncertain	Uncertain	Uncertain	Uncertain
Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Agree	Agree	Agree	Agree	Agree
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Agree	Agree	Agree	Agree	Agree
Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Agree
Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree
Strongly Agree	Disagree	Disagree	Disagree	Strongly Disagree
Agree	Agree	Strongly Disagree	Agree	Agree
Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Strongly Disagree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Disagree	Strongly Agree
Agree	Agree	Agree	Disagree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Uncertain	Uncertain	Uncertain	Disagree	Uncertain
Disagree	Disagree	Disagree	Disagree	Disagree
Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Uncertain	Uncertain	Uncertain	Uncertain	Uncertain
Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Agree	Agree	Agree	Agree	Agree
Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Agree

Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree
Strongly Agree	Disagree	Disagree	Disagree	Strongly Disagree
Agree	Agree	Strongly Disagree	Agree	Agree
Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Strongly Disagree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Disagree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Strongly	Strongly Agree
Agree	Agree	Agree	Agree	Agree
Uncertain	Uncertain	Uncertain	Disagree	Uncertain
Disagree	Disagree	Disagree	Disagree	Disagree
Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Uncertain	Uncertain	Uncertain	Uncertain	Uncertain
Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
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Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Agree	Agree	Agree	Agree	Agree
Disagree	Disagree	Disagree	Disagree	Disagree
Agree	Agree	Agree	Agree	Agree
Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Agree
Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree
Strongly Agree	Disagree	Disagree	Disagree	Strongly Disagree
Agree	Agree	Strongly Disagree	Agree	Agree
Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Strongly Disagree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Disagree	Strongly Agree

Strongly	Strongly	Strongly	Strongly	Strongly
Agree	Agree	Agree	Agree	Agree
Uncertain	Uncertain	Uncertain	Disagree	Uncertain
Disagree	Disagree	Disagree	Disagree	Disagree
Strongly	Strongly	Strongly	Strongly	Strongly
Disagree	Disagree	Disagree	Disagree	Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Uncertain	Uncertain	Uncertain	Uncertain	Uncertain
Agree	Agree	Agree	Agree	Agree
Strongly	Strongly	Strongly	Strongly	Strongly
Agree	Agree	Agree	Agree	Agree
Strongly	Strongly	Strongly	Strongly	Strongly
Agree	Agree	Agree	Agree	Agree
Strongly	Strongly	Strongly	Strongly	Strongly
Agree	Agree	Agree	Agree	Agree
Strongly	Strongly	Strongly	Strongly	Strongly
Agree	Agree	Agree	Agree	Agree
Strongly	Strongly	Strongly	Strongly	Strongly
Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Agree	Agree
Strongly	Strongly	Strongly	Strongly	Strongly
Agree	Agree	Agree	Agree	Agree
Disagree	Disagree	Disagree	Disagree	Disagree
Agree	Agree	Agree	Agree	Agree

CB1	**CB2**	**CB3**	**CB4**	**CB5**
Strongly	Strongly	Strongly	Strongly	
Disagree	Disagree	Disagree	Disagree	Agree
Strongly		Strongly	Strongly	Strongly
Disagree	Disagree	Agree	Disagree	Disagree
	Strongly	Strongly	Strongly	Strongly
Disagree	Agree	Agree	Agree	Disagree
		Strongly		
Agree	Agree	Disagree	Agree	Agree
Strongly				
Disagree	Agree	Agree	Agree	Agree
Strongly			Strongly	
Disagree	Agree	Agree	Disagree	Agree
Strongly	Strongly	Strongly		Strongly
Disagree	Agree	Agree	Disagree	Agree
Strongly	Strongly	Strongly	Strongly	Strongly
Agree	Agree	Agree	Agree	Agree
Disagree	Uncertain	Uncertain	Disagree	Uncertain
Disagree	Disagree	Disagree	Disagree	Disagree
Strongly	Strongly	Strongly	Strongly	Strongly
Disagree	Disagree	Disagree	Disagree	Disagree

Disagree	Disagree	Disagree	Disagree	Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Uncertain	Uncertain	Uncertain	Uncertain	Uncertain
Agree	Agree	Agree	Agree	Agree
Strongly	Strongly	Strongly	Strongly	Strongly
Disagree	Agree	Agree	Agree	Agree
	Strongly	Strongly	Strongly	Strongly
Disagree	Agree	Agree	Agree	Agree
Strongly	Strongly	Strongly	Strongly	Strongly
Disagree	Agree	Agree	Agree	Agree
Strongly	Strongly	Strongly	Strongly	Strongly
Agree	Agree	Agree	Agree	Agree
Strongly	Strongly	Strongly	Strongly	Strongly
Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Agree	Agree
Strongly	Strongly	Strongly	Strongly	Strongly
Agree	Agree	Agree	Agree	Agree
Disagree	Disagree	Disagree	Disagree	Disagree
Agree	Agree	Agree	Agree	Agree
Strongly	Strongly	Strongly	Strongly	
Disagree	Disagree	Disagree	Disagree	Agree
Strongly		Strongly	Strongly	Strongly
Disagree	Disagree	Agree	Disagree	Disagree
	Strongly	Strongly	Strongly	Strongly
Disagree	Agree	Agree	Agree	Disagree
		Strongly		
Agree	Agree	Disagree	Agree	Agree
Strongly				
Disagree	Agree	Agree	Agree	Agree
Strongly			Strongly	
Disagree	Agree	Agree	Disagree	Agree
Strongly	Strongly	Strongly		Strongly
Disagree	Agree	Agree	Disagree	Agree
Strongly	Strongly	Strongly	Strongly	Strongly
Agree	Agree	Agree	Agree	Agree
Disagree	Uncertain	Uncertain	Disagree	Uncertain
Disagree	Disagree	Disagree	Disagree	Disagree
Strongly	Strongly	Strongly	Strongly	Strongly
Disagree	Disagree	Disagree	Disagree	Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Uncertain	Uncertain	Uncertain	Uncertain	Uncertain
Agree	Agree	Agree	Agree	Agree
Strongly	Strongly	Strongly	Strongly	Strongly
Disagree	Agree	Agree	Agree	Agree
	Strongly	Strongly	Strongly	Strongly
Disagree	Agree	Agree	Agree	Agree
Strongly	Strongly	Strongly	Strongly	Strongly
Disagree	Agree	Agree	Agree	Agree

Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
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Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Disagree	Disagree	Disagree	Disagree	Disagree
Agree	Agree	Agree	Agree	Agree
Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Agree
Strongly Disagree	Strongly Disagree	Strongly Agree	Strongly Disagree	Strongly Disagree
Strongly Disagree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Disagree
Agree	Agree	Strongly Disagree	Agree	Agree
Strongly Disagree	Agree	Agree	Agree	Agree
Strongly Disagree	Agree	Agree	Strongly Disagree	Agree
Strongly Disagree	Strongly Agree	Strongly Agree	Strongly Disagree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Disagree	Uncertain	Uncertain	Disagree	Uncertain
Disagree	Disagree	Disagree	Disagree	Disagree
Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Uncertain	Uncertain	Uncertain	Uncertain	Uncertain
Agree	Agree	Agree	Agree	Agree
Strongly Disagree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Strongly Disagree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
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Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Disagree	Disagree	Disagree	Disagree	Disagree
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Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Agree
Strongly Disagree	Disagree	Strongly Agree	Strongly Disagree	Strongly Disagree
Disagree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Disagree
Agree	Agree	Strongly Disagree	Agree	Agree
Strongly Disagree	Agree	Agree	Agree	Agree
Strongly Disagree	Agree	Agree	Strongly Disagree	Agree
Strongly Disagree	Strongly Agree	Strongly Agree	Disagree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Disagree	Uncertain	Uncertain	Disagree	Uncertain
Disagree	Disagree	Disagree	Disagree	Disagree
Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Uncertain	Uncertain	Uncertain	Uncertain	Uncertain
Agree	Agree	Agree	Agree	Agree
Strongly Disagree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Disagree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Strongly Disagree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
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Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Disagree	Disagree	Disagree	Disagree	Disagree
Agree	Agree	Agree	Agree	Agree

SE1	**SE2**	**SE3**	**SE4**	**SE5**
Strongly Disagree	Strongly Disagree	Agree	Strongly Disagree	Strongly Disagree
Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Disagree
Disagree	Disagree	Strongly	Disagree	Strongly

		Disagree		Agree
Strongly Disagree	Agree	Agree	Agree	Agree
			Strongly	
Agree	Agree	Agree	Disagree	Agree
	Strongly		Strongly	
Agree	Disagree	Agree	Disagree	Agree
Strongly		Strongly	Strongly	Strongly
Agree	Disagree	Agree	Disagree	Agree
Strongly	Strongly	Strongly	Strongly	Strongly
Agree	Agree	Agree	Agree	Agree
Uncertain	Disagree	Uncertain	Disagree	Uncertain
Disagree	Disagree	Disagree	Disagree	Disagree
Strongly	Strongly	Strongly	Strongly	Strongly
Disagree	Disagree	Disagree	Disagree	Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Uncertain	Uncertain	Uncertain	Uncertain	Uncertain
Agree	Agree	Agree	Agree	Agree
Strongly	Strongly	Strongly	Strongly	Strongly
Agree	Agree	Agree	Disagree	Agree
Strongly	Strongly	Strongly		Strongly
Agree	Agree	Agree	Disagree	Agree
Strongly	Strongly	Strongly	Strongly	Strongly
Agree	Agree	Agree	Disagree	Agree
Strongly	Strongly	Strongly	Strongly	Strongly
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Disagree	Disagree	Disagree	Disagree	Agree
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Disagree	Agree	Agree	Agree	Agree
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Agree	Agree	Agree	Disagree	Agree
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Agree	Disagree	Agree	Disagree	Agree
Strongly		Strongly	Strongly	Strongly
Agree	Disagree	Agree	Disagree	Agree
Strongly	Strongly	Strongly	Strongly	Strongly

Agree	Agree	Agree	Agree	Agree
Uncertain	Disagree	Uncertain	Disagree	Uncertain
Disagree	Disagree	Disagree	Disagree	Disagree
Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Uncertain	Uncertain	Uncertain	Uncertain	Uncertain
Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Agree	Agree	Agree	Disagree	Agree
Strongly Agree	Strongly Agree	Strongly Agree		Strongly Agree
Agree	Agree	Agree	Disagree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Agree	Agree	Agree	Disagree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
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Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
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Strongly Agree	Strongly Agree		Strongly Agree	Strongly Agree
Disagree	Disagree	Agree	Disagree	Disagree
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Disagree	Disagree	Disagree	Disagree	Disagree
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Disagree	Disagree	Disagree	Disagree	Agree
Strongly Disagree				
Disagree	Agree	Agree	Agree	Agree
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Agree	Agree	Agree	Disagree	Agree
	Strongly Agree		Strongly Disagree	
Agree	Disagree	Agree	Disagree	Agree
Strongly Agree		Strongly Agree	Strongly Disagree	Strongly Agree
Agree	Disagree	Agree	Disagree	Agree
Strongly Agree	Strongly Disagree	Strongly Agree	Strongly Disagree	Strongly Agree
Agree	Agree	Agree	Agree	Agree
Uncertain	Disagree	Uncertain	Disagree	Uncertain
Disagree	Disagree	Disagree	Disagree	Disagree
Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree
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Disagree	Disagree	Disagree	Disagree	Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Uncertain	Uncertain	Uncertain	Uncertain	Uncertain
Agree	Agree	Agree	Agree	Agree

Strongly Agree	Strongly Agree	Strongly Agree	Strongly Disagree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Disagree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Disagree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
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Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Disagree	Disagree	Disagree	Disagree	Disagree
Agree	Agree	Agree	Agree	Agree
Strongly Disagree	Strongly Disagree	Agree	Strongly Disagree	Strongly Disagree
Strongly Disagree	Strongly Disagree	Strongly Disagree Strongly	Strongly Disagree	Strongly Disagree
Disagree	Disagree	Disagree	Disagree	Agree
Strongly Disagree	Agree	Agree	Agree Strongly	Agree
Agree	Agree Strongly	Agree	Disagree Strongly	Agree
Agree	Disagree	Agree	Disagree	Agree
Strongly Agree	Strongly	Strongly	Strongly	Strongly
Uncertain	Disagree	Uncertain	Disagree	Uncertain
Disagree	Disagree	Disagree	Disagree	Disagree
Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree	Strongly Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Disagree	Disagree	Disagree	Disagree	Disagree
Uncertain	Uncertain	Uncertain	Uncertain	Uncertain
Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Disagree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Disagree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree

Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Agree	Agree
Strongly	Strongly	Strongly	Strongly	Strongly
Agree	Agree	Agree	Agree	Agree
Disagree	Disagree	Disagree	Disagree	Disagree
Agree	Agree	Agree	Agree	Agree

Source: Author Field Work (2023)