EFFICACY OF PUBLIC-PRIVATE PARTNERSHIP FRAMEWORK IN THE IMPLEMENTATION OF ENERGY INFRASTRUCTURE PROJECTS IN KENYA

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A RESEARCH THESIS SUBMITTED TO THE SCHOOL OF LAW, ARTS AND SOCIAL SCIENCES IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF DOCTOR OF PHILOSOPHY IN PUBLIC POLICY AND MANAGEMENT OF KENYATTA UNIVERSITY

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DECLARATION

I declare that this thesis is my original work and has not been presented for an award of a degree in any other University.

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DEDICATION

This thesis is dedicated to my late parents Nicholas Barasa Akwata and Mama Philomena Mutelwa Barasa for their commitment and selflessness to ensure that I and my siblings get formal education. Special dedication goes to my immediate family Prof Janet Kassilly Barasa (Spouse) and our sons; Keith Barasa, Thorne Barasa, Christian Barasa and Shaun Barasa for their inspiration and understanding that motivated which enabled me to sacrifice family in time in pursuit of my studies.

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First, I thank God for the gift life and good health which enabled me to undertake this study. Secondly, I sincerely extend my gratitude to Kenyatta University for giving me an opportunity to pursue a doctorate degree of my choice. I am most grateful to my supervisors; Prof David Minja and Dr Moses Muthinja for their professional guidance and always being available to review my work on short notice The completion of this thesis could not have been possible without the support and assistance of my research assistants. Their contribution is sincerely appreciated and acknowledged. I appreciate and acknowledge the cooperation and timely feedback I received from the research respondents. I acknowledge in a special way my spouse Prof Janet Kassilly Barasa for inspiring me to pursue my academic dream by offering me emotional support to undertake my studies. Special recognition goes to my colleagues for their insightful ideas and thoughts which assisted me to complete my thesis successfully. Lastly, I wish to acknowledge all my family members for every support they gave me throughout my study.

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OPERATIONAL DEFINITION OF TERMS

Public Private Partnership (PPP)	A Public Private Partnership is defined as an agreement between a public entity and a private party under which the private party undertakes to perform a public function or provide a service on behalf of the public entity.
PPP framework	PPP framework is defined as a policy, procedures, institutions, and rules that together define how PPPs are to be implemented.
Efficacy	Efficacy refers to the ability to produce a desired or intended result.
Legal framework efficacy	Refers to the overall effectiveness and functionality of the legal and regulatory environment that governs the initiation, implementation and management of PPPs. It encompasses the capacity of the legal framework to establish clear and enforceable rules that ensure fairness in project selection; efficacy in project approval process; consistent monitoring mechanisms; comprehensive regulations and guidelines and provide accommodation of different types of PPP models to protect public interest and ensure the project's objectives are achieved.
Procurement framework efficacy:	Refers to the overall efficiency and effectiveness of procurement rules, policies and procedures that govern the PPP project cycle in promoting PPP projects implementation. It encompasses the ability of the procurement framework to facilitate the selection of private sector partners and entails ensuring transparency; competition, contract irrevocability; local, mechanisms for international arbitration for dispute resolution and predictable identification of projects.
Finance framework efficacy:	Refers to the overall effectiveness and efficiency of the financial structures and mechanisms established to promote, fund and sustain PPP Projects. It entails the ability of the finance framework to secure adequate

	funding, allocate and mitigate financial risks, ensure value for money, provide for fair and flexible tariff adjustment if necessary and well-defined criteria for project sponsor selection.
Investment framework efficacy:	Refers to the overall effectiveness and functionality of the rules, policies, incentives, and regulations governing investment activities that promote PPP projects implementation. It entails ensuring availability a stable macro-economic condition; guaranteed long-term demand for electricity; good project feasibility studies; clear project appraisal policy and a thorough and realistic benefits assessment.
Project Implementation:	Refers to a phase in a project's life cycle where the planned activities, strategies and tasks are put onto action to achieve the project's objectives. It involves execution of the project plans and utilization of resources to carry out the project's tasks to deliver its outcomes. This is the dependent variable of the study. Implementation of the projects was measured by project delivery time, cost and project output.

ABBREVIATIONS AND ACRONYMS

AfDB	African Development Bank
BOT	Build Operate Transfer
BOO	Build Own Operate
BLT	Build Lease Transfer
BOOR	Build Own Operate Remove
CSFs	Critical Success Factors
DCMF	Design Construct Manage Finance
GoK	Government of Kenya
OLS	Ordinary Least Squares
PAT	Project Appraisal Team
PPP	Public-Private Partnerships
PPPU	Public-Private Partnership Unit
PIIPs	Privately Initiated Investment Proposals
SSA	Sub Saharan Africa
SEM	Structural Equation Modelling
VIF	Variance Inflation Factor

ABSTRACT

The study sought to examine the efficacy of public-private partnership framework in the implementation of energy infrastructure projects in Kenya. Specifically, it focused on evaluating the effect of the legal, procurement, financing, and investment frameworks on the implementation of energy infrastructure projects. The study was motivated by the fact that while PPPs have gained popularity currently, there has been limited empirical research on their performance, particularly in terms of their effect on project implementation in terms of time, cost, and project outcomes. The study sought to fill in this gap. To achieve the objective, the study employed a comprehensive research design, combining both descriptive and causal-explanatory approaches. The study's target population included key entities within the electricity projects implementing sphere under the Ministry of Energy being Energy and Petroleum Regulatory Authority, Ministry of Energy, the National Treasury, 7 tier 1 commercial banks and 6 development partners. A census approach was adopted, given the manageable size and heterogeneity of the target population. Data was primarily collected through structured questionnaires and key informant interviews, preceded by a pilot study of the Ministry of Roads to determine the validity and reliability of the data collection tools. Data was analyzed using SPSS with descriptive statistics and inferential statistical analysis being relied on. Regarding the inferential statistics analysis, parametric and non - parametric analysis was used. For the parametric analysis, a multivariate Ordinary Least Squares regression model was the focus while for non - parametric analysis, Structural Equation Modelling was applied. The findings of this research offer significant insights into the effectiveness of Public-Private Partnership (PPP) frameworks in the implementation of energy infrastructure projects in Kenya. A well-defined legal framework positively influences project implementation time, cost, and outcome. Government policies further enhance this effect, emphasizing the importance of supportive policies to bolster the efficacy of the legal framework. Conversely, the procurement framework was found to have a detrimental effect on project implementation time. This suggests that the procurement process for PPP projects in Kenya may be lengthy and may require streamlining to expedite project execution. While government policy exhibited a positive moderating effect on this relationship, the influence remained statistically insignificant, suggesting room for policy improvements in this domain. The financing framework was found to accelerate project implementation time, indicating its potential to expedite project execution. However, it had a negative effect on project implementation cost, potentially due to the increased costs associated with private sector participation. Moreover, the financing framework negatively influenced project outcomes, underlining the importance of careful consideration of financial aspects in PPP projects. On a positive note, the investment framework was identified as a significant driver of project implementation time and project outcome. A conducive investment environment was found to positively influence project execution and enhance project success. Government policy was found to play a substantial role in augmenting the effectiveness of the investment framework, underscoring the need for supportive policies in this context. Overall, these findings provide valuable insights for policymakers, practitioners, and stakeholders involved in energy infrastructure projects and PPP initiatives in Kenya. They emphasize the importance of optimizing the legal, procurement, financing, and investment frameworks to ensure the efficient and successful implementation of energy infrastructure projects, aligning with broader developmental and economic objectives.

CHAPTER ONE

1.0 INTRODUCTION

1.0 Introduction

This chapter covers the introduction of the study. Specifically, the chapter covers the background information of the study which entails operationalization of the study variables. Under the introduction section of the study, section 1.1 covers the background of the study under section. Within section 1.1, section 1.1.1 under the background of the study discusses the Public-Private Partnership Framework. Discussion of the Project implementation concept is covered in section 1.1.2 and lastly discussion on the study context under section covered in section 1.1.3. Further within the chapter one, section 1.2 covers the problem statement; section 1.3 the research objectives, section 1.4 the research questions in line with the research objectives, section 1.5 justification of the study, section 1.6 the scope of the scope and lastly section 1.7 the chapter summary.

1.1 Background of the Study

Public–private partnerships (PPP) are widely used to deliver a series of infrastructure projects in the world. PPP strategy has recently become a crucial mechanism of financing the public infrastructural projects amid the dwindling government financial resources. Governments across the world have considered PPPs as a key financing strategy in so far as the provision of public projects and amenities are concerned. The strategy has been largely mooted for attracting private financing to the public projects and public services provision. This is anchored on the ability of the strategy to mobilise funding from both domestic and international investors especially where bankable projects are concerned. Therefore, to this regard, PPPs have been a crucial in provision of public goods in both the developed and developing economies. The governments in the developing economies are gradually embracing the PPPs mechanism given the competing financial needs between the recurrent budget financing and the development budget financing. However, we note that while PPPs have gained popularity in currently, there has been limited empirical research on their performance especially regarding time and cost of project implementation with the gap being more expounded in the developing economies. This study addresses this gap in the empirical literature. The study empirically investigates the components of the PPP framework in

effort examine how they influence the success of the PPP projects in Energy infrastructural projects in Kenya.

The commonly applied definition of the PPPs is a long-term agreement between the government and a private partner(s) whereby the private partner undertakes to provide services to the public on behalf of the government for stipulated return (OECD, 2018; World Bank, 2018). The concept of PPPs globally is not a new phenomenon but rather dates to some decades in the past. The rationale for recent growth of the PPPs especially among the developing economies is occasioned by the growing demand for infrastructural project mainly those involved in provision of public goods amid dwindling government financial resources to finance their provision. Therefore, as a result, the governments have resulted to exploring other alternative financing mechanism of which PPP framework is one of them to bridge the existing infrastructural financing gap.

Globally, PPPs have witnessed unprecedent growth over the past decades majorly in the provision of capital-intensive infrastructural projects. Tin deed, the popularity of the PPPs has risen since 1980s (Mital, 2016). The scenario is underpinned on the growing infrastructure financing gap in these economies in the context of narrowing fiscal space to support any debt financing on the government side. Given the nature of the physical infrastructure or public goods that are non – rivalry in consumption, national governments are mandated to provide such amenities with no profit-making intentions. However, developing and less developed economies have been experiencing fiscal constraints with large proportions of financial resources being directed towards recurrent expenditure leaving inadequate financial resources for development expenditure. This has forced governments in these economies to explore alternative models to finance the provision of public infrastructure hence the increased considerations for PPP financing strategy.

The growth in capital projects has been higher among the developing and less developed economies compared to the developed economies. Global review of PPPs portfolios reveals that the portfolio has tremendously grown over the years with the Private participation in PPP infrastructure projects and investment commitments rising to a high of above USD 400 billion by the years 2022 (World Bank, 2022). This represents 41 percent rise in the Private participation in PPP infrastructure projects and investment commitments between 2017 to 2022 (Figure 1.1).

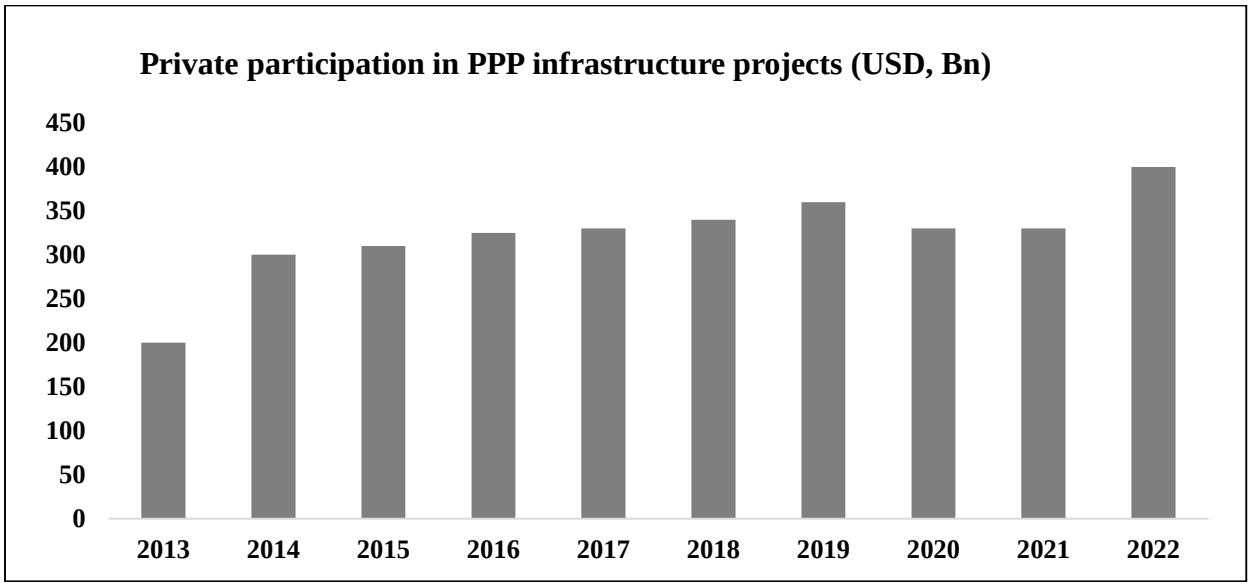


Figure 1.1 Private participation in PPP infrastructure projects and investment commitments, 2013 – 2022

Source: World Bank Database (2013 – 2022).

The African Development Bank (AfDB) reports that the investment in Africa have substantially grown with time attaining a high record of USD 130– 170 billion as at 2018. Consequently, the financing gap has increased from USD 68–108 billion between 2015 to 2018 (AfDB, 2018). This increase represents a rise of about a quarter in 2017 and 38% up on the 2015-2017 average. This has called for alternative financing models to finance the gap. As a result, PPP financing has received lot of interest within the continent in efforts to narrow the widening infrastructural financing gap (AfDB, 2018). Figure 1.1 presents the unprecedented growth in need for PPPs and the increase in private sector participation signalling the willingness of private sector to channel their investments to PPPs amid the funding shortfalls facing the government. This evidence therefore calls on the need for the governments to seize this funding opportunity through PPPs by setting up and supporting effective PPPs frameworks.

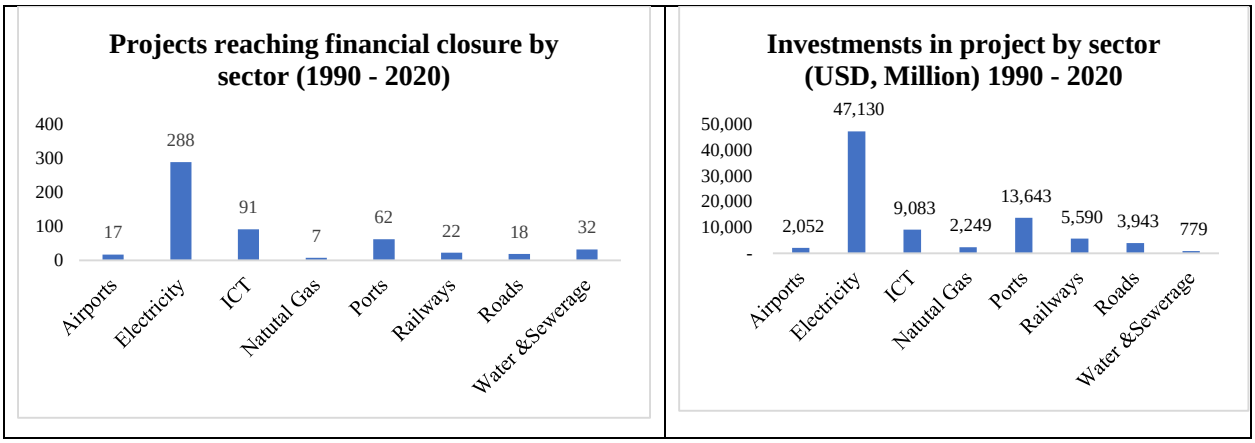


Figure 1.2 Private participation in infrastructure projects in different categories of developing countries
Source: World Bank Database (2020)

Within the SSA, a review of projects reaching financial closure by sector for 1990 – 2020 period in figure 1.2 reveals that electricity sector recorded the highest number of financial closures recording a high of 288 projects. This fact resonates with the value of investments in projects by sector for the 1990 – 2020 period whereby the overall investments were valued at USD 47,130 million. This finding justifies the importance of energy sector in so far as the PPP infrastructural projects is concerned thus justified the backdrop upon which this study is anchored. According to the World Bank in terms of cumulative number of projects for 1990 – 2020 in Sub Saharan Africa, figure 1.3 posits that energy sector topped in total number of projects followed by road sector with ICT sector ranked third. Similar trend is evidenced in the value of investments (figure 1.3). We note that from the figure PPPs model for project execution has gained traction in several sectors of the economy though some seem to have progressed far that others

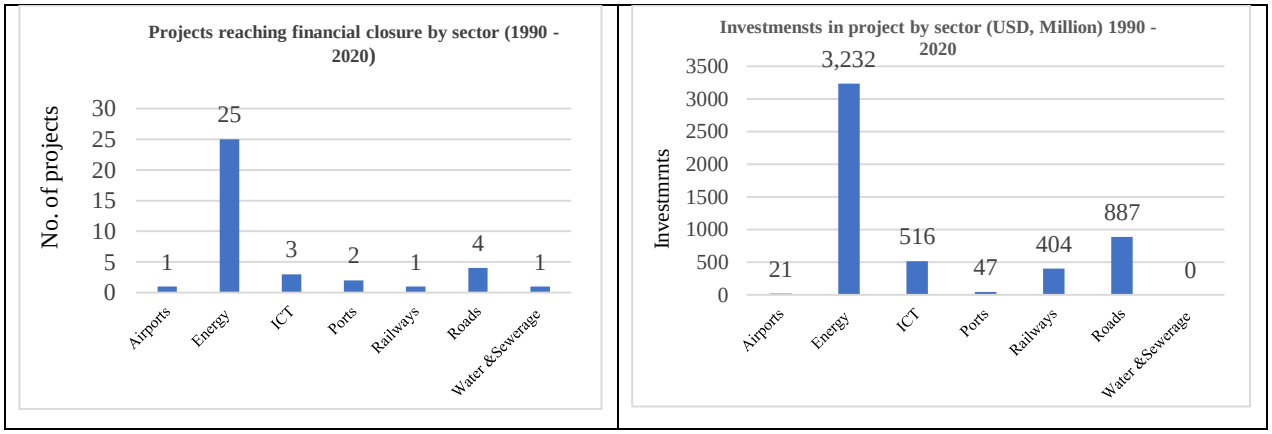


Figure 1.3: Private participation in infrastructure projects in different categories of developing countries
Source: World Bank Database (2020)

Globally, the status of the private participation in the PPPs reveals that between the year 1991 and 2015, private participation has been on a setback especially in the developing economies. 259 PPP projects out of a total of 6,273 PPP projects have been cancelled while 67 projects been classified as being in distressed. This warrants the need for examination of how the PPP framework supports or inhibits the PPPs success. The underscoring factor here is that why is there much set back in concluding PPPs even though PPP financing having been identified as a key financing strategy among the developing economies. The answer to this inquiry lies squarely on the efficacy of the model.

1.1.1 Public-Private Partnership Framework

The PPP framework constitutes a range of sub frameworks or components which are ideally involve in allocation of risks and responsibilities between the public and the private sector parties. Essentially, the PPP framework introduces, as a minimum, private management into public service through a long-term contractual bond between operator and a public authority. Maktabi (2014) asserts that the main contributing factors to the poor performance in the PPP in developing economies emanate from insufficient institutional capacity occasioned by inadequate regulatory and weak legal framework as well as poor governance. The uncertainty in the PPP environment occasioned by weak institutional capacity poses a country – level risk that is a deterrent to the foreign investors who wish to invest in PPPs.

Galilea and Medda (2010) and Hammami, Ruhashyankiko, and Yehoue (2006) argue that developing economies have to institute good economic governance by addressing corruption as well as the inefficiency arising from failure to adhere to the rule of law to attract foreign investors in PPPs. Further is the need to entrench accountability which is crucial for PPPs success. In addition, Moszoro et al. (2014) and Mendoza (2010) front similar findings regarding the adverse effect of corruption, high levels of PPPs related litigations, macroeconomic uncertainty adversely affects PPPs success in developing economies.

This study focuses on four PPP sub frameworks namely: The legal and regulatory framework, Procurement framework, financing framework and the investment framework. Within the study, each framework has various attributes that are key for its operationalization. Therefore, the study

operationalizes each framework based on some of the key respective attributes. Consequently, the research endeavour aims to operationalize each framework by systematically evaluating these essential attributes. Regarding operationalization of PPP framework in respect of the legal and regulatory framework, the study focuses on: Fairness of legal framework; Frameworks' efficacy in approval process; Framework's consistency in monitoring mechanism; Availability of comprehensive regulations and guidelines and framework's accommodation of different types of PPP models.

In the context of the procurement framework, the study focuses on specific attributes, namely, transparent procurement process; competitive procurement process; Irrevocable contract within the PPPs stipulations, Framework's recognition of local, international arbitration for dispute resolution and framework's ability to support predictable, timetabled identification of projects. Empirical literature on the procurement framework efficacy and attributes asserts that faults in the procurement renders process success futile (Soomro and Zhang, 2015). By large extent, the procurement framework is the backbone upon which PPPs success in anchored. A well – developed elaborate procurement framework promotes competition in addition to efficiency in project's costs management. With an effective procurement framework, cost-effective PPP bidding is largely guaranteed (Demeulemeester, 2014). Moreover, effective procurement framework ensures value for money for the project an outcome of proper project pricing devoid of any corruption.

Moreover, within the context of the procurement framework, De Clerck and Demeulemeester (2014) asserts that ineffective procurement process are key factors attributed to bidding inefficiencies and overpricing of PPPs. Similar argument is provided by Carrillo et al. (2018), Chen and Doloi (2018) and Riedl et al. (2013) who report that inefficiencies in the procurement framework is the root cause to poor project pricing and loos of value for money to the public at large. Gail et al (2023) who assert that a PPP procurement that is in short of transparency and accountability is detrimental to PPPs success in Ireland. In conclusion, reduction of the government intervention in the procurement process through depoliticization and agencification is advocated for to streamline the PPPs procurement framework in Ireland. Further, the ability of the procurement framework in ensuring proper project risk management, ability to accurately forecast

project returns and profitability as well as the framework's support for project feasibility studies undertaken is underscored (Cuttaree et al, 2018). Trung (2023) asserts that the factors affecting the status of Vietnam's progress in the implementation of PPPs with the focus on the transport sector projects. The study found good governance and an elaborate procurement framework is core for project success. Therefore, the empirical works on the procurement framework have operationalized procurement framework in line with the attributes applied in the study.

In the context of the financing framework, the study focuses on the following key attributes: Availability of mature and available local financial market, Sufficient profitability of the project to attract investors through tariff adjustment, financial risk mitigation on currency exchange losses, Fair and flexible tariff adjustment if necessary and Well-defined criteria for project sponsor selection. Its notable that good project feasibility studies and financial risk mitigation on currency exchange losses. Adequate financing and especially long-term financing is an engine for PPPs success given their capital intensity as well as length of investment. Therefore, the financing and investment framework need to deliver viable environment for mobilization of long-term funding.

On the investment framework, the study focuses on stable macro-economic conditions, Guaranteed long-term demand for electricity, good project feasibility studies, Clear project appraisal policy and Thorough, realistic benefits assessment, Availability of Sound economic policy. The attributes of the PPP financing and investment framework covered in the study are anchored on empirical studies' findings in this area. Azam (2010) reports that macroeconomic instability caused by high inflation rates reduces the return on investments of thus discouraging private sectors participation in PPPs. The study reports that the contrary is true whereby low inflationary pressures is an incentive for private investors to participate in PPPs. Therefore, economies that have low inflationary pressures tend to attract more private foreign investments in PPPs due to certainty in planning that is guaranteed by low inflation rates. Similarly, a statistically significant relationship between macroeconomic stability in the host country and investment in PPPs is reported by (Demirhan and Masca, 2018) in 38 developing economies whereby FDI inflows is largely determined by macroeconomic stability.

In Thailand, Allport et al. (2018) points out a case of a railway PPP project in the context of the macroeconomic stability and PPPs success. The study found that the exchange rate risk was the

main macroeconomic factor that led to severe financing challenge thus adversely affecting project success. In China, Chan et al (2010) examined critical success factors for PPPs in infrastructure developments. The findings showed that the first key success factor was the stable macroeconomic environment stability that was deemed to crucially determines experts' decisions to invest in Chinese PPPs. Secondly was the shared responsibility between public and private sectors; Third was the availability of transparent and efficient procurement process; Fourth was the stable political and social environment; and fifth was the judicious government control. Therefore, the findings of these studies provide empirical background for defining the attributes of PPP financing and investment framework covered by the study.

In addition to the legal, procurement, financing and investment framework, the study examines the moderating role of the government policy on PPPs success. The incorporation of the government policy role is hinged on the empirical studies treat have underscored the role of the government policy in determining PPPs success. Lee et al (2018) in examining the role of the government policy report that the high bureaucratic nature of government adversely affects investments in the developing economies leading to negative relationship between risk allocation and private investment. Pérez-D'Oleo et al. (2015) reports a positive nexus between high institutional quality and private investment in PPP projects. Similarly, Sabry (2015) and BotaAvram (2014) found reduced bureaucracy to lead to good governance hence increased private investment arising for increased investors' confidence and trust.

On the other hand, government support programs attract private investments differently. According to Armada, Pereira, and Rodrigues (2012) direct support programs significantly increase private investments in PPPs while the indirect government programmes may fail to attain the expected results due to the underlying uncertainties and risks. Its notable that given the long project cycles of the PPPs, private investors keenly observe the government policies in the long run (Albalate, Bel, and Geddes 2015). In developing economies, financial markets are young and immature and thus indirect government interventions through market instruments such as guarantees and subsidies play a crucial role in determining PPPs success (Brown, Potoski, and Van Slyke 2016).

Furthermore, government policy could promote the certainty and assurance that could significantly lower private sector risks, thereby enhancing investment (Urpelainen and Yang, 2017). A good example is the government may provide a guarantee on the minimum traffic for a tolled road project. This will incentivise the private investors to invest in the road infrastructure as the guarantee lower the risk of low demand that would arise from the low usage of the tolled road infrastructure. The guarantee goes a long way in offering minimum returns that the private investors would realize in such road infrastructure investments. Further, the introduction of the returns of investments guarantees by the government is a crucial financial subsidy that has significantly incentivized private portfolio investment in PPPs in Brazil (Brandao et al. 2012).

Government-support program and the effect on the PPPs success is affirmed by Kaufmann, Kraay, and Mastruzzi (2011). Government commitment to adhere to the rule of law is cited as a key factor in PPPs success in so far as government policies is concerned. Further, government commitment through quality of contract enforcement and upholding of property rights is crucial in promoting private sector investments in PPPs

1.1.2 Project implementation

Project implementation is defined as a process that turns project strategies and plans into actions to accomplish project objectives and goals (Olsson, 2008). It entails execution of project strategies and plan while monitoring and evaluating the process ensures that the implementation is carried out in accordance with the prescribed manner. However, it's noteworthy that the core of the project implementation is project success. The concept of efficacy is commonly used when evaluating the implementation processes. Project implementation refers to successful if it is executed as per the project plan without or with very minimal deviations in the expected outcomes (Haji-Kazemi and Andersen, 2014).

Randeree and Ninan (2011) asserts that success in project entails measuring quality and quantity of project performance output mainly time aspects, cost outlays and project outcome. Similar argument is echoed by Ferrada and Serpell (2013). In this study, project implementation is measured by the project key indicators. The indicators define the metric used to quantify how the process on implementing a project is fairing across various project implementation stages. In terms of operationalization, the assessment of project implementation success involved the utilization of

three distinct measures: project delivery time, project cost, and project output. Each of these measures play a crucial role in evaluating the effectiveness of project execution. The measurement of project delivery time seeks to ascertain whether the project is completed within the scheduled timeframe. Within this context, the study explores the influence of the PPP legal and regulatory framework, procurement processes and financing and investing framework on project execution time. Thus, the study examines whether certain attributes within these frameworks contribute to delays or expedited project timelines.

The cost measurement component focuses on evaluating whether the project was executed within the confines of the budgeted cost allocations. In this case, the research examines how the PPP legal and regulatory framework, procurement procedures, financing and investing framework effect on project costs outlays. This study identifies attributes within these frameworks that either lead to cost savings or an increased in project expenditures. For instance, unclear procurement framework is a perquisite for emergence of frequent legal disputes among bidders, subsequently inflating project costs due to litigation expenses. Similarly, weaknesses in the PPP legal and regulatory framework might create conditions conducive to heightened litigation, resulting in increased project costs, including expenses related to project stoppages.

The study is carried out in Kenya majorly based in Nairobi County. The study focuses on the energy projects implementing state corporations under the ministry of energy namely: Kenya Electricity Generating Company, Kenya Power and Lighting Company, Kenya Electricity Transmission Company, Geothermal Development Company, Rural Electrification and Renewable Energy Corporation and Nuclear Power and Energy Agency. Further, the study focused on the PPP unit based under the national treasury. On the private sector, the study covered Commercial banks - tier 1 banks and development financial institutions mainly World bank, AfDB, EIB, JICA, GIZ and KWF. The choice of Nairobi location was underpinned on the fact that all these entities have their head offices in Nairobi where the respective targeted respondents are stationed.

1.2 Statement of the Problem

Public-private-partnership strategy have become a crucial mechanism of financing the public infrastructural projects amid the dwindling government financial resources in the past one decade. The strategy has been largely mooted for attracting private financing to the public projects and public services provision. Precisely, PPPs have reported unprecedented growth in portfolio that has tremendously grown over the years with the private participation in PPP infrastructure projects and investment commitments rising to a high of above USD 400 billion by the years 2022. This represents 41 percent rise in the Private participation in PPP infrastructure projects and investment commitments between 2017 to 2022 (World Bank, 2022).

To this regard, governments globally are incorporating PPPs in provision of public goods in both the developed and developing economies. The governments in the developing economies are gradually embracing the mechanism given the competing financial needs between the recurrent budget financing and the development budget financing. Underpinning this argument, it's evident that at the global perspective, the evaluation criteria for of the PPP efficacy has dominated discussions that have warranted the need for empirical works. There is evidence to suggest that while PPPs have gained popularity currently, there has been limited empirical research on their performance especially regarding time and cost of project implementation (O'Shea, Palcic and Reeves, 2019); Verweij and Meerkerk, 2021). Developing economies continue to struggle with the financing challenges amid high fiscal deficits and ballooning public debt that has left fiscal space being very narrow. In efforts to continue providing public goods and services, the governments have resulted to PPPs as an alternative financing strategy amid the dwindling public resources for public goods and services provision (Chileshe, Njau, Kibichii and Kavishe, 2020).

Kenya has a well-established PPP framework developed in 2012. The framework in anchored on a PPP act 2012 that has been recently revised to PPP act 2021. The act provides a legal backing for the frameworks amid government efforts to deploy PPPs in funding development projects. However, despite the existence of this robust framework as well as operationalization of PPP unit domiciled under the national treasury, there exist little evidence on PPPs transforming project financing amid government challenges in financing development projects within the high fiscal deficit environment. As at March 2025, the PPP unit report indicated only 5 projects were in

operation and maintenance phase, 3 at construction phase and 1 project at commercial close (PPP contracts signed). 15 projects were at project development phase stage (ongoing studies) while projects at proposal stage awaiting procurement of transaction advisor (National Treasury PPP Projects Progress and Status Report, 2025). While this progress presents some notable milestone in PPPs implementation, the status portrays notable lags given PPP unit has been in existence for over 10 years now. This progress status underpins the need for examination of PPP framework efficacy in Kenya.

1.3 Research Objectives

The study was guided by the following specific research objectives:

i. To examine the efficacy of PPP legal framework on implementation of energy infrastructure projects in Kenya.
ii. To examine the efficacy of PPP procurement framework on implementation of energy infrastructure projects in Kenya.
iii. To examine the efficacy of PPP financing framework on implementation of energy infrastructure projects in Kenya.
iv. To examine the efficacy of PPP investment framework on implementation of energy infrastructure projects in Kenya.
v. To examine the effect of government policy on PPP framework on the implementation of energy infrastructure projects in Kenya.

1.4 Research Questions

The study was guided by the following research questions:

i. How does the PPP legal framework affect the implementation of energy infrastructure projects in Kenya?
ii. To what extent does the PPP procurement framework affect the implementation of energy infrastructure projects in Kenya?
iii. What is the effect of PPP financing framework on the implementation of energy infrastructure projects in Kenya?
iv. How does the PPP investment framework affect the implementation of energy infrastructure projects in Kenya?

vi. How does government policy influence the effect of PPP framework on the implementation of energy infrastructure projects in Kenya.

1.5 Significance of the Study

The energy sector is inherently capital-intensive, due to the advanced technology and financial resources required for the design, construction, and operation of energy infrastructure projects. These projects also demand highly skilled and specialized human capital, further elevating their cost complexity. Traditionally, generation and supply of power has been the responsibility of governments, particularly in developing economies, where power utilities are predominantly state-owned. However, this paradigm has progressively shifted as governments increasingly face fiscal constraints and competing demands in the provision of essential public goods such as roads, water, and health services. Therefore, given this fact, there is need for the government to seek collaboration with the private sector in the provision of energy given the limitations that face the government in terms limited financial resources (Molina & Rudnick, 2014).

The Government of Kenya remains steadfast in advancing its national development agenda as outlined in the Kenya Vision 2030. Within this overarching vision, the energy sector plays a pivotal role as a key enabler, particularly in achieving the economic pillar of the vision. Nonetheless, the government has encountered persistent challenges in securing adequate financing for infrastructure projects, which are crucial for supporting the growth agenda and providing essential public goods. Recognizing these financing gaps, budget deficits, and constraints on development budget allocations, the government has been actively exploring alternative avenues for funding infrastructure projects. In response to these challenges, PPP arrangements have emerged as a promising mechanism to encourage increased private sector involvement in financing, constructing, and operating infrastructure services and facilities.

However, it is important to note that the effectiveness of PPP arrangements in realizing the implementation of these identified projects is contingent upon the PPP framework established by the government. Therefore, this underscores the necessity of examining how the existing PPP framework either facilitates or constrains the effective implementation of such projects.

Consequently, this study is significant as it seeks to assess the adequacy and suitability of Kenya's PPP framework in promoting the successful execution of energy infrastructure projects.

1.6 Justification and the study

The value of this study can be articulated in three main dimensions. First, it provides substantial value for policymakers. The findings are particularly relevant to government institutions and regulatory bodies involved in policy formulation and implementation, especially in the review and enhancement of Kenya's PPP framework. Key agencies such as the National Treasury and the PPP Unit Secretariat stand to benefit from the study's insights, which elucidate how different components of the PPP framework influence project implementation in terms of time, cost, and output. These insights are expected to inform evidence-based decision-making and support targeted adjustments or reforms aimed at strengthening the efficacy and overall effectiveness of the PPP framework in promoting successful infrastructure project delivery.

Furthermore, by offering empirical evidence regarding the efficacy of PPP frameworks concerning specific project success attributes, policymakers gain the ability to quantify whether the differences between PPP-procured projects and conventionally or publicly procured projects are statistically significant in terms of project delivery time, costs, and output. This quantitative analysis aids policymakers in determining which projects are best suited for procurement through the PPP framework, based on the desired project success attributes. In essence, the study equips policymakers with the tools to make informed decisions regarding project procurement strategies.

Secondly, the study's findings are of considerable value to key stakeholders engaged in PPP investments. These stakeholders include development partners, such as Development Finance Institutions, commercial banks, and potential private investors. For investors, the study provides critical insights into how the efficacy of the PPP financing framework influences project implementation outcomes. The findings further offer empirical evidence on the role of government interventions—such as tariff regulation and investment incentives, including credit guarantees—in enhancing the PPP framework's capacity to attract private sector participation. Moreover, the study offers insights into the depth and maturity of domestic financial markets and their ability to mobilize long-term financing required for PPP projects. From a legal perspective, the empirical

evidence generated highlights potential weaknesses within the existing PPP legal framework, thereby informing opportunities for legislative and institutional improvement. Similarly, stakeholders in the procurement sector will benefit from the study's findings, which demonstrate how the PPP procurement framework can either facilitate or impede implementation efficiency, and provide a basis for reforms aimed at streamlining procurement processes to enhance project delivery.

The study provides empirical evidence on how different components of PPP influence project implementation by considering project success attributes, using inferential statistical analysis techniques, including both parametric and non-parametric approaches. This contribution is valuable, especially considering that much of the existing empirical literature in this research area primarily focuses on CSFs and often relies heavily on desktop research. Additionally, the study identifies areas for further research, guiding prospective authors in selecting future research topics and providing essential background information for such studies. In essence, the study enriches and extends the body of knowledge in the field of PPPs, benefiting both current and future researchers.

1.7 Scope of the study

This study is undertaken exclusively within the context of Kenya. Further, the study scope is limited to infrastructure projects implemented under the jurisdiction of the Ministry of Energy, thereby excluding projects undertaken by other ministries or sectors. Furthermore, the study focuses on four key components of the PPP framework namely: the legal framework, procurement framework, financial framework and the investment framework. With respect to the dependent variable, in this case the project implementation, the study assesses tree core dimensions of project implementation success namely: project delivery time, project cost and project outcome.

CHAPTER TWO

2.0 REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter provides an in-depth review of the literature related to the study's topic with a particular emphasis on theories and research studies relevant to the efficacy of Public-Private Partnership frameworks in energy infrastructure implementation. The review of literature serves multiple purposes: it deepens the understanding of the research context, synthesizes existing scholarly contributions, and identifies key gaps that this study seeks to address. The discussion is anchored on the core components of PPP frameworks—namely, the legal, procurement, financing, and investment dimensions, which collectively shape the effectiveness of PPP implementation. Theoretical underpinnings such as Institutional Theory, Resource Dependency Theory, Project Management Theory and the Hybrid Theory in Project Implementation, provide valuable insights into the motivations, risks, and governance structures of PPPs. Throughout the literature review, the chapter identifies existing research gaps and emerging issues in the field, emphasizing areas that warrant further empirical investigation to enhance the understanding of PPP framework efficacy. Additionally, the chapter highlights the evolving nature of PPPs in light of recent global and local developments, ongoing challenges, and emerging best practices that inform the design and implementation of effective PPP strategies.

2.1.1 Public Private Partnership Framework

Public Private Partnership Framework infers to a set of legal, institutional and procedural arrangements that govern the planning, implementation and management of PPP Projects. Essentially, it encompasses the policies, processes, institutions, and regulatory rules that collectively define how government and private sector entities collaborate in identifying, structuring, and executing projects. Given this contextualization, the study of PPP frameworks necessitates a focused and detailed analytical approach, as the framework comprises multiple interrelated components whose effectiveness depends on their coherence and mutual reinforcement.

In examining the efficacy of PPP in ensuring project success, it's crucial to examine the elements of the framework as opposed to analysing the framework. Therefore, defining the elements and attributes of the framework's subcomponent is key in objectively examining how successful the framework is in determining project success. An examination of the crucial factors for implementing Public-Private Partnership in a more sustainable manner was conducted by Amović, Maksimović and Bunčić (2020). The study was an empirical investigation examining the PPP framework and its influence on project implementation in Bosnia and Herzegovina. It employed an extensive desktop review of existing research on PPP success factors related to effective project implementation. In addition, the study conducted a survey that utilized factor analysis, applying Principal Component Analysis (PCA) and the Varimax rotation method with Kaiser normalization for empirical validation.

The findings identified four critical success factors essential for the sustainable implementation of PPPs. These included: (i) the establishment of a well-structured central PPP unit responsible for coordinating and disseminating knowledge and information on PPPs; (ii) the presence of clearly defined PPP policies and strategies that provide a standardized framework for implementation; (iii) the existence of a robust PPP legal framework; and (iv) transparent and standardized PPP processes. The study further emphasized the importance of ensuring that the PPP legislative framework is compatible with the specific requirements and characteristics of PPP projects. Such compatibility was underscored as a vital determinant of the long-term sustainability and efficacy of PPP implementation.

Alinaitwe and Ayesiga (2013) examined the Success factors for the implementation of construction industry in Uganda through the PPP framework. The study adopted survey research design focusing on key stakeholders in the construction industry mainly financiers, contractors, and government departments. The study sample included 41 government institutions and departments, 41 financial institutions and 42 civil and building companies. Primary data was collected from the sampled respondents using questionnaire surveys. From the responses various PPP success factors in implementing PPP projects were rated. The coefficient of variation was applied to rate the critical success factors. The study found that a competitive PPP procurement framework was considered as the topmost critical factor regarding the efficacy of the PPP

framework in PPP project implementation. In addition, other PPP framework related success factors identified were competent PPP unit personnel and good PPP governance framework.
Within the Kingdom of Saudi Arabia, Al-Hanawi et al (2020) undertook a study on the deterrents of PPPs implementation in the health sector. The core objective of the study was to explore hindrances to the modernization of the health sector in Saudi healthcare sector.

Based on data collected from study respondents, the key findings revealed several factors impeding the effective implementation of PPPs. First, gaps within the PPP legal framework posed significant challenges in the issuance and approval of permits for private sector stakeholders. Additionally, frequent changes in the regulatory environment were identified as major obstacles to the seamless implementation of PPP projects across the Saudi healthcare sector. The study further found that environmental challenges, coupled with weak PPP governance structures, undermined transparency and accountability throughout the project cycle. Technological limitations were also reported to adversely affect the efficiency and success of PPP implementation. Finally, a shortage of adequately skilled personnel to manage and oversee PPP projects was identified as a critical human resource constraint hindering the success of PPP initiatives in Saudi Arabia's healthcare sector.

In Kenya, Pedo (2018) examined how effective the PPP legal framework has been in so far as the actualization of the PPPs projects in the roads sub- sector is concerned. The study relied on exploratory and descriptive research designs drawing responses from 111 institutions comprising of project implementers, financing institutions, relevant sector regulators among other interested stakeholders. Data from the sample respondents was collected via semi – structured questionnaires with descriptive data analytics being relied upon to draw study finding and conclusions. The study established that the existing PPP legal framework positively and significantly influenced PPPs performance in Kenya's road sub – sector. Further, government policy was found to moderate the effect of PPP legal framework on the PPP's performance. The study recommended targeted amendments to the PPP legal framework to enhance contractual flexibility and promote innovation among implementing partners, thereby improving the overall efficiency and success of PPP projects.

Further, Pedo (2018) established that availability of well-structured financial markets necessary for mobilization of financial resources to finance the PPP projects significantly and positive influenced performance of PPP in Kenya. Based on this finding, Based on these findings, the study underscores the need to deepen domestic financial markets by expanding the range of tradable financial instruments to enhance resource mobilization for infrastructure financing. Additionally, it highlights the importance of implementing measures aimed at improving market liquidity, thereby strengthening the capacity of financial markets to support long-term investments such as PPP projects.

Macharia and Ngugi (2014) analysed Kenya power and lighting company regarding project implementation success, it clear that the government plays a crucial role in the implementation of large projects from the basis of the role the government plays. Eberhard and Gratwick (2013) analysed Independent Power Projects (IPPs) in African countries with the key focus on South Africa, Kenya, and Nigeria. The study highlighted the pivotal role of procurement in determining the success of PPPs. Specifically, it established that a well-structured procurement process, characterized by competitive bidding and flexibility in the design of subsequent bid rounds, significantly influences the success of energy sector PPPs in South Africa, Kenya, and Nigeria. These findings underscore the importance of transparent, competitive, and adaptable procurement procedures in enhancing efficiency, fairness, and investor confidence in PPP implementation.

Ng'ang'a and Kisimbii (2018) the role of PPP investment framework in incentivising private sector participation in PPP project in Mombasa County. The findings were that private sector participation in PPPs is largely influenced by project capital requirements, risk management and lifecycle of the project. In addition, Chileshe et all (2020) examined PPP critical success in the Kenya housing sector. By adopting quantitative approach using survey-based questionnaire data was collected from 27 key stakeholders. The study found that the successful implementation of PPP projects in the housing sector was largely influenced by the robustness of the PPP legal framework and its accompanying regulations. In addition, the availability and development of financial markets were identified as critical prerequisites for mobilizing long-term financial resources necessary for project financing. These findings emphasize the interdependence between a sound regulatory environment and well-functioning financial markets in ensuring the sustainability and success of PPP initiatives.

2.1.2 Project implementation

Project implementation is a multifaceted process, and its success is often determined by key indicators such as project time, cost, and quality. These three dimensions serve as critical benchmarks for evaluating the efficiency and effectiveness of project execution. The implementation process typically unfolds in three distinct stages: project planning, monitoring, and evaluation. Each of these stages involves various management activities and responsibilities. During project planning, detailed plans and strategies are developed to outline project objectives, scope, timelines, and resource requirements. Effective planning establishes a strong foundation for smooth project execution. Project monitoring, on the other hand, is an ongoing process that involves continuous oversight and surveillance of project activities. It serves to identify potential issues and deviations from the original plan, enabling timely adjustments and corrective actions. Finally, project evaluation involves a comprehensive assessment of project outcomes and performance against predefined criteria. It helps determine whether the project has met its goals, providing valuable insights for future improvements and lessons learned. Throughout these stages, effective project management is essential to orchestrate resources, manage risks, and deliver value to stakeholders while adhering to project constraints.

As enshrined in the work of Hyer and Brown (2010), project planning stage is the most initial stage in the entire process that entails specification of project objectives and goals. Moreover, it is at this stage that necessary and relevant project policies as formulated to guide the project implementation process. Based on these stipulations at this stage, the decision-making frameworks are then formulated accordingly. In addition, according to Frese et al (2013), it is at the project planning stage that the monitoring and evaluation framework for the project is set up. This is key in offering a framework against which the project was evaluated along the project lifecycle. To this effect the project milestone is clearly spelt out, resources allocation specified, timelines of the project tasks specified as well as definition of corrective measures spelt out in case of any significant deviations from the targets.

The second stage of project implementation revolves around monitoring. According to Hyer and Brown (2010), this stage entails tracking the project implementation process against the laid down milestone and project objectives. In this case, the project implementation team makes use on the

monitoring and evaluation framework spelt out at the planning stage. The team mainly monitors and evaluates project's progress based on Key Performance Indicators such as time, cost and quality. During the project monitoring and evaluation, the corrective measures against any significant deviations from the project targets are instituted accordingly to ensure that the project is successful (Meredith and Mantel, 2012).

Thirdly, is the assessment of projects implementation. This stage is crucial in avoiding repetition of mistakes previously undertaken. For this reason, the assessment on the implementation of the corrective measures stipulated in the monitoring stage is undertaken. Further, are the follow ups and seeking for feedback where necessary. According to World Bank (2004), assessment of projects implementation should be participatory in nature. This is crucial in enhancing project ownership by the relevant stakeholders. During the assessment stage, it's necessary that all the project challenges and success be documented. This offers a learning lesson for future projects planning to avoid mistakes experienced in the previous projects. In a nutshell, such documentation enhances project accountability.

An examination of the impact of project management on the probability of project success in the Warangal region was conducted by Ramesh et al (2018). The study sought to examing how project feasibiliity studies at project planning stage, managerial skills of the project managers and human resource management affect the success of the project. The sample size of the study was 100 respondents drawn from the project implementation teams. By applying regresion anlysis, the study found that project feasibility studies, project management skills and human resource management all had independently positively influenced project success.

Ofori (2013) examined practices in the project management and project critical success factors among the developing economies, a case study of Ghana. The study adopted an explanatory research design, focusing on organizational projects within the Ghanaian context. Purposive sampling was employed to select 200 project managers as study participants. The analysis identified several critical success factors influencing project implementation in Ghana, including clear definition of project goals and objectives, effective communication, top management commitment, and robust stakeholder management. Based on these findings, the study recommended that project success factors be systematically documented and widely disseminated

to enhance the quality and effectiveness of project management practices in future initiatives. Using a desktop research review, Lamprou and Vagiona (2018) investigated the success criteria and critical success factors in project success, in a study comparable to that of Ofori (2013).

Their review concluded that resource endowment and allocation, together with the management and leadership competencies of the project implementation team, were pivotal determinants of project success. Similar findings were reported by Ofori (2013), who emphasized the role of effective leadership and resource optimization in achieving project objectives. In addition, Yong and Mustaffa (2017) conducted a related study and found that risk management during the project implementation phase, the organizational structure of the project, and the efficiency of internal process coordination significantly influenced project success. Collectively, these studies underscore the importance of managerial capacity, organizational design, and proactive risk management as critical enablers of successful project execution.

Regarding stakeholder management, Rajablu et al (2015) explored the role of stakeholder-based management in project success. The study leveraged on the stakeholder theory as its anchor. The study deviated from the traditional studies in this area which majorly applied desktop research review technique in their undertaking. The study applied structural equation modelling technique whereby six constructs were used for modelling namely: stakeholder risk management, stakeholder engagement, empowerment, power, stakeholder interests and stakeholder communication management. Upon the model estimation, the study found that all the constructs have positive and significant effect on the project success. Similar study was undertaken by Liang, Yu and Guo (2017) in a case study of the Green Retrofit in China. The study findings were similar to those of Rajablu et al (2015).

An earlier study by Karlsen (2008) had arrived at similar conclusion with Rajablu et al (2015) regarding stakeholder management and prject success. Further, Elvin and Levene (2006a) reiterated on the important need for stakeholder involvement in project success by citing that effective stakeholder management is crucial in managing and incorporate stakeholder's expectations hence enhancing stakeholder buy – in of the project.

For successful projects implementation, stakeholder involvement and satisfaction are the key determinants (Bryson, Quick, Slotterback and Crosby, 2013). In addition, government policies, being an external facto, play a critical role in determining the success of project implementation, particularly in the context of public infrastructure projects. As a key stakeholder, the government influences project outcomes through the formulation and enforcement of policies, regulations, and institutional frameworks. These policies can either facilitate or hinder project implementation, depending on their clarity, consistency, and alignment with broader development objectives. Regulation put in place by the government are core in influencing project success (Kaiser & Ahlemann, 2010). According to Macharia and Ngugi (2014) while researching on Kenya power and lighting company case regarding project implementation success, the government plays a crucial role in the implementation of large projects.

Still on the role of government in project implementation, Freedman and McGavock (2015) asserts successful implementation and delivery of the project is largely dependent on the government given that the government dictates the environment within which projects are implemented. Further, from political and governance point of view, Akwei, Damoah and Amoah (2020) posit that in the Ghanian context, the government policies define the politocal culture, political corruption, planning and implementation of public infrastructural projects which in turn define such projects' success or failure.

Availability of adequate resources in terms of financial resources, human resource, required technology and materials is fundamental to the efficient implementation of projects. According to Adedeji and Olotuah (2012) the skill endowment and technical competence of project teams are critical determinants of project success. Well-resourced and competent teams are better equipped to plan, coordinate, and execute project activities effectively, thereby enhancing the likelihood of achieving desired project outcomes in terms of time, cost, and quality. The study advocates for the need to recruit proffessionals with the necessary skills in managing projects. More importantly is the technical knowhow of the project teams regardingn the terchnical aspectrs of the projects. Further, is the knwoldege on how to manage stakeholders to ensure stakeholders interests and expectations are well factored in the project. In addition, project team awaresness of the changing operating environment such as technology adavancement is key in enhancing change acceptance

and adoption of new ways of doing things. In addition to works of Adedeji and Olotuah (2012), Nallathiga, (2012) echoes the need for the project team tom have the necessary skills and attributes such as the relevant knowledge, professionalism, leadership among others.

2.2 Public Private Partnership Framework and project implementation

An effective PPP framework is key in PPP projects implementation as earlier suggested in the literature. From the literature pool, several empirical studies have been conducted regarding the critical success factors in so far as implementation of PPP procured projects is concerned. Some of these research studies have stressed on the importance of the designs or framework of the PPP in determining the successful implementation of projects. Development of the appropriate PPP laws through establishment of an elaborate PPP legal framework is crucial in incentivising private participation in PPP projects (World Economic Forum, 2015). Similar reasoning is presented by Reinhardt (2011) who asserts inadequate favourable legislations have hindered successful PPPs projects implementation in the United States. The importance of the PPP legal framework is key to enhance clarity. Clarifications on how project revenues are shared between the public and private stakeholders should be well articulated in the PPP regulations. Moreover, critical aspects of risk management, particularly the identification, transfer and allocation of risks between the public and private players, play a pivotal role in the success of PPP projects. Further legislations governing transaction costs should be well articulated within the PPP legal framework (Iseki, Eckert, Uchida, Dunn and Taylor, 2009).

Further, according to Sachs Tiong and Wang (2007) a stable political and regulatory environment should be guaranteed if PPP are to attract private players especially in the developing nations. Similar argument is fronted by Verhoest et al (2014) who calls for supportive political environement, comprehence legal framework and the relevant supportive PPP instruments being crucial for PPP projects success.

In addition to the linkage between the PPP legal framework and the project implementation success, the PPP financing framework is equally of paramount importance in explaining the relationship between the overall PPP framework and project performance. The financing framework provides the private sector with critical insights into the economic, financial, and risk

context of specific projects, thereby influencing investment decisions and participation levels. Farquharson and Yescombe (2011) assert that PPP financing framework spells out the economic benefits of the project to both parties thus creating an economic incentive for the private sector to engage. Furthermore, the PPP institutional framework plays a central role in guiding project management throughout the entire project lifecycle, from planning and procurement to delivery and operation. A clearly defined institutional framework provides explicit direction on coordination mechanisms, delineation of responsibilities, and accountability structures among implementing entities. The existence of a central and dedicated PPP unit is also critical, as it enhances private sector confidence by ensuring consistency, transparency, and efficiency in PPP project administration (OECD, 2008). (OECD, 2008).

Several empirical studies, though relatively limited in number, have examined the efficacy of PPP frameworks in the implementation of infrastructure projects. These studies provide valuable insights into how different components of the PPP framework influence project performance. Accordingly, this section reviews the existing empirical literature on the subject, aligning the discussion with the research objectives presented in the subsequent sections of this chapter.

2.2.1 PPP legal framework and project implementation

Albalate, Bel and Geddes (2018) examined the influence of the PPP legal framework on PPP project implementation in the United States. The study focused on PPP projects in state and local road and highways. Its primary objectives included assessing the extent to which the legal framework facilitated investments in these PPP projects. Additionally, the study aimed to investigate how changes in the legal framework over time impacted the cumulative investment in PPP projects. Employing empirical analysis, the research computed a PPP framework favourability index, which was based on various attributes of the framework. The study's findings indicated a significant and positive relationship between PPP legislation and the mobilization of private investments for PPP projects. The PPP framework favourability index was estimated at 0.63 while the elasticity for the percentage of PPP investments was estimated at 0.52.

In Tanzania, Kavishe, Jefferson and Chileshe (2020) examined PPP implementation in Tanzanian housing sector. With the focus on the PPPs delivery challenges, the study sought to rank the top delivery challenges associated with PPPs in the housing sector. By relying on total state and local road and highways, the study conclusion was that lack of adequate project management skills among the project team, low quality tendering and contracting documents and processes, lack of a well-articulated and defined PPP legal framework and misinformation of the private financiers were the key delivery challenges affecting the thriving of PPPs in Tanzanian housing sector.

In the Kenyan context, several studies on the performance of PPP framework have been carried out. However, the studies have basically examined performance of the PPP projects from the CSFs point of view. One of such key studies is by Chileshe, Njau, Kibichii and Kavishe (2020) that focused on Kenya's housing sector. By undertaking a survey with 27 respondents, the study established that the key CSFs included: community acceptance, project feasibility, regulatory framework, availability of financial markets for financial resources mobilization and a well organised public agency are core CSFs.

Within the water sector, Obosi, (2017) examined the performance of the PPPs in delivering projects. The study was motivated by the quest to engage the private sector in water services provision to realize the aspirations of Water Act 2002. In the study, 288 households were surveyed drawn from seven water utility companies and three community water projects. The study found that organizations that had adopted more private sector participation, supported by regulatory frameworks that facilitated such involvement, could deliver projects on time thus reducing time taken by the households in getting water by 78.3 metres.

Trung (2023) examined the factors affecting the status of Vietnam's progress in the implementation of PPPs with the focus on the transport sector projects. The study adopted a survey design with a sample size of 92 experts as the key informants. The findings of the study highlighted that the existence of a robust legal framework governing PPP implementation was identified by respondents as a critical success factor in Vietnam's PPP initiatives. A deeper analysis revealed that a strong legal framework is essential in defining the modalities of PPP implementation by providing a reliable and enforceable legal foundation. Such a framework facilitates the establishment of dedicated PPP implementation units with clearly defined roles, mandates, and

scopes of operation. In essence, the PPP legal framework serves as the cornerstone for effective PPP execution by offering the legal certainty and institutional structure necessary to guide and sustain successful partnerships.

Cuttaree et al (2018) examiners the legal framework effectiveness among the South American states specifically Mexico and Chile. Using the 7-points Likert scale for 1993 – 2001 period, how the legal framework is designed and operationalized is found to be a key determining of PPPs success or failure. The framework's capability in supporting seamless enforcement of the PPP contracts, providing legal interpretation, support and resolutions of litigations arising from the process is underscored in the study.

2.2.2 PPP procurement framework and project implementation

In Indonesia, Atmo et al (2017) undertook a comparative performance of PPPs and traditional projects from the procurement framework point of view in the context of the power sector. The study sought to find out whether power projects procured via the PPP framework were any different from those procured via traditional framework in terms of their performance and delivery. The study focused on project time and cost as the yardstick of project implementation success. The study sampled 56 power projects for analysis. Upon analysis, the study found that PPP procured projects were completed on time and with operating availability compared to projects procured via traditional model. However, on the contrary, no significant differences in terms of project cost outlays were noted between PPP procured projects via traditional model.

O'Shea, Palcic and Reeves (2019) sought to examine the performance of PPP procured projects versus traditionally procured projects in Ireland. The study focused on the education sector specifically schools' construction procurement. Using a descriptive research design, semi-structured interviews were relied upon for primary data collection from the key stakeholders. Upon analysis, the study found no difference in project time delivery between PPP procured projects versus traditionally procured projects. However, this finding was contrary to the finding by Bougrain (2012) who reported that for the energy projects PPP projects performs regarding project deliver timelines and contracted prices.

Chasey, Maddex and Bansal (2012) compared the PPP procured projects versus traditionally procured project in the road sector in North America. The study focus was on the project cost. Primary data was collected via interviews from the project executives. The study established that PPP procured projects posted cost overruns of 0.81 percent on average compared to traditionally procured projects which cost overruns were 1.49 percent for traditionally procured projects. This indicated that PPP procured projects were more cost efficient.

Marin (2009) carried out an analysis of 65 large water PPP projects in the developing countries to examine their operational efficiency. The study focused on four project delivery attributes mainly operating efficiency, pricing, access and service quality. The findings were that PPP procured projects had an exemplary operating efficiency having enhanced access to over 24 million persons. Regarding the service quality, Marin (2009) asserts that PPP projects have elimitated water rationing significantly. According to the study, such performance in the PPP projects was attributed to availability of well defined PPP projects procurement framework in these countries.

Zhang (2005) examined the possible effects of PPPs in infrastructure development implementation. The findings were that inefficient public procurement framework adversely affects project implementation. Specifically, within the procurement framework, the study documents challenges such as: Inappropriate and unstandardized procurement framework; Lack of public clients initiating the projects incorporating them in their development; high levels of rent seeking arising from unsolicited PPP schemes; lack of clear definition of project in a manner that take into account stakeholders' requirements; corruption in awarding contract; Poor contract negotiation procedures and very long procurement processes marred with lot of litigations. These lead to project delays due to possible litigation arising from legal suits filed by unsatisfied private tenderers.

Chan et al (2010) assessed the reasons behind the success of PPP projects in China. This inquiry was occasioned by the fact that given rapid expansion in the Chinese economy, there was a growing demand for physical infrastructure to support this economic growth. This therefore called for private participation in the provision of such infrastructure given the government's inadequate resources. The study adopted a survey design with 18 success factors being focused on. The study found that among other factors, a transparent and efficient PPP procurement process supported by

a comprehensive PPP procurement framework was a prerequisite for the PPPs to work in the provision of physical infrastructure in China.

Osei-Kyei and Chan (2015) reports that a clear PPP procurement framework is core in promoting competitive bidding. It guides objectivity in project negotiation, offers clarity in PPP consortium prequalification, fosters good political good will and offers clarity in the bidding process. Similar evidence is provided for by (ElSawalhi and Mansour, 2014; Liu et al., 2015). PPPs procurement process has been largely voiced as a major determinant of PPPs success. Any faults in the process renders process success futile (Soomro and Zhang, 2015). The framework is the backbone upon which PPPs success in anchored. A well – developed elaborate procurement framework promotes competition in addition to efficiency in project's costs management. With an effective procurement framework, cost-effective PPP bidding is largely guaranteed (Carrillo et al., 2008; De Clerck and Demeulemeester, 2014). Therefore, the need for a transparent PPP procurement framework is underscored for successful PPPs track record (Osei-Kyei and Chan, 2016).

Eberhard and Gratwick (2013) analysed Independent Power Projects (IPPs) in African countries with the key focus on South Africa, Kenya, and Nigeria. The study found the crucial role of procurement in the PPPs success. Notably, the study reports that well-designed procurement process for the PPPs, competitive bidding and the flexibility in the design of subsequent bid rounds significantly determine the energy sector PPPs success in South Africa, Kenya, and Nigeria. Regarding dispute resolution, Moszoro et al. (2014) argued that PPP investment in infrastructure is highly sensitive to the number of disputes in a sector. As such the ability of the procurement fragment to address the disputes and litigations issues arising in these projects is crucial. Therefore, the procurement framework should consider robust framework for renegotiation and termination of the PPP contracts to improve on the PPP success. The inability of the procurement framework to address disputes arising from the PPPs discourage private investments in PPPs, and increase risk premiums thus (Lee et al, 2018).

In Sub-Saharan Africa, Osei-Kyei and Chan (2016) poor and unreasonable pricing of the PPPs could potentially arise from inefficiencies at the procurement stage. The outcome of this scenario is the expensive projects where the value for money is not guaranteed. This outcome spills over to the end user of the product or service provided via the PPPs in terms of high user costs that may

even lead to rejection of the project by the users upon completion. This may undermine the utilization of the project leading to private investors inability to recover their investment costs. In other cases, such inefficiency in the PPPs procurement may lead to project failure. Further, Ismail and Harris (2014) assert very lengthy process in project negotiations leads to project delays. Delays in the procurement process caused by political interventions, unclear project scope and poor contract management adversely affects project success. They assert that the procurement framework plays a critical role in addressing these challenges by promoting best practices in contract management and mitigating potential delays in the procurement process.

According to the World Bank (2018), competitive and transparent procurement processes are fundamental to the successful closure and implementation of Public–Private Partnership (PPP) projects. In this regard, a robust PPP framework that promotes transparency throughout the implementation process is essential. Any form of opacity in the procurement process, particularly during the bidding stage, undermines the credibility and success of PPP initiatives.

Furthermore, ensuring competitiveness in procurement is vital to achieving value for money and selecting the most cost-effective bidder, which in turn influences the determination of affordable and acceptable user fees upon project completion. The World Bank (2018) cautions that compromising competitiveness in PPP procurement often leads to project overpricing and corruption. Such malpractices not only erode public confidence but also result in the misallocation of public funds to unviable projects. In addition, weak accountability mechanisms on the part of government entities heighten the risk of financial mismanagement and resource diversion, ultimately compromising the integrity and sustainability of PPP programmes.

Similar argument and findings are reported by Gail et al (2023) who assert that a PPP procurement that is in short of transparency and accountability is detrimental to PPPs success in Ireland. In conclusion, reduction of government intervention in the procurement process through depoliticization and agencification is advocated for to streamline the PPPs procurement framework in Ireland. The study calls on the need for entrenching long – term sustainability by taking into considerations transparency and accountability of PPP procurement seriously. Similarly, in Uganda, PPPs procurement risks emanating from poor and lack of competition in project bidding, high corruption levels involved in PPPs, and poor or lack of PPPs contract negotiation guidelines

undermine PPPs success in Uganda (Bagenda and Ndevu, 2024). Lack of political will by the government to address these risks has been pointed as a key factor underpinning the low level of PPPs success in Uganda. Corruption in the PPPs has been attributed to cause delay in project approval, increased litigation and project costs overruns.

Moreover, De Clerck and Demeulemeester (2014) assert that ineffective procurement process are key factors attributed to bidding inefficiencies and overpricing of PPPs. Similar sentiments are voiced by Carrillo et al. (2018), Chen and Doloi (2018) and Riedl et al. (2013) who reported that inefficiencies in the procurement framework are the root cause to poor project pricing and loss of value for money to the public at large. In addition, an ineffective procurement framework fails to fairly allocate the project risks thus undermining PPPs success (Soomro and Zhang, 2013).

Regarding dispute resolution mechanism under the procurement framework, literature and PPPs implementation experience assert that the multilateral development banks (MDBs) can play a crucial role in derisking the PPPs investments. To this effect, two key derisking channels are possible: first via the operational assistance and secondly via policy dialogue interventions Jandhyala, 2016). The first channel promotes good project managerial practices through greeter level of supervision. Therefore, via this channel's development of well – structured project contracts that are easily enforceable is called for. The second channel weighs in more in dispute resolutions where multilateral development banks could play a moderating role between the government and private investors. The examination by Jandhyala (2016) points out that participation of multilateral development banks in the PPPs significantly lower PPPs risks through instilling good governance. By analysing 45 developing economies with a coverage of 2,117 infrastructure PPP, the findings are that in the projects that involve multilateral development banks, the odds of project distress are 50 percent lower than for projects without their participation.

Trung (2023) examined the factors affecting the status of Vietnam's progress in the implementation of PPPs with the focus on the transport sector projects. The study adopted a survey design with a sample size of 92 experts as the key informants. The study findings underscored that clarity within the procurement framework was identified by respondents as a critical success factor in Vietnam's PPP projects. A deeper analysis revealed that the transparency and efficiency of the bidding process, beginning with the call for quotations, bid submission, evaluation, and contract

award, were central determinants of PPP success or failure in the country. The findings further emphasized the importance of good governance and high institutional quality, particularly in managing procurement procedures, as key enablers of effective project implementation. Moreover, the study highlighted the pivotal role of the state in establishing and maintaining a sound regulatory framework to guide and oversee PPP procurement processes, thereby ensuring accountability, fairness, and confidence among stakeholders.

Effectiveness of the PPPs procurement framework is examined in South American states specifically Mexico and Chile. Using the 7-points Likert scale for 1993 – 2001 period, how the procurement framework is designed and operationalized is found to be a key determining of PPPs success or failure. The framework's capability in supporting seamless enforcement of the PPP contracts, framework's capacity to foster competition in the bidding process as well as availability of a rigorous regulatory framework underpinning the operations of the procurement framework are identified as key PPPs success factors. Further, the ability of the procurement framework in ensuring proper project risk management, ability to accurately forecast project returns and profitability as well as the framework's support for project feasibility studies undertaken is underscored (Cuttaree et al, 2018). In the United Kingdom, the long process of procuring project through the PPP model is underscore in causing unnecessary project delays. Further, the procurement framework inability to effectively transfer risks and procurement framework's inability to effectively guide and set affordable and acceptable users fees remain as key barriers to success of PPPs in the United Kingdom.

In India, specifically the Uttar Pradesh, Amir et al (2012) conducted an examination of the constraints affecting the implementation of PPPs. The study sought to identify potential challenges along the PPP implementation chain, from project inception to closure. Using a five-point Likert scale, the researchers found that many of the constraints arose from weaknesses within the operating environment. Foremost among these were issues related to the procurement process, where a lack of procedural clarity and the presence of restrictive conditions within the procurement framework discouraged foreign investor participation. Political constraints also emerged as significant, with instances of biased government procurement practices undermining transparency and fairness. Poor governance within public institutions further interfered with PPP procurement, compromising accountability and public trust. Additionally, the tendering process was reported to

be opaque, with limited public awareness of the "user-pay" principle embedded in PPP arrangements.

Based on these findings, the study recommended that authorities undertake a comprehensive review of the existing procurement framework and the broader regulatory environment governing PPP operations to enhance clarity, transparency, and investor confidence.

2.2.3 PPP financial framework and project implementation

Ke, Wang and Chan (2008) examined the performance of Public-Private Partnership in Hong Kong from the financing framework point of view. The study adopted a case study design to examine the factors contributing to project failure. The findings revealed that the bankruptcy of the Project Company resulted from the private consortium assuming an excessive number of risks beyond its capacity to manage. Instead of limiting its exposure to typical private-sector responsibilities—such as financing, construction, and operational risks, the consortium also absorbed political and social risks that should ordinarily have been borne by the government. This imbalance in risk allocation ultimately undermined the financial stability and sustainability of the project, leading to its collapse.

Verweij and Meerkerk (2021) conducted an analysis of the PPP models among the Dutch infrastructure PPP projects. The inquiry whether PPP project were time and cost effective compared to project implemented under the regular contracts. To achieve the study objective, PPP projects financed through Design – Build – Finance – Maintain (DBFM) model compared to regularly procured projects through Design-and-Construct (D&C) model. The study found out the projects financed through DBFM PPP model demonstrated significantly better cost performance compared to projects financed through regular contracts. In addition, the study found that DBFM financed projects performed better in reducing project time overruns compared to project implemented under the regular contracts. However, the difference in time performance between the two projects financing models was found to be statistically insignificant.

Project success is majorly also dependent on the stakeholders' management. To this effect the management of both the primary and secondary stakeholders is crucial. It's notable that risk management in the project is a key issue of concern among the stakeholders. Therefore, stakeholder do not necessarily take unnecessary project risks. In this realization, it is of paramount importance to ensure that the financial markets can factor the potential risks associated with the PPPs. Market risks arising from high interest rates as well as shallow financial markets requires the markets to be mature enough to trade – them off (Osei-Kyei and Chan, 2015). Ong'olo (2006) stresses on the importance of adequate project funding for PPPs to realize their success. For this to happen there is need to have mature well established markets that are frees from any forms of market distortion.

Existence of well-established markets ensures capability of raising low-cost funding from such markets. Such markets tend to attract more PPP funding by both the domestic and foreign investors. Existence of such market is an indication of a robust financial sector that is competitive and that attracts the attention of foreign investors (Ong'olo, 2006). It's notable that existence of such markets is also an indication of a stable macroeconomics environment that is crucial for PPPs thriving. Furthermore, such markets with liberal exchange rates regimes, low interest rates and sound macroeconomic fundamentals are key for increased private sector inflows into the PPPs (Ong'olo, 2006).

Hyun, Park and Tian (2018), examined the determinants of public–private partnerships in infrastructure in Asia. To this effect, the role of the capital markets in mobilization of the project funding is underscores in the study. Given PPPs are long term in nature, the study advocated for well – developed and deep capital markets with ability to offer long term and concessional lending. To this effect, bond markets are advocated for as opposed to money markets given their long-term funding mobilization ability. Moreover, mature long-term financial markets are good catalysts for attracting long term funding required by the PPPs. As such developing economies need to strive to modernize their capital markets by providing necessary incentives such as proper and effective capital markets frameworks.

Availability of well – developed capital markets is crucial for the raising of the long – term funding for the PPPs. Well – developed capital markets that are deep enough are key in offering a range of financial products needed for PPP financing. Ba, Gasmi, and Noumba Um (2010) undertook an analysis of PPPs in the power sector among the developing economies. Their findings were that well developed and established financial markets are crucial for offering liquidity that is essential for PPPs financing. Such markets offer affordable project financing given the large number of market participants. Further they point out that well – developed financial markets is an indication of mature markets and these are the markets that investors look into, in making their investment decisions.

In addition, Purvis *et, al* (2010) asserts that lack of government guarantees adversely affects government's ability to access affordable funding. The absence of government guarantees in PPPs imply to high cost of funding for the PPPs. Accordingly, the absence of investor confidence arising from absence of market and projects guarantees undermine ability of raising adequate project funding in the developing economies. Absence of such guarantees signals high project risks which is a turn off to private investors.

World Bank (2018) stresses on the significance of the project tariff affordability and flexibility in so far as PPP success is concerned. In this pursuit the importance of clarity in the regulations surrounding tariff setting, negotiation and implementation is underscored. World Bank (2018) call on the need for ensuring that PPPs tariffs are affordable to consumers while at the same time calling for flexibility of such to cushion the investors as well for their comfort on the guaranteed for their investments. Flexibility in tariff setting is a critical component of PPPs, as it helps cushion investors against potential losses arising from fluctuations in pricing fundamentals. At the same time, tariff structures must remain affordable and acceptable to local end-users to ensure sustained demand for the service or product. When tariffs are perceived as unaffordable, consumer uptake diminishes, thereby jeopardizing the project's financial viability and its ability to achieve break-even levels. Striking a balance between investor protection and public affordability is therefore essential for ensuring both project sustainability and social acceptability.

In Singapore, Kim and Kwa (2020) examined risk factors for public-private partnerships. The scope of the study was the projects implemented via the recent period running from 2000 – 2019. Therefore, in line with the project scope, 6 failed PPPs were identified and analysed. Upon analysis, the study found that the key factors underlying the PPPs failures were inefficiencies in the execution and management of project contracts. Further, inadequate or lack of specialized skills and techniques coupled with inaccurate and wrong financial forecasts undermine project success to a greater extent. Also, notably, poor and lack of supportive governance framework to guide on the PPPs implementation compounded by an investment framework that is inconducive to harbour and nurture PPPs investments is a big setback to PPPs success. The study further found that out of the key failure are operational failures were found to emanate from these risks which lead to subsequent contract termination of multiple unsuccessful PPPs.

2.2.4 PPP investment framework and project implementation

In Kenya, Ng'ang'a and Kisimbii (2018) the role of PPP investment framework in incentivising private sector participation in PPP project in Mombasa County. Under the guidance of the descriptive research design the study surveyed 252 respondents drawn from county ministries, PPP unit staff, project management teams, Private stakeholders and central government ministries. The study sample was drawn using stratified sampling procedure with data collected using closed ended questionnaires. The study found that private sector participation in PPPs is largely influenced by project capital requirements, risk management and lifecycle of the project.

The country's macroeconomic fundamentals are key in determining national projects implementation. Therefore, inclusion of the macroeconomic stability in measures of PPP investment framework is very crucial. in Uganda, PPPs procurement risks emanating from poor and lack of competition in project bidding, high corruption levels involved in PPPs, and poor or lack of PPPs contract negotiation guidelines undermine PPPs success in Uganda (Bagenda and Ndevu, 2024). Lack of political goodwill by the government to address these risks has been pointed as a key factor underpinning the low level of PPPs success in Uganda. Corruption in the PPPs has been attributed to cause delay in project approval, increased litigation and project costs overruns.

Osei-Kyei and Chan (2015) examined the success of PPP projects using s desktop review for published studies. The study reviewed published research works globally on the topical area. The study finding revealed that among the key success factors for PPPs, the existence of a sound project's investment framework featured prominently in majority of the reviewed studies. In addition to the investment framework, other frequently cited success factors included a conducive political environment, an effective risk management framework, a clear and transparent procurement process, and the presence of a strong and competent private consortium. Collectively, these elements were identified as critical enablers of PPP project success across various contexts.

In Kenya, Pedo, et al (2018), examined the effects of public private partnerships frameworks on performance of public private partnership road projects in Kenya. The study specifically focused on the role of capital markets, stakeholder management, and government policy in the performance of PPP projects. Employing an exploratory research design, the study collected primary data from 111 respondents comprising project implementers, financiers, regulators, and other key stakeholders. The findings revealed that the availability of well-structured financial markets, essential for mobilizing resources to finance PPP projects, had a significant and positive influence on PPP performance in Kenya. Based on these findings, the study recommended the deepening of domestic financial markets by expanding the range of traded instruments to enhance financial resource mobilization.

Additionally, it emphasized the need to implement measures aimed at improving market liquidity to strengthen the capacity of financial markets in supporting sustainable PPP investments. Within the low income and developing economies, Hakan *et al* (2022) examined Macroeconomic drivers of Public Private Partnership projects. The study covered 137 countries that had difficulties in securing financing for the public infrastructure projects. The study examined the key macro-economic variables considered to be determinants of investment activity. The findings revealed that the general government fiscal balance and economic growth rate (GDP) are significant determinants of PPP activity, particularly among the low income and developing economies. These results underscore the critical role of macroeconomic stability in fostering investor confidence and creating an enabling environment for PPP investments.

Another strand of literature posits that a country's macroeconomic stability as depicted in the macroeconomic fundamentals of the economy play a pivotal role in determining the level of private sector investments in PPPs from the Foreign Direct Investments perspective. This in turn also influences the country's savings rate with the intention of investing the savings in the PPPs. In fact, according to Arbatli (2011) the level of the FDI flows as a proportion of GDP is a key determinant to the foreign investors' appetite towards the investments in the PPPs. By and large FDI when assessed in terms of the stock levels, serves as a significant determinant of progress in PPPs financing. In addition, Arezki et al., (2017) while focusing on the macroeconomic environment and PPPs activity asserts that savings deprives investment expenditure from the mere fact that savings is a deferred expenditure.

The justification of the inverse relationship between savings and PPPs investment is provided by Reddy (2019) who asserts that savings are largely directed by the financial institutions towards interest – free short-term money markets instruments mainly treasury bills and also to the financial instruments such as treasury bonds, derivative instruments among others that tend to have lower risk exposure compared to the risk associated with the PPPs. Hammami et al., (2006) found that several macroeconomic indicators determine the effectiveness of governments' and firms' PPP activities. The study posits that reasonably high fiscal deficits, though may tend to wane down on the PPPs activity, may not apply to the economies that are well endowed with the natural resources. This is because economies that are well endowed with the natural resources tend to attract more foreign direct investments compared to economies that are not well endowed with natural resources. Therefore, in economies that are well endowed with natural resources, budget constraints tend to be less binding, as revenues generated from resource exploitation provide an additional fiscal cushion for financing development projects, including PPP initiatives. This hypothesis is tested by Hakan et al (2022) found that macroeconomic stability of the economy largely determines PPPs activity.

Within the Sub Saharan Africa, Mengistu (2013) examined the impact of several macroeconomic variables on PPP based infrastructure investments. The market size was reported to be a key PPP activity determinant. Conversely, high inflationary pressures coupled with high taxation levels were found to be negatively correlated to PPP activity. Further, Yurdakul and Kamasak (2020)

points out that volatile economic and political environments are key factors to consider in so far as PPP activity determinants are concerned. Therefore, investment in the PPPs require undertaking of feasibility studies to assess projects viability. In addition is a need for up-to-date project forecasts and projections of expected returns, accompanied by periodic reviews where feasible. Such forecasts and revisions should be cognisant of the economic volatility and political environment developments.

According to Sanni (2016), the economic environment is a major determinant of PPPs success in Nigeria. According to the study, the overall health of the economy as indicated by key macroeconomic indicators, serves either as a catalyst or a constraint to the private capital inflows into the PPPs investments. The study further postulates that the economic policy coupled with political will, quality of the governance, risk allocation and project leadership are key determinants to PPPs success. Therefore, the study concludes that favourable socio – economic factors are critical for successful implementation of PPPs in Nigeria.

Stability in the macroeconomic conditions largely determines the PPPs success as cited by (Diba, 2012). The key macroeconomic variables influencing PPP performance include the cost of capital, inflation rates, and exchange rate stability. Similarly, argument is provided by Ong'olo (2006) who asserts that any instability in the macroeconomic environment will hamper private investors in the PPPs both the domestic and foreign investors. These insights underscore the importance of prudent management of the macroeconomic indicators to create a stable and predictable economic environment that fosters investor confidence and promotes sustainable PPP implementation.

Similarly, Osei-Kyei and Chan (2015) assert that sound economic policies formulated by the government translates into sound macros environment which is crucial in stimulating investor participation in the PPPs market. Sound macroeconomic conditions guarantee certainty on the investor's thus boosting the private investors participation in the PPPs investments. Moreover, the level of foreign investors participation in the PPPs investments in an economy is dependent on how sound the macroeconomic environment of the economy is (Pongsiri, 2002). This implies that the more stable and predictable an economy's macroeconomic conditions are, the higher the level of investor confidence and the greater the likelihood of private investment in PPP initiatives.

Several studies concur that macroeconomic stability has a positive and significant impact on the success of PPPs globally. A stable financial environment supported by a sound macroeconomic environment boosts private sector's participation in PPP investments (Bogado, 2015; Zhang, 2005). Further, Banerjee et al. (2006) contend inflationary pressures and the exchange rate volatility diminish private sector participation in the PPPs due to heightened uncertainty and financial risks associated with such macroeconomic misalignments.

Similar findings are presented by Azam (2010) who reports that macroeconomic instability caused by high inflation rates reduces the return on investments and consequently discourages private sector participation in PPPs. Conversely, low inflationary pressures serve as an incentive for private investors to participate in PPPs. Therefore, economies with low inflationary pressures tend to attract more private foreign investments in PPPs due to certainty in planning that is guaranteed by low inflation rates. Similarly, A statistically significant relationship between macroeconomic stability in the host country and investment in PPPs is reported by (Demirhan and Masca, 2018) in 38 developing economies whereby FDI inflows is largely determined by macroeconomic stability.

Regarding the cost of money, interest rate levels crucially determine investments in PPPs (Wei and Liu, 2010). High interest rates levels discourage private investments in the PPPs due to high cost of capital. In such circumstances, private investors often demand higher returns to compensate for the high cost of funds, which in turn diminishes their overall investment returns. This underscores the need for countries to manage the cost of capital through sound and responsive monetary policies that foster access to affordable financing for infrastructure projects. Funding remains a critical component of PPPs, given the substantial capital outlays they typically require. Consequently, effective management of the cost of funds within an economy is essential to determining the success or failure of PPP initiatives. A lower cost of capital provides a competitive advantage to the host country by enabling the attraction of affordable and sustainable foreign and domestic financing for PPP projects.

In Thailand, Allport et al. (2018) examined a case of a railway PPP project in the context of the macroeconomic stability and PPPs success. The study established that exchange rate risk was the main macroeconomic factor that led to severe financing challenge thus adversely affecting project success. An illustrative example was drawn from Kuala Lumpur's Light Rail Transit project,

where high inflationary pressures adversely affected loan servicing, ultimately leading to project failure. Consequently, the study emphasized the need for effective management of macroeconomic risks in PPPs, particularly exchange rate volatility and inflationary pressures, which were identified as the most critical risks influencing project sustainability and financial viability.

Foreign investors are always keen on the exchange rates risks when investing in the foreign PPPs (Nelson, 2015). The exchange rates will define the profitability of the foreign investors in PPPs when converted into their local currency. In Pakistan, Yousaf et al (2013) examines the impact of inflation and exchange rate volatility on Foreign Direct Investment in the context of the PPPs and found that the inflows of foreign direct investment are generally hindered by volatilities in the exchange rates and high inflationary pressures. Similar findings are reported by Ellahi (2011) who report that exchange rate volatility adversely impacts on Foreign Direct Investment inflow. These findings are substantiated by the fact that in the short run, exchange rate volatility and high inflationary pressures pose high level of uncertainty which eases off with time thus enabling private investors make more concise investment decisions.

In the Kenyan context, Rambo and Lucas (2016) analysed railway project via Build-Operate-Transfer financing model. The study found that high inflationary pressures was ranked as a key macroeconomic downward risk that posed reasonably high debt burden for the dollar – denominated foreign borrowing. In addition, the study reports that interest rates measuring the cost of funds, taxation burden and debt ratio adversely affects private sector participation in railway PPPs in Kenya.

In China, Chan et al. (2010) examined critical success factors for PPPs in infrastructure developments. The findings revealed that the foremost success factor was a stable macroeconomic environment, which was considered crucial in shaping experts' decisions to invest in Chinese PPPs. The second key factor was the existence of shared responsibility between the public and private sectors, fostering collaboration and balanced risk allocation. Third, the availability of a transparent and efficient procurement process was identified as essential for ensuring fairness and accountability. The fourth factor was a stable political and social environment, which enhances investor confidence and long-term project sustainability. Lastly, judicious government control was found to be important in maintaining regulatory balance and policy consistency.

In the Kenyan context, Odhiambo et al. (2020) examined the macro-economic risk factors on performance of public private partnership renewable energy projects with a focus on the renewable energy project win Geothermal. The study adopted a mixed research approach, incorporating both correlational and descriptive survey designs. The sample comprised 263 respondents, selected from a target population of 769 individuals involved in the study. The findings underscored the significant influence of macroeconomic risks in PPPs performance. Minsoo et al. (2018) presents similar findings among the Asian developing economies.

2.2.5. Government Policy and project implementation

The role of the government intervention through government policy in PPPs success cannot be understated. In the context of the PPPs, the government policy plays a salient role in the PPPs success. According to Xu (2023), any pro- PPPs government policy is key in promoting private portfolio investment s in PPPs as well as project's profitability. The study reports that government support through supportive policies increased projects' profitability by 8.2 percent. Further, the study found that government policy towards reduction of its shareholding in PPP projects significantly reduced project profitability by 23.3 percent. The study concluded that government policy plays crucial role in determining PPPs profitability thus calling for development and implementation of more supportive PPPs policies.

Wang et al (2019) undertook a study in the developing economies where they examined the effect of government support through public policy in promoting private sector investment in PPPs. The study uses data from 4,484 PPP projects across 130 developing countries. The study key objective was to examine how the government policies could be used to attract more private investment in the PPPs in developing economies. The study found that government support for PPPs, through both direct and indirect capital injection policies, significantly enhanced private sector investment. Specifically, direct government contributions and in-kind subsidies were shown to stimulate additional capital inflows from private investors. The study further established that direct government guarantees had a strong and statistically significant effect in attracting private investment to PPP projects. Moreover, the findings indicated that institutional quality, reflected in supportive government policies and good governance practices, positively influenced private sector participation in PPPs. Finally, the study underscored the critical role of government policies

in effective project risk allocation, noting that sound risk management and de-risking strategies substantially increase the private sector's investment portfolio in PPP initiatives.

A government-support program and the effect on the PPPs success is affirmed by Kaufmann, Kraay, and Mastruzzi (2011). Government commitment to the rule of law is widely recognized as a key determinant of PPPs success, particularly in relation to government policy and regulatory reliability. Further, a strong commitment to contract enforcement and the protection of property rights is essential in promoting private sector confidence and encouraging investments in PPPs. These creates a more reliable environment that comes with comfort to the private investors through assurance to the private investors that their investments are secure. Furthermore, adherence to the rule of law serves as a positive signal to investors, reflecting a stable and reliable investment climate. In the same vein, the promotion of good governance through high institutional quality strengthens investor confidence by ensuring transparency, accountability, and policy consistency. Generally, countries with strong institutional frameworks and good governance standards tend to attract larger volumes of private sector investment in PPPs, as institutional quality is a critical determinant of both domestic investment decisions and foreign capital inflows.

Similar argument is presented by Daude and Stein (2007) who asserts that government effectiveness through upholding of the rule of law, control of corruption and promotion of good governance are paramount in governing economic and social interaction among the economic agents. Daude and Stein (2007) asserts that private investors pay key attention to attributes constituting the institutional quality in deciding which country to channel their investment portfolio. As such poor institutional quality arising from neglect to the rule of law, high corruption and government rent – seeking behaviour among others is a turn off to the foreign private investors. Poor institutional quality undermines securing of the private investments leading to capital flight of the already existing private capital in the country. Further, poor institutional quality undermines private investors' confidence in the government's ability and commitment to fulfil its future obligations under indirect support mechanisms such as guarantees and subsidies. This uncertainty discourages private participation in PPPs and weakens the overall investment climate. In essence, weak institutional frameworks erode investor trust in government commitments, thereby diminishing confidence and reducing the likelihood of sustained private investment in PPP

initiatives. Further, given the high level of risks inherent in PPPs, government policies aimed at derisking investment are both necessary and beneficial, as they play a crucial role in promoting the PPPs success.

Government intervention can also encourage greater private sector participation in PPPs through subsidies. In particular, subsidies in the form of debt guarantees are instrumental in mitigating lenders' exposure to risk and reducing the associated risk premiums often factored into financing costs. Further, government policies targeting sectoral risks through sectoral directed subsidies are key in attracting private investments in the sector which are considered risky by private investors (Ameyaw, Chan, and Owusu-Manu 2017). Further, Pusok (2016) asserts that private investors will always demand for a high premium to cover the inherent risk arising from poor institutional quality and risk arising from political instability since such economies are considered risky investment destinations.

Moreover, government policy could promote the certainty of government-support programs that could significantly lower private sector risks, thereby enhancing investment (Urpelainen and Yang, 2017). A practical example is where the government provides a guarantee on minimum traffic volumes for a tolled road project. Such a guarantee serves as an incentive for private investors to participate in road infrastructure development, as it mitigates the risk of low demand arising from underutilization of the facility. The guarantee goes a long way in offering minimum returns that the private investors would realize in such road infrastructure investments. Further, the introduction of the returns of investments guarantees by the government is a crucial financial subsidy that has significantly incentivized private portfolio investment in PPPs in Brazil (Brandao et al. 2012)

Moreover, government support programs attract private investments differently. According to Armada, Pereira, and Rodrigues (2012) direct support programs significantly increase private investments in PPPs while the indirect government programmes may fail to attain the expected results due to the underlying uncertainties and risks. Its notable that given the long project cycles of the PPPs, private investors keenly observe the government policies in the long run (Albalate, Bel, and Geddes 2015). In developing economies, financial markets are young and immature and

thus indirect government interventions through market instruments such as guarantees and subsidies play a crucial role in determining PPPs success (Brown, Potoski, and Van Slyke 2016).

Lee et al (2018) on examining the role of the government policy report that the high bureaucratic nature of government adversely affects investments in the developing economies leading to low private investments in PPPs. Such adverse effects are often attributable to poor risk allocation within projects, which diminishes the expected returns for the private sector participants. Pérez-D'Oleo et al. (2015) reports a positive nexus between high institutional quality and private investment in PPP projects. Similar findings are reported by Sabry (2015) and Avram (2014) who found reduced bureaucracy to lead to good governance hence increased private investment arising for increased investors' confidence and trust.

Osei-Kyei and Chan (2017) found that out of the top five factors influencing private investment in PPPs, government policy was among them. The others were political stability, existence of a robust legal framework that offers a well organised implementation structure. Within the Caribbean countries and the Latin America, Unit (2014) report that from the institutional quality perspective, government policies in supporting rule of law, financial markets maturity and reduced bureaucracy informed the thriving of the private investments in PPPs in these economies.

Further, Unit (2014) reports that economies that portray linkage between political support for PPPs and performance in the PPPs regulatory and institutional frameworks improve PPPS performance. Further, having strong political will on the government side is reported to improve PPPs performance (Pebble, 2015) with the contrary being true. Efficiency in government financial decisions and financial management coupled with better deployment and utilization of subsidies and strong financial markets promote PPPs success Unit, 2014). In addition, the IEG (2019) reports a positive and significant influence of government effectiveness on PPP governance and PPP's outcome.

World Bank (2018) postulates underscore the importance of the government policy in implementing PPP projects in Fragile and Conflict Affected States. The government intervention underscores the success of PPPs by attracting private capital through promoting sustainability.

Jamali (2014) stresses why effective government regulatory and compliance systems are crucial for PPPs to succeed. He asserts that government plays a crucial role in safeguarding private investment against expropriation, ensuring fairness and reliability in arbitration procedures in case of any disputes , and upholding the sanctity of contracts through adherence to the rule of law. , Additionally, the government is instrumental in de-risking the investment environment through various risk mitigation programmes and in facilitating efficient mechanisms for cost recovery, thereby enhancing investor confidence and promoting sustainable participation in PPPs. In addition, Pongsiri (2012), and Zouggari (2013) point to the importance government policy in ensuring of transparency and effectiveness of the PPP legal framework as prerequisites for the private sector's participation in PPPs.

2.3 Theoretical Framework

This study is anchored on three theoretical foundations namely: Institutional Theory, Stakeholder Theory and Contingency Theory, each providing a conceptual lens through which the study's key variables and relationships are examined. Collectively, these theories offer a robust theoretical framework that underpins the study, guiding the analysis of how institutional structures, stakeholder dynamics, and contextual factors influence the efficacy of PPP frameworks in infrastructure project implementation.

2.3.1 Institutional Theory

Institutional theory was originated by Berger and Luckmann (1967). The theory explains the mechanisms via which structures are established as authoritative guidelines for social behaviour. There are a lot of paradigms which have been developed by institutionalists (Scott, 1987). The paradigm used in explaining strategic management issues is neo-institutional theory which focuses on economics and organization theory. This institutional theory allows an analysis of situation where firms as organizations are influenced by their environment. Further, this environment gives a certain impact to firm's competitive advantage (Bresser & Millonig, 2003).

Rooted from that institutional theory, a concept of institutional capital is developed with a fundamental argument that economic choices (including choices of resources) are constrained not only by factor limits defined in neoclassical economic model (such as the technological, information and income), but also by socially constructed limits (such as norms, habits, and

customs). By including institutional theory in the analysis, firm can recognize situation on institutional constraints which benefits their strategic choices (Peng, Sun, Pinkham, & Chen, 2009). In this regard, combining institutional theory and the concept of strategic entrepreneurship is critical for developing the model analysis.

Policies are identified as formal institutions and supportive pillars which can influence firm performance. Government policies are viewed as a capital that can produce pressures and punishments, and at the same time, policies provide opportunities for firm to develop their resources and capabilities (Platje, 2008). Further, in the context of industry creation, the policies can be viewed as institutional capital to gain legitimacy for firms to do their business activities and reduce uncertainties, especially in emerging markets (Tracey & Phillips, 2011).

The applicability of the Institutional Theory in this study lies in its recognition of how government institutions in leveraging the PPP framework to implement infrastructure projects. The PPP framework itself constitutes an institutional structure, as it establishes the formal rules, regulations and procedures that govern interactions among stakeholders within the broader PPP ecosystem. Consequently, institutional factors embedded within the PPP framework are likely to influence the effectiveness of project implementation, thereby justifying the relevance of this theory to the study. Through the lens of Institutional Theory, the study conceptualizes both endogenous and exogenous institutional factors that affect the efficacy of the PPP framework. The endogenous factors include the attributes of the legal, procurement, and financing frameworks, which are the key components that the study seeks to examine, while the exogenous factors encompass the broader political, economic, and regulatory environments within which PPPs operate.

2.3.2 Resource Dependence Theory

Resource dependency theory was developed by Pfeiffer and Salancik (1978). According to the theory, resource endowment within the organization is crucial as it is this endowment that creates the comparative advantage of an organization. Thus, the resources at the disposal of any organization inform how the organization is related with other partner organizations as well as inform the level of independence an organization is likely to have. This therefore implies that organizations that are dependent on others for critical resources are likely to experience some

reduction in autonomy and may, consequently, become subject to the influence or control of the entities upon which they depend.

Given that no single organization can be fully resource-independent, there is a need for organizations to establish collaborations and linkages with others that possess the resources they lack. Such partnerships enable the creation of synergies that enhance operational efficiency and mutual benefit. However, it is important to note that these linkages often entail certain costs and risks, including potential dependency, loss of autonomy, and exposure to external influences that may affect organizational decision-making and strategic direction. In fact, researchers employing Resource Dependence Theory in particular have shown that risks are prevalent when there is a power imbalance, as powerful partners may appropriate organizational resources (Pfeffer & Salancik, 1978).

In this study, Resource Dependence Theory is applied to conceptualize how the PPP framework facilitates the implementation of government infrastructure projects. Governments often face substantial funding gaps in infrastructure development due to competing priorities and limited financial resources. Consequently, the need to establish strategic partnerships with external financial and technical partners becomes inevitable for the realization of large-scale infrastructural investments. To effectively engage such partners and mobilize the requisite resources, governments must design structured frameworks that define the modalities of collaboration, risk sharing, and accountability. In this context, the PPP framework provides a critical mechanism through which governments can leverage external resources while maintaining strategic oversight of public infrastructure development.

2.3.3 Project Management Theory

The development of project management theory can be traced back to seminal work of management theory by Fredrick Taylor (1909). The theory emphasizes the systematic application of planning, execution, and control in managing projects to ensure efficiency and effectiveness. It advocates for the use of project management knowledge, skills, tools, and techniques to achieve project objectives and meet specified requirements. Project management is accomplished through appropriate application and integration of logically grouped project management processes

comprising of initiating, planning, implementation, monitoring and evaluation, and closing. A project is deemed successful when it meets the expectations of key stakeholders within the planned timelines and budgetary allocations. However, it is important to note that stakeholders' expectations are inherently diverse and dynamic, reflecting the varying interests, priorities, and influence levels of different actors involved in the project lifecycle.

The Project Management Theory promoters including Warburton and Cioffi (2014) posit that this theory offers basic relations between network structure of the project. However, project management theory has been heavily criticized for its traditional model in nature. The critics of the theory posit that the theory is majorly applicable in small projects. As such the application of the theory in large and complex projects has been questioned given the very learn nature of the theory (Lannon, 2015). This theory enabled the researcher to examine efficacy of the PPP Framework in implementation of energy infrastructural projects in Kenya.

2.3.4 Hybrid Theory in Project Implementation

The Hybrid model of project management is attributed to the works of Smith and Lewis (2011). Just as indicated by its name hybrid, the theory is a mixture of traditional and modern approach to project management. Indeed, it advocates for the project managers to adopt both the traditional and modern or agile models in managing projects. Such techniques' mixture is crucial in averting the modern contemporary issues faced at project management given the evolving environment within which the projects are being implemented today as opposed to past times (Archer and Kaufman, 2013). Indeed, this adoption is crucial as in enhance flexibility which is crucial in modern times when it comes to project implementation (Fewell, 2017).

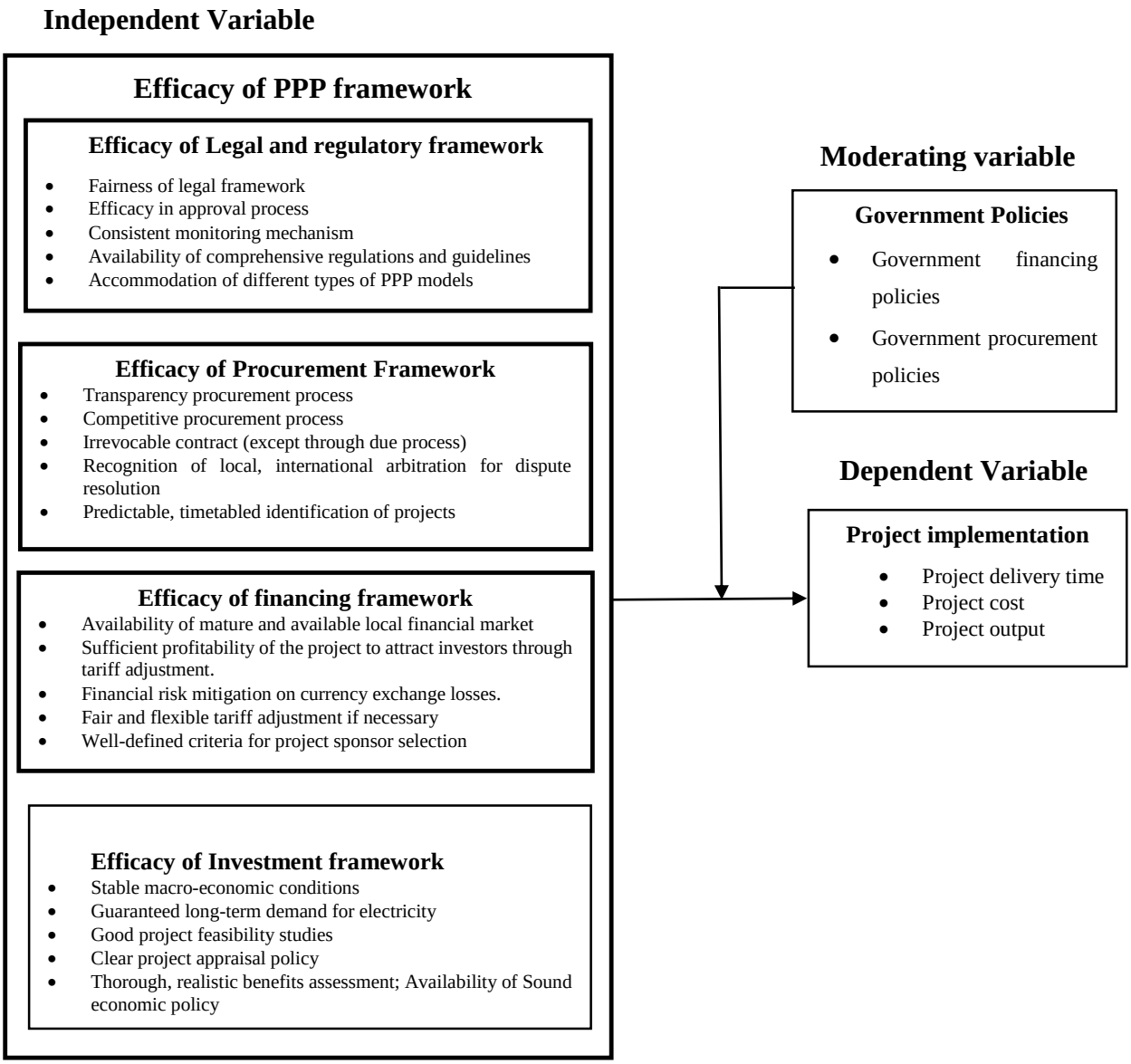
According to Archer and Kaufman (2013), this approach to project management todays is largely advocated form due to the diverse stakeholder expectations and needs that are peculiar in nature. Therefore, to effectively consider the needs, feedback, and expectations of diverse stakeholders and enhance project buy-in, it is essential to adopt a flexible approach to project management. This underscores the rationale for employing a hybrid project management model, which integrates elements of different management methodologies to accommodate varying stakeholder interests, project complexities, and contextual dynamics. Such flexibility enables better alignment between project objectives and stakeholder expectations, ultimately increasing the likelihood of project

success. However, its notable the though this model is highly advocated for, it is not a solution to all issues affecting project management today but rather complements on the weaknesses of traditional and agile approaches towards project management (Salah et al., 2017).

Given the complex nature of energy projects, characterized by the involvement of multiple stakeholders, substantial financial commitments, and broad project scopes, the adoption of a hybrid project management model becomes essential to enhance the efficacy of the PPP framework. The inclusion of this theory in the study provides a strong foundation for examining the four components of the PPP framework simultaneously, recognizing that these elements are interrelated and mutually reinforcing. Assessing each framework in isolation would therefore offer an incomplete understanding of how the overall PPP framework collectively influences project implementation outcomes.

2.4 Conceptual Framework

The relationship between explanatory and dependent variables alongside the moderating variable for this study is presented in figure 2.1.



Source: Author, 2024

2.5 Conclusion

In conclusion, it is evident that a substantial body of both contemporary and classical literature exists on the determinants of PPP success. However, the empirical findings on the effects of PPP frameworks on project performance remain mixed, while some studies report positive impacts, others present negative or inconclusive results. This inconsistency highlights the need for further empirical investigation to better understand the underlying dynamics influencing PPP outcomes. Moreover, the reviewed studies reveal notable research gaps that this study seeks to address. These salient research gaps are summarized in table 2.1

Table 2.1: Summary of empirical literature

Author	Focus of Study	Methodology	Findings	Knowledge Gaps	Focus of current study
Verweij and Meerkerk (2021)	Analysis of the public–private partnerships models among the Dutch infrastructure PPP projects	Descriptive research design	The study found out the projects financed through DBFM PPP model are significantly better in cost performance compared to projects financed through regular contracts. In addition, DBFM financed projects had shorter time overruns compared to project implemented under the regular contracts though insignificant	Study only focused on project time and cost as measures of project success and ignored aspect of output. In addition, study failed to apply empirical analysis methods	The study focused on three project success measures: - cost, time and output simultaneously using inferential analysis methods both parametric and non – parametric methods to robustness
Atmo, et al (2017)	Comparative performance of PPPs and traditional procurement projects in power sector in Indonesia	Descriptive research design	PPP procured projects had superior time and operating availability compared to projects procured via traditional model. However, the study found no significant differences in the cost performance attribute between PPPs and traditionally model procured power infrastructural projects in Indonesia.	Study only focused on project time and cost as measures of project success and ignored aspect of output. In addition, study failed to apply empirical analysis methods	The study focused on three project success measures; - cost, time and output simultaneously using inferential analysis methods both parametric and non – parametric methods to robustness.
O'Shea, Palcic and Reeves (2019)	Comparative analysis of the PPP and traditional procurement in Ireland - a case study of schools' procurement in Ireland.	Descriptive research design	The study found that there is no evidence that PPP procured projects are delivered faster when the overall procurement process from contract notice to delivery is accounted for compared to projects procured through traditional procurement model.	Study only focused on project time as a measure of project success and ignored aspect of output. In addition, study failed to apply empirical analysis methods	The study focused on three project success measures: - cost, time and output simultaneously using inferential analysis methods both parametric and non – parametric methods to robustness
Bougrain (2012)	Investigation of performance of PPP and the ability of private consortia and public authorities to together develop solutions that reduce building energy consumptions.	Descriptive research design	PPP projects performs well on timetable and contracted prices	Study only focused on project time and cost as measures of project success and ignored aspect of output. In addition, study failed to apply empirical analysis methods	The study focused on three project success measures: - cost, time and output simultaneously using inferential analysis methods both parametric and non – parametric methods to robustness
Zhang (2005)	Effects of public–private partnerships in infrastructure development implementation.	Descriptive research design	The study found that inefficient public procurement framework adversely affects project implementation. Specifically, within the procurement framework, the study documents challenges such as: lack of appropriate standard project procurement	Study failed to address effect of the PPP procurement framework on any project success. In addition, the study failed to apply empirical analysis methods	The study focused on legal, procurement, financing and investment frameworks simultaneously using inferential analysis methods both parametric and non –

Author	Focus of Study	Methodology	Findings	Knowledge Gaps	Focus of current study
			framework, lack of proper procedures for contract negotiations; long procurement processes and endless negotiations; and high transaction costs		parametric methods to robustness
Ke, et al (2008)	Performance of Public-Private Partnership in Hong Kong.	Case study research design	The results show that the major reason for Project Company's bankruptcy is that the consortium had taken up too many risks beyond its control capability that affected project implementation.	Study failed to address effect of the PPP framework on any project success measures. In addition, the study failed to apply empirical analysis methods	The study focused on legal, procurement, financing and investment frameworks simultaneously using inferential analysis methods both parametric and non – parametric methods to robustness
Chan, Lam, Chan, Cheung and Ke (2010)	Critical success factors for PPPs in infrastructure developments from a Chinese perspective.	Desktop research review	The findings showed that stable macroeconomic environment; shared responsibility between public and private sectors; transparent and efficient PPP procurement process; stable political and social environment; and judicious government control are crucial for project success.	The study focused of the CSFs as opposed to examining how the PPP framework specifically affects project implementation from the point of project implementation success measures.	The study focused on legal, procurement, financing and investment frameworks simultaneously using inferential analysis methods both parametric and non – parametric methods to robustness
Chileshe, Njau, Kibichii and Kavishe (2020)	study on Public-Private Partnership (PPP) infrastructure and housing projects in Kenya – CSFs review	Quantitative research approach using survey-based questionnaire	Results show that the key CSFs included: community acceptance, project feasibility, regulatory framework, availability of financial markets, transparency and equity in the procurement process and a well organised public agency are core CSFs.	The study focused of the CSFs as opposed to examining how the PPP framework specifically affects project implementation from the point of project implementation success measures.	The study focused on legal, procurement, financing and investment frameworks simultaneously using inferential analysis methods both parametric and non – parametric methods to robustness
Obosi (2017)	Impact of Public-Private Partnership on Water Service Delivery in Kenya.	Household survey research design	The study established that PPPs were more effective in enhancing water access for household	Study only focused on project impact as measures of project success and ignored aspect of cost, time, and output. In addition, study failed to apply empirical analysis methods	The study focused on three project success measures: - cost, time and output simultaneously using inferential analysis methods both parametric and non – parametric methods to robustness
Ng'ang'a and Kisimbi (2018)	Public-Private Partnerships projects in Kenya.	Descriptive research design	Private sector participation in PPPs is largely affected by PPP risk management framework, project lifecycle and the huge capital outlay. Therefore, the study concluded that government policies to a large extent	The study only focused on one risk management framework specifically the legal framework and ignore other frameworks.	The study focused on legal, procurement, financing and investment frameworks simultaneously.

Author	Focus of Study	Methodology	Findings	Knowledge Gaps	Focus of current study
			determined private sector participation in PPPs in Kenya.		

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, the methodology adopted in the study is comprehensively elaborated. Specifically, the chapter provides details on the research design adopted, the target population, study sample and how sampling is conducted, applicable research instruments, study data sources, data processing and analysis. Section 3.1 covers research philosophy, section 3 3.2 covers research design, section 3.3 covers the location of the study, section 3.4 covers description of key variables while section 3.5 covers study population. Section 3.6 covers sampling techniques and sample size, section 3.7 covers data collection, section 3.8 describes study validity, section 3.9 is on study reliability, section 3.10 data analysis and presentation and section 3.11 cover diagnostic tests.

3.2 Research Philosophy

Research philosophy refers to the underlying set of principles that guide how study data is collected, analysed and reported in line with the research objectives. Within scholarly literature, there are four distinct research philosophies that are commonly recognized. However, for the purpose of this study, Positivism was the most applicable - positivism, interpretivism, realism, and pragmatism. To this study, the positivist philosophy was deemed most appropriate.

To begin with, the positivist philosophy is best suited for studies that employ quantitative data for statistical analysis. The use of closed-ended questions in this study aligns with the positivist paradigm, as it facilitates the collection of quantifiable data that can be objectively measured and analyzed. Furthermore, the study applies established standards of reliability and validity for data collection instruments, reinforcing the appropriateness of a positivist approach. In addition, the study employs statistical procedures for the data processing and analysis thus justifying the choice for positivism philosophy. Further, the study applies research questions to establish the linkages between dependent and the independent variables and to relate study variables in questions or hypotheses. Collectively, these methodological characteristics justify the adoption of the positivism research philosophy as the guiding philosophical foundation for this study.

3.3 Research Design

This study employed a combination of qualitative and quantitative research designs. Specifically, the study used descriptive and causal-explanatory research design to achieve its objectives. The descriptive research design was used to provide a detailed account of how the PPP framework influences the implementation of PPP projects within the energy sector. Descriptive research design is considered conclusive in nature, as it allows for the systematic description of characteristics, relationships, and trends within a given phenomenon. Accordingly, it was deemed the most appropriate design for this study, given its capacity to generate comprehensive insights into the extent and way PPP frameworks affect project implementation performance in the energy sector.

In addition, the chosen research design offered the advantage of integrating both qualitative and quantitative data collection methods. This integration ensured that the data collected was comprehensive and sufficiently detailed to cover all study aspects that required either qualitative or quantitative measurement. The adoption of a qualitative research design in this study played a pivotal role in gathering cross-sectional primary data that delved into the perceptions, beliefs, and experiences of key respondents within the targeted institutions regarding PPP framework's impact on energy project implementation. The study employed Likert-scale responses facilitated the systematic collection of this qualitative information, allowing for a nuanced understanding of participants' viewpoints and attitudes.

Furthermore, the descriptive research design was well-suited for this study, as it enabled trhe systemic capture the opinions and perceptions from the target population, particularly the key informants within the targeted institutions. This approach facilitated a structured means of examining how the PPP legal , procurement, investments and financing frameworks influence the implementation of energy projects in Kenya. The qualitative responses were systematically coded to enable empirical analysis, while the application of inferential statistical techniques further strengthened the study's analytical depth. Together, these approaches enriched the research process, allowing for well-founded conclusions based on both measurable data and interpretive insights derived from stakeholder experiences and perspectives.

3.4 Location of the study

The study was conducted in Kenya, with a specific focus on Nairobi County. The selection of Nairobi as the study location was deliberate and strategically aligned with the target population, which comprises key institutions and their respective respondents involved in PPP projects. Nairobi hosts the headquarters of major government agencies, regulatory bodies, and private sector organizations engaged in the energy sector, making it the most practical and accessible setting for data collection. This choice ensured the inclusion of relevant stakeholders and enhanced the representativeness and reliability of the study's findings.

3.5 Description of key variables

The detailed description of study variables holds significant importance for several key reasons. Firstly, it elucidates the specific metrics employed in quantifying these variables. Secondly, it brings precision to the definitions and conceptualizations of the study variables. This section, therefore, provides comprehensive definitions of the variables and outlines the methods used for their measurement.

i. Project implementation

This refers to a phase in a project's life cycle where the planned activities, strategies and tasks are put into action to achieve the project's objectives. It involves execution of the project plans and utilization of resources to carry out the project's tasks to deliver its outcomes. This is the dependent variable of the study. Implementation of the projects was measured by project delivery time, cost and project output. These metrics served as indicators of the effectiveness and efficiency of the project execution.

ii. Efficacy of legal framework

This refers to the overall effectiveness and functionality of the legal environment that governs the initiation, implementation, and management of PPPs. It encompasses the capacity of the legal framework to establish clear and enforceable rules that ensure fairness in project selection; efficacy in project approval process; consistent monitoring mechanisms; comprehensive regulations and guidelines and provide accommodation of different types of PPP models to protect public interest and ensure the project's objectives are achieved. The efficacy of the framework was measured by

examining the framework's ability to; promote fairness in PPP contracting; enhance efficacy in project approval; provide comprehensive regulations and guidelines to govern PPP contracting; attract private sector players; accommodate different types of PPP models and provide for PPP framework organizational structure.

iii. Efficacy of procurement framework

This refers to the overall efficiency and effectiveness of procurement rules, policies and procedures that govern the PPP project cycle in promoting PPP projects implementation. The efficacy of the framework was measured by examining the framework's ability to; promote transparency PPP projects procurement process; provide clarity in conflict-resolution process; provide for fair and flexible tariff adjustment if necessary; provide for clarity in project appraisal process and provide a well-defined criterion for project sponsor selection.

iv. Efficacy of financial framework

This refers to framework's ability to the overall effectiveness and efficiency of the financial structures and mechanisms established to promote, fund and sustain PPP Projects. It entails the ability of the finance framework to secure adequate funding, allocate and mitigate financial risks, ensure value for money, provide for fair and flexible tariff adjustment if necessary and well-defined criteria for project sponsor selection. The efficacy of the financial framework was measured by the framework's ability to enhance provision for sufficient profitability of the project to attract investors through tariff adjustment; framework's provision for financial risk mitigation on currency exchange losses and framework's ability to promote mature local financial market.

v. Efficacy of investment framework

This refers to the overall effectiveness and functionality of the rules, policies, incentives, and regulations governing investment activities that promote PPP projects implementation. It entails ensuring availability a stable macro-economic condition; guaranteed long-term demand for electricity; good project feasibility studies; clear project appraisal policy and a thorough and realistic benefits assessment. The efficacy of the investment framework was measured by the framework's ability to ensure guaranteed long-term demand for electricity by the government, ability to ensure good project feasibility studies are carried pout, providing a clear project appraisal

policy, necessitating thorough, realistic benefits assessment and availability of sound economic policy.

3.6 Study Population

The target population of the study comprised key personnel / staff of the electricity projects implementing corporations under the ministry of energy (Kenya Electricity Transmission Company, Kenya Electricity Generating Company, Kenya Power and Lighting Company, Geothermal Development Company, Rural Electrification and Renewable Energy Corporation and Nuclear Power and Energy Agency), Public-Private Partnership Unit (PPPU), Energy and Petroleum Regulatory Authority (EPRA), Ministry of Energy and The National Treasury. Within the electricity projects implementing corporations the target population was 72 members of PPP project appraisal teams from the 6 corporations.

The composition of the target population was informed by the institutional structure of the key Ministries, Departments, and Agencies (MDAs) involved in PPP implementation within the energy sector. Each implementing agency maintains an average of six members within its Project Implementation Team (PIT). However, for this study, the target population within each entity comprised five key officials, specifically the Heads of the PPPU, Legal Services, Technical Services, Commercial Services, and Financial Services.

Within EPRA, the target population included members of senior management, totalling ten respondents. For the Ministry of Energy, the study focused on three key directorates: Renewable Energy, Electrical Power Development, and Geo-Exploration, represented by their respective Heads of Directorates. Lastly, at the National Treasury, the target respondent was the Director-General of the PPPU, given the unit's central oversight and policy coordination role in national PPP programmes.

From the private sector / investor perspective, the target population comprised 13 institutions being seven tier 1 commercial banks and six development partners. The focus of the tier 1 banks was informed by the substantial financial requirements and long-term investment horizons associated with PPP projects, which typically limit participation to large financial institutions with adequate capital capacity and risk absorption capability. Accordingly, seven Tier 1 commercial banks were

identified as part of the study's target population. The development partners were the Development Financial Institutions included leading Development Financial institutions (DFIs) that have historically played a pivotal role in financing energy infrastructure projects in Kenya. These comprised of the World bank, African Development Bank, European Development Bank, Japan International Cooperation Agency, German Development Cooperation, KfW Development Bank. Their inclusion in the study was critical in capturing insights on external financing, technical support, and risk mitigation mechanisms underpinning PPP investments in the energy sector. The target population of the study was 93 respondents is presented in table 3.1

Table 3.1 Study Target Population

Main Category	**Sub - category**	**Target population**
The National Treasury	Director-general directorate of PPP	1
	Resource mobilization	1
Ministry of Energy	Head of renewable energy directorate	1
	Head of electrical power development directorate	1
	Head of geo-exploration directorate	1
Public-Private Partnership Unit	Head of Projects Implementation Unit	1
	Head of legal services	1
	Head of technical services	1
	Head of commercial services	1
	Head of financial services	1
Energy and Petroleum Regulatory Authority	Senior Management	10
Electricity projects implementing corporations / MDAs	Kenya Electricity Generating Company	12
	Kenya Power and Lighting Company	12
	Kenya Electricity Transmission Company	12
	Geothermal Development Company,	12
	Rural Electrification and Renewable Energy Corporation	12
	Nuclear Power and Energy Agency	12
Development partners	Commercial banks - tier 1 banks	7
	DFIs – World bank, AfDB, EIB, JICA, GIZ, KWF	6
Total Population		**93**

Source: Government of Kenya: Ministry of Energy & The National Treasury, 2020

3.7 Sampling Techniques and Sample Size

This study employed mixed approached in sample selection. First, the study applied a census in selecting the Project implementing corporations in the Energy sector. However purposive sampling was applied in selecting the key personnel in across the corporations. In this case, the PIT teams which comprise of 6 members were selected since these are the key personnel involved in project planning, initiation and implementation. The decision to opt for a census was driven by two primary factors. Firstly, the study's small sample size made it feasible to include the entire population. Secondly, it was essential to ensure the representation of heterogeneity within the target population, and a census approach facilitated this objective. Essentially, if the population is small, undertaking sampling is not only cost ineffective but also risky in terms of losing the heterogeneous nature of the population (Cooper & Schindler, 2014). For this study, the electricity project–implementing corporations are heterogeneous in nature, each operating under distinct legal mandates that shape their conceptualization and execution of Public–Private Partnership (PPP) projects. This institutional diversity means that sampling from a subset of these corporations could overlook the nuanced dynamics and contextual variations that influence PPP implementation across entities.

Additionally, the Project Appraisal Teams (PATs) within these corporations are equally diverse, comprising members with varied professional expertise in law, finance, procurement, engineering, and risk management. Drawing a sample from the PAT of a single corporation would therefore risk excluding valuable insights and perspectives from other institutions. To mitigate this limitation, the study adopted a census approach, which allowed for the inclusion of all relevant institutions and respondents. This approach not only ensured a comprehensive understanding of PPP implementation within the energy sector but also enhanced response rates and the representativeness of the study’s findings.

Beyond the Project implementing corporations, the study employed purposive sampling to select participants from development partners and other key institutions. For commercial banks, Tier 1 banks were purposively selected owing to their superior financial capacity and ability to commit long-term capital to PPP projects, in contrast to Tier 2 and Tier 3 banks whose investment potential is relatively limited.

Similarly, purposive sampling was applied to identify relevant DFIs that have been actively involved in financing energy infrastructure projects in Kenya over the years. These included the World Bank, African Development Bank (AfDB), European Investment Bank (EIB), Japan International Cooperation Agency (JICA), German Development Cooperation (GIZ), and KfW Development Bank. Additionally, purposive sampling was used to select key personnel from the National Treasury, PPPU, Ministry of Energy, and EPRA. Specifically, the heads of key directorates and departments within these institutions were chosen, as they possess the institutional knowledge, expertise, and decision-making authority necessary to provide objective and informed responses to the research questions.

3.8 Data collection

The study primarily relied on the collection of primary data, supplementary insights drawn from relevant policy pronouncements, to inform its research conclusions. Data was gathered using questionnaires that were directly administered to the selected key personnel and respondents across the targeted institutions. The questionnaires comprised predominantly closed-ended questions, designed to capture quantitative data, complemented by a limited number of open-ended questions to solicit qualitative insights and potential suggestions from participants. The data collected reflected respondents' perceptions and experiences regarding the effectiveness of the PPP legal, procurement, and financial frameworks, both in their current state and in terms of expected future performance. These responses specifically addressed how each framework influences the implementation of PPP projects with respect to project delivery time, cost, and intended outcomes. Perceptions were measured using Likert-scale ratings for the closed-ended items, enabling the quantification of attitudes and opinions. Additionally, data on the dependent variable, respondents' assessments of the impact of the PPP frameworks on project delivery time, cost, and project outcome, were also collected using Likert-scale ratings. Accordingly, the data collected in this study was measured on an ordinal scale, suitable for analyzing ranked perceptions and evaluating relationships between the study variables.

Data collection was conducted among key position holders within the target population, as these individuals were deemed the most knowledgeable and informed regarding issues pertaining to the efficacy of PPP frameworks in project implementation in Kenya. Additionally, these respondents

possessed extensive insights into how different frameworks either facilitated or hindered the efficiency of PPP frameworks in delivering projects within specified timelines, budgets, and project objectives. The study employed a combination of two data collection tools. For the collection of data from the Project Appraisal Teams of the respective electricity projects implementing corporations, structured questionnaires were employed. The administration of these questionnaires was conducted directly by the researcher, ensuring a high response rate among the participants. This approach also allowed the researcher to engage in probing and seek clarification for any ambiguous responses, thereby enhancing the accuracy and reliability of the collected data.

3.9 Study validity

According to Mbwesa (2006), study validity is an extent that research instruments can measure what they are meant to measure. This is crucial in justifying the usage of the research instruments at the piloting stage that the study seeks to use. First, the study used contextual validity. This is the extent to which research findings are applicable and generalizable to the real-world setting or "context" in which they are applied. It is a crucial aspect of external validity, emphasizing that results from a controlled study may not hold true if applied to a different population. Contextual validity was ensured by sampling the respondents who are experts in the PPPs. In this case for the PPP unit, the study selected respondents from the director general's office who have expertise in PPP framework. Similarly, within the ministry of energy and the projects implementing agencies the study sample the experts in project implementations with the project implementation team members who design and oversee project execution been sampled as the respondents. From the private sector, development finance institutions and tier one banks who have been instrumental and well-endowed financing experience were selected into the sample.

Secondly, the study applied construct validity. In this case, experts in the PPP framework were used to field review the data collection instrument to ensure it accurately reflects the correct status. Thirdly, face validity was applied. Though subjective inn nature face validity was applied by asking experts or a sample of the target population if the measure appears to be valid. Further, face validity was applied by having colleagues, subject matter experts, or potential participants review the instrument for clarity, relevance, and appropriateness.

3.10 Study reliability

Mugenda and Mugenda (2003) defines study reliability as the study research instruments' ability to yield similar data upon repeated trials of data collection. To ascertain reliability a pilot study was conducted using the study tool. For the pilot testing, the respondents for the pilot study were drawn from Kenya National Highways Authority, Kenya Urban Roads Board, Kenya Rural Roads Authority, Kenya Roads Board, Ministry of Roads – state department of roads, PPP unit, The National Treasury, Development Financial institutions, China Road and Bridge Corporation and Tier 1 Commercial banks. The choice of the organization under the ministry of transport was anchored that apart from the energy sector, transport sector is the other has attracted key investments in the PPPs with a good example of Nairobi Expressway. Other projects for PPP financing model under the ministry of transport is the Nairobi - Nakuru – Mau Summit (A8) Highway (PPP) Project.

Among these organizations, the respondents were the heads of the project implementation units. In this case, the data collection instruments were pilot tested prior to the actual data collection. For the pilot testing, the respondents for the pilot study was Kenya National Highways Authority, Kenya Urban Roads Board, Kenya Rural Roads Authority, Kenya Roads Board, Ministry of Roads – state department of roads, PPP unit, The National Treasury, Development Financial institutions, China Road and Bridge Corporation and Tier 1 Commercial banks. Among these organizations, the respondents were the heads of the project implementation units. All these have been directly involved in implementation of road infrastructural projects in Kenya. The Cronbach's Alpha for the overall tool and the factor loading for subcomponents of the questions. A Cronbach Alpha of 0.7 was used as the reliability threshold.

3.11 Study reliability tests results

Prior to actual data collection, it was imperative to ensure the reliability of the data collection tools. To achieve this, the study conducted a pilot study to assess the extent to which the data collection instruments were valid and reliable. The pilot study involved the collection of data from a smaller sample, and the results obtained from this preliminary investigation were used to compute the validity and reliability tests, thereby ensuring the robustness of the data collection tools.

Table 2.2: Reliability test results

	Obs	Sign	Cronbach alpha
Project performance	43	+	0.9033
Legal framework	43	+	0.8632
Procurement framework	43	+	0.8603
Financing framework	43	+	0.8670
Investment framework	43	+	0.8682
Govt policy intervention	43	+	0.8714
Test scale			**0.8917**

Upon undertaking the pilot study, validity and reliability test were conducted. For validity test, internal validity was done using item-test correlation and item-retest correlation. Regarding reliability the study relied on the Cronbach alpha. From the results it's evident that questions on all the PP framework attributes being covered in the study had a Cronbach alpha of over 0.7 with the overall project performance attributes having the highest reliability score of 0.9033. The overall Cronbach Alpha for the tool was 0.8917 as indicated by the test scale results. Given that the threshold for the Cronbach Alpha reliability if 0.7 we conclude that based on the overall test score of 0.8917, the study data collection tool was reliable since the test score for the entire questionnaire was greater than 0.7. This result therefore warranted for a go ahead in the actual data collection.

3.12 Data Analysis and Presentation

Upon data collection, the responses were collated and entered into STATA statistical software for analysis. The first step involved data cleaning, which entailed reviewing the dataset for incomplete tools or missing responses to ensure accuracy and consistency. Qualitative responses were subsequently coded to facilitate quantitative analysis. Once data completeness and integrity were confirmed, the analytical process commenced.

The initial stage of analysis involved the computation of descriptive statistics, which were presented through graphical representations such as histograms to illustrate response distributions. Thereafter, thematic analysis was conducted based on the specific components of the PPP framework, focusing on frequency distributions for each response category. Using the ratings of various subcomponents within each framework, composite indices were generated to summarize

overall performance. These composite ratings were then subjected to Principal Component Analysis (PCA), allowing for a comprehensive exploration of the dataset and the identification of key underlying factors influencing PPP framework efficacy.

To determine the efficacy of PPP framework of the project implementation, inferential statistical analysis was undertaken. This entailed application of a regression modelling in which the independent variables were regressed on the dependent variable. To this effect, Principal Component Analysis was applied to obtain composite index for use in fitting the regression models. In conducting inferential statistical analysis, the study embraced both the parametric and non-parametric methods, elaborated in sections 3.10.1 and 3.11.2. The results of this analysis are presented using histograms and regression tables thus providing a clear visual and tabular representation of the findings.

3.12.1 Parametric Analysis

To determine the efficacy of PPP framework of the project implementation, inferential statistical analysis was undertaken. This entailed application of a regression modelling in which the independent variables were regressed on the dependent variable. To this effect, Principal Component Analysis was applied to obtain composite index for use in fitting the regression models. In conducting inferential statistical analysis, the study embraced both the parametric and non-parametric methods, elaborated in sections 3.10.1 and 3.11.2. The results of this analysis are presented using histograms and regression tables thus providing a clear visual and tabular representation of the findings.

The Principal Component Analysis (PCA) is used generate composite scores from the linkert scale responses. The composite scores are obtained for both dependent and independent variables. Therefore, the regression models are ran using composites scores of both the dependent and independent variables. The application of the Principal Component Analysis technique is underscored given its ability to reduce Likert scale data into a smaller number of principal components that capture the most variance, helping to identify underlying constructs or patterns within survey responses. Further, the technique transforms a larger set of correlated Likert items into fewer, uncorrelated components by analyzing the patterns of shared variance or correlations

among the original items. This simplifies data, reveals hidden structures, and creates more parsimonious scales for measurement and analysis.

The OLS regression model is chosen for this study based on the assumptions that underlie its application. Firstly, it assumes linearity in the model parameters. Secondly, the model posits that the error term in the model follows a normal distribution with a mean value of zero, indicating no systematic dependence between the explanatory variables and the error term. Thirdly, the model assumes homoscedasticity, signifying that the variance of the error term is constant across the explanatory variables. Additionally, the model assumes the absence of multicollinearity, indicating no linear relationship between the explanatory variables. Lastly, the model presumes independence of the error terms across observations. These assumptions collectively informed the choice of the OLS regression model for estimating the empirical model in this study.

Since the dependent variable (project implementation) was measured by three different attributes namely: project time, cost and output, then 3 different specific analytical models are defined as follows:

$$PI = \alpha_0 + \beta_1 Legal + \beta_2 Procurement + \beta_3 Financial + \beta_4 Investment + \varepsilon_i \ldots\ldots\ldots(3.2)$$

$$PI = \alpha_0 + \beta_1 Legal + \beta_2 Procurement + \beta_3 Financial + \beta_4 Investment + \beta_5 Govt\ policies + \varepsilon_i \ldots\ldots\ldots(3.3)$$

$$PI = \alpha_0 + \beta_1 Legal + \beta_2 Procurement + \beta_3 Financial + \beta_4 Investment + \beta_6 Govt\ policies \times Legal + \beta_7 Govt\ policies \times Procurement + \beta_8 Govt\ policies \times Financial + \beta_8 Govt\ policies \times Investment + \varepsilon_i \ldots\ldots\ldots(3.4)$$

Where: PI is project implementation time measured by three attributes namely time, cost and outcome.

3.12.2 Non- Parametric Analysis

Non-parametric analysis, a method not contingent on specific assumptions, becomes relevant when the data distribution of the population does not adhere to normality. It serves as a valuable alternative when the assumption of normality is violated in data distribution. In this study, non-parametric analysis is employed as a robustness check to account for potential deviations from

normal distribution in the data. Its application is designed to provide a comparative assessment of results vis-à-vis those obtained through parametric analysis.

The rationale for applying non-parametric analysis is two-fold. Firstly, it is particularly suited when dealing with small sample sizes, where accurately verifying the data distribution becomes challenging. Secondly, non-parametric analysis is well-suited for data that is captured on ordinal or nominal scales of measurement. These considerations align with the data collected in this study, where Likert scale ratings (an ordinal scale) are used to gather responses regarding the efficacy of the PPP framework in project implementation. Moreover, the study's small population size warranted a census approach. Consequently, non-parametric analysis is also applied to analyse the study's collected data.

Further, Structural Equation Modelling (SEM) as a non – parametric modelling is applied to link the efficacy of PPP legal framework, procurement framework, financing framework and investment framework on project implementation. In this case, SEM can be considered as a combination of factor analysis, multiple correlation, regression, and path analysis. In this modelling, a path analysis for each measure of project implementation success is developed against all attribute of PPP legal framework, procurement framework and financing framework with the standardized coefficient being computed for each path. The non – parametric analysis is used the composite index obtained from the Principal Component Analysis.

3.13 Diagnostic Tests

In addition, upon estimation of the multivariate OLS model, the following appropriate diagnostic tests were carried out.

3.13.1 Correlation Analysis

Correlation analysis, as highlighted by Kothari & Garg (2014), plays a fundamental role in assessing the strength of relationships among model variables. This analysis typically focuses on evaluating the associations between two variables at a time. Its significance lies in its ability to address potential issues like multicollinearity prior to the estimation of regression models. In this study, Pearson's correlation analysis was employed for this purpose. This test calculates correlation coefficients between pairs of variables, providing insights into the strength and direction of their

relationships. Additionally, it assesses the significance levels of these coefficients to determine the extent of their statistical significance, thereby contributing to a comprehensive understanding of the data.

3.13.2 Linearity Test

Testing for distribution of variables is a core test in any research embracing regression analysis for its data analysis. The tests simply indicate how the variables are generally distributed. These tests provide valuable insights into the general distribution patterns of the variables under consideration. This assessment can occur at two key stages. Firstly, at the descriptive statistics level, variables are evaluated for skewness and kurtosis, which offer insights into the nature of their distribution. These descriptive statistics provide initial indications of the data distribution's characteristics. Secondly, similar tests are applied at the post-estimation stage, particularly when concerns arise regarding the distribution of model residuals. In this context, the Ramsey test, among others, becomes relevant. This test is employed to assess the distribution of model residuals, contributing to the evaluation of the model's adequacy and assumptions. The test can be done at the descriptive statistics level where variable skewness and the kurtosis infer into distribution nature. Further then same test is applicable as a post estimation level where the distribution of the model residuals is of concern. In this case, the Ramsey test is applied.

3.13.3 Heteroscedasticity Test

Heteroscedasticity is an econometric scenario whereby the variance model error terms vary across the observations. In this case, when this problem arises, the assumption of constant variance fails to hold anymore. The implication of such scenario is the model estimates are inconsistent and the standard errors of the model are unreliable in testing the study hypotheses (Greene, 2003). This test is generally conducted after estimation of the regression model. In this study, the Breusch-Pagan-Godfrey test was applied to conduct this test at 5 percent significance level. The test threshold is if the P- value of the test statistic is less than 5 percent, we conclude the presence of heteroscedasticity and accept the null hypothesis. Contrary, for P- value greater than 5 percent, alternative hypothesis is accepted thus absence of heteroscedasticity.

3.13.4 Multicollinearity

Multicollinearity problem emanates from the fact of two or more explanatory variables being strongly related to each other. Normally, the problem is revealed through a very high coefficient of determination of the model. The challenge arising from this problem is that whenever it occurs, one cannot objectively tell the exact effect of one explanatory variable on the dependent variable given the possible joint effect of the correlated explanatory variable on dependent variable. This study applied the Variance Inflation Factor to conduct the multicollinearity test. The test threshold is if the Variance Inflation Factor is less than 10, we conclude the absence of multicollinearity and accept the null hypothesis. However, for the Variance Inflation Factor is greater than 10, absence of multicollinearity is confirmed thus we reject the null hypothesis.

3.13.5 Autocorrelation

This econometric problem arises from the error terms being related among themselves. It is indeed a self-correlation of the model error terms over successive timeline. The implication of such scenario is the model estimates are inconsistent. Therefore, to validate the estimated econometric model, the model should be free from serial correlation on the model error terms. Therefore, to undertake this test, the study applied the Breusch-Godfrey LM for autocorrelation at 5 percent significance level. The test threshold is if the P- value of the test statistic is less than 5 percent, we conclude the presence of autocorrelation and accept the null hypothesis. Contrary, for P- value greater than 5 percent, alternative hypothesis is accepted thus absence of autocorrelation.

CHAPTER FOUR
RESEARCH FINDINGS AND DISCUSSIONS

4.0 Introduction

This chapter presents a comprehensive data analysis, including the presentation and interpretation of the study's findings. It provides an in-depth examination of the descriptive statistics for all variables, followed by the results of the inferential analyses based on the regression models. Furthermore, the chapter discusses the outcomes of the diagnostic tests conducted to validate the robustness of the models. The interpretation of both the statistical tests and regression results is provided in detail, offering a holistic understanding of how the empirical findings relate to the study objectives and hypotheses.

4.1 Response rate

Following the data collection exercise, the study achieved a response rate of 84 percent, representing 78 respondents out of the 93 targeted sample respondents. The response rate exceeds the statistically acceptable response threshold for survey-based research, thereby ensuring reliability and representativeness of the data collected. Consequently, the achieved response rate was considered adequate to justify the use of the data for statistical analysis and policy inference. According to Draugalis *et al,* (2008), a 30 percent response rate for a survey implies 70 percent nonresponse bias. Thus, the higher the response rate the lower the nonresponse bias and the more reliable the survey data.

4.2 Descriptive statistics

4.2.1 Efficacy of the legal framework

Prior to reporting the descriptive statistics based on the measures of central tendency and measures of dispersion, the study first presents the findings regarding the ratings assigned to various aspects of the PPP frameworks through graphical representations. The primary objective of the study was to assess the efficacy of the PPP legal framework in the implementation of energy infrastructure projects in Kenya. In pursuit of this objective, the study focused on five specific attributes of the legal framework, namely: fairness of the legal framework, efficacy in the approval process, the

presence of a consistent monitoring mechanism, and the availability of comprehensive regulations and guidelines. The selection of these attributes was grounded in the belief that a flexible and well-integrated PPP legal structure creates a transparent institutional framework for PPPs, which is sufficiently empowered, resourced, and aligned with national infrastructure policy objectives to facilitate the execution of PPP projects and programs. Figure 4.1 indicate that 51 percent of the respondents concurred that the existing PPP legal framework contributes to fairness in the implementation of PPP projects within the energy sector in Kenya. This finding aligns with the assertion made by (Roehrich et al. 2014) that Tanzania's amendment of its PPP policy in 2018 served to shield the country from contract litigation issues while instilling investor confidence through a legal framework that guarantees equitable treatment and clearly defines the rights and obligations of all parties involved.

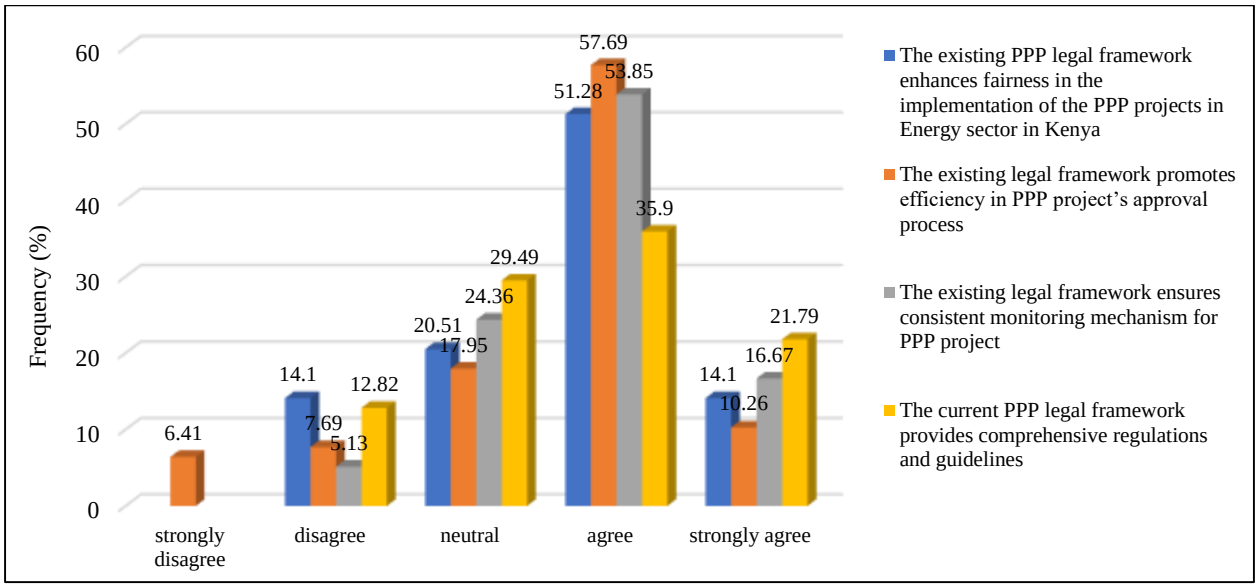


Figure 4.1 Rating of efficacy of legal framework

Enhancing efficiency in project selection and implementation is key in reducing costs that adversely affect project overall costs. In this context, the legal framework underpinning a project should strive for the highest levels of efficiency in project operations. The study aimed to evaluate the extent to which the PPP legal framework promotes project efficiency. The study's findings revealed that 45 out of 78 respondents, constituting 57.79 percent of the total, agreed that the PPP legal framework contributes to project efficiency. Furthermore, 8 out of 78 respondents, accounting for 10.26 percent, strongly agreed with this statement. Conversely, 6 out of 78 respondents (7.69 percent) disagreed, while 5 out of 78 respondents (6.41 percent) strongly

disagreed. A notable proportion, 17.95 percent, of the respondents expressed indifference on this matter.

Project monitoring constitutes a critical aspect of effective project management during the project implementation phase. It is imperative to evaluate the extent to which the existing legal framework incorporates PPP project monitoring mechanisms within the legal framework. The study's findings revealed that 46 out of 78 respondents, constituting 53.85 percent of the total, agreed that the existing legal framework ensures consistent monitoring mechanisms for PPP projects. Moreover, 13 out of 78 respondents, accounting for 16.67 percent, strongly concurred with this assertion. Conversely, 4 out of 78 respondents (5.13 percent) disagreed with this perspective. Interestingly, 19 out of 78 respondents (24.36 percent) expressed neutrality, neither explicitly agreeing nor disagreeing with the notion of consistent monitoring mechanisms within the PPP legal framework.

Finally, the study examined the comprehensiveness of the legal framework governing PPP projects. This assessment was based on the adequacy of regulations within the legal framework. The findings indicated that 29 out of 78 respondents, comprising 35.9 percent, agreed with this attribute, while an additional 17 out of 78 respondents, making up 21.79 percent, strongly agreed. Conversely, 10 out of 78 respondents (12.82 percent) disagreed with this attribute, and 23 out of 78 respondents (29.49 percent) expressed indifference regarding the legal framework's comprehensiveness and the presence of regulations and guidelines defining PPP operations in Kenya.

The imperative role of PPP legal framework in determining project success cannot be overstated. Empirical evidence from previous studies consistently underscores the critical contribution of a sound legal framework to the effective implementation and overall success of PPP projects. Inadequate or even lack of a well-articulated and defined PPP legal framework and misinformation of the private financiers were the key delivery challenges affecting the PPPs success (Kavishe, Jefferson and Chileshe, 2020). Within the legal framework, adequate regulations are central to ensuring that the PPP legal framework adequately supports PPPs. This aurguement is supported by Chileshe et al (2020) who report that a robust regulatory framework is key for PPPs success in the Kenya’s housing sector.

4.2.2 Efficacy of the Procurement framework

The second objective of the study was to scrutinize the efficacy of the procurement framework in influencing the implementation of PPP projects. This objective focused on several key attributes related to the PPP procurement framework, each of which played a pivotal role in shaping the procurement process and, consequently, the overall success of PPP projects. These attributes encompassed the framework's ability to ensure transparency in the procurement process, promote competition, establish contract irrevocability, recognize local and international arbitration mechanisms for dispute resolution, and provide a predictable and well-timed identification of projects. Examining these attributes allowed for a comprehensive evaluation of how the procurement framework impacted the execution of PPP projects. Project timelines are essential for ensuring certainty and effective project planning. Therefore, it is crucial that the procurement framework provides clear guidance on when project procurement is expected to commence and conclude. To assess this aspect, the study investigated whether the PPP procurement framework establishes predictable and well-structured project identification timelines.

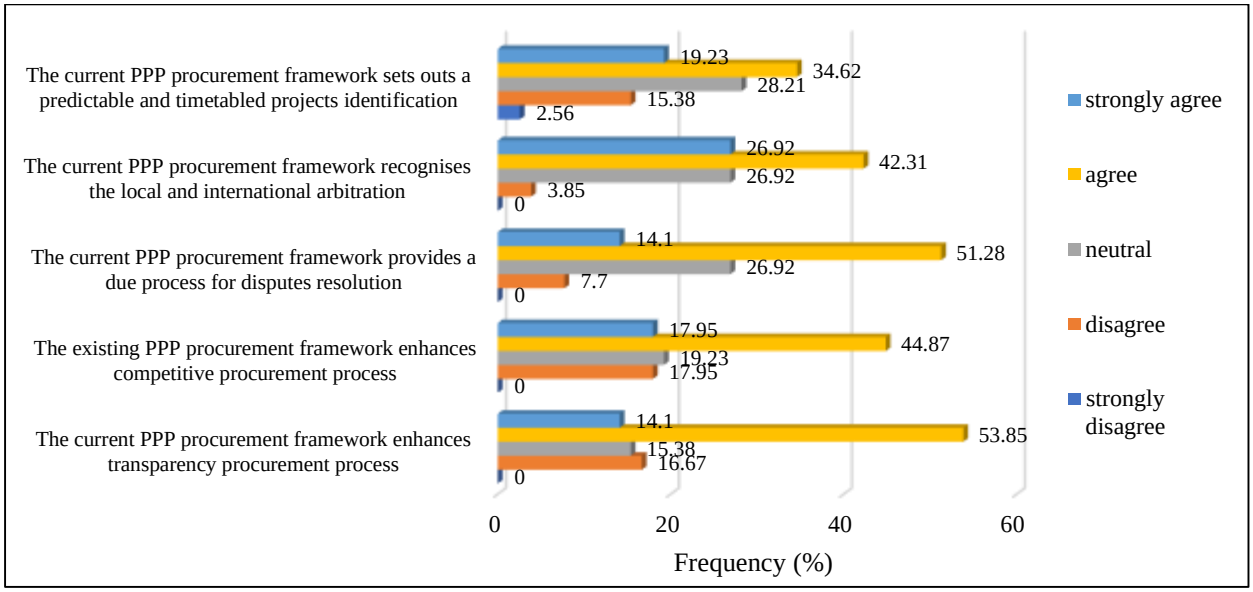


Figure 4.2 Rating of efficacy of procurement Framework

The study's findings indicated that 27 out of 78 respondents, constituting 34.62 percent, agreed that the current PPP procurement framework sets out predictable and well-timed identification of PPP projects. Additionally, 15 out of 78 respondents, making up 19.23 percent, strongly concurred with this statement. Conversely, 12 out of 78 respondents (15.38 percent) disagreed with this

attribute, while 2 out of 78 respondents (2.56 percent) strongly disagreed. Furthermore, a notable proportion, 28.21 percent, of the respondents expressed neutrality, neither explicitly agreeing nor disagreeing with the notion of predictable and timetabled project identification within the PPP procurement framework.

Ensuring an effective arbitration process within the project procurement phase is crucial for timely and cost-effective dispute resolution, which helps prevent project delays. Therefore, it is paramount for the PPP procurement framework to encompass both domestic and international dispute resolution mechanisms. In this context, the study found that 33 out of 78 respondents, constituting 42.31 percent, agreed that the existing PPP procurement framework recognizes local arbitration processes, while 21 out of 78 respondents, making up 26.92 percent, strongly agreed with this attribute. Conversely, 3.85 percent disagreed with this attribute, and 26.92 percent of respondents neither agreed nor disagreed.

Facilitating competitive procurement of projects not only enhances the selection of competitive projects but also promotes transparency in the selection process. The study therefore evaluated the extent to which the procurement framework in Kenya encourages competitive procurement of PPP projects. The study found that 35 out of 78 respondents accounting for 44.87 percent of the respondents agreed the current PPP procurement framework promotes competitive procurement process. 17.95 percent strongly agreed with equivalent disagree proportion disagreeing. 19.23 percent were indifferent of the PPP procurement framework promoting competitive procurement process.

Lastly, the study assessed the degree to which the PPP procurement framework in Kenya fosters transparency in the project procurement. The study established that 42 out of 78 respondents, accounting for 53.85 percent, agreed that PPP procurement framework promotes transparency in project procurement with 14.1 percent strongly agreeing. However, 13 out of 78 respondents, accounting for 16.67 percent of respondents, disagreed with this attribute.

Previous empirical works around the PPP procurement framework and PPP project implementation framework do resonate with the study findings on various procurement framework attributes covered in the study. Zhang (2005) reports that procurement framework forms the basis of PPPs success or failure. His findings were that inefficient public procurement framework adversely affects project implementation. Where the PPPs procurement framework is Inappropriate and unstandardized leading to lack of public clients initiating the projects incorporating them in their development; high levels of rent seeking arising from unsolicited PPP schemes; lack of clear definition of project in a manner that take into account stakeholders' requirements; corruption in awarding contract; poor contract negotiation procedures and very long procurement processes marred with lot of litigations, the ultimate outcome is project delays due to possible litigation arising from legal suits filed by unsatisfied private tenderers.

Similar findings are reported by Chan et al (2010) in assessment of the factors underpinning success of PPP projects in China. The study found that among other factors, a transparent and efficient PPP procurement process supported by a comprehensive PPP procurement framework was a prerequisite for the PPPs to work in the provision of physical infrastructure in China. Further, Osei-Kyei and Chan (2015) reports that transparent procurement framework is a critical success factors for PPPs success.

Further, Eberhard and Gratwick (2013) asserts that well-designed PPP procurement process, is crucial for the success of the independent power projects (IPPs) in African countries including South Africa, Kenya, and Nigeria signifying the crucial role of PPP procurement framework. Moreover, the PPPs procurement framework ability to handle the disputes emanating from contract awards or any other litigation concerning the project is core for the project success. This aurguement alludes to the dispute resolution ability of the procurement framewrok. This argument is supported by Moszoro et al. (2014) that poor handling of the disputes arising in the PPPs procurement and implementation process adversely affects the willingness of the private investors to invest in the PPPs especially in the developing economies. These findings underscore the need for a robust procurement framework that adequately integrates mechanisms for dispute resolution, ensuring that any conflicts arising during project execution are effectively managed. Such a framework is essential for enhancing transparency, maintaining stakeholder confidence, and ultimately ensuring the successful implementation of PPP projects.

In addition, the ability of the procurement framework to address risks arising in the project between project partners is key. World Bank (2018) asserts that a Competitive and transparent procurement processes is very crucial for successful closure and implementation of a PPPs. Lastly, in the United Kingdom, Li et al., (2015a) report that lengthy procurement process, high implementation costs arising from such lengthy procurement framework are barriers to the success of PPP projects in the UK.

4.2.3 Efficacy of the financing framework

The third objective for the study was to examine the efficacy of the financing framework on implementation of the PPP projects. To this effect, the study focused on the following attributes of the financing framework: ability to promote the availability of mature and available local financial market; ability to ensure sufficient projects' profitability; availability of mechanisms for financial risk mitigation; opportunity for fair and flexible tariff adjustment if necessary and well-defined criteria for project sponsor selection.

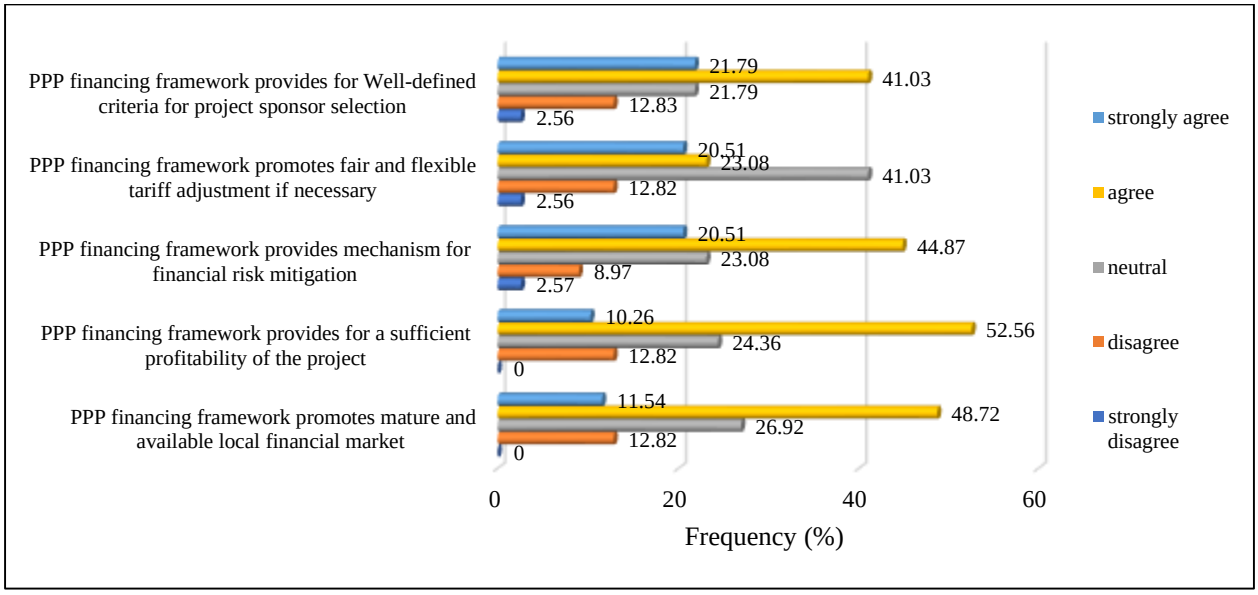


Figure 4.3 Rating of efficacy of financing Framework

The study established that a significant proportion of respondents acknowledged the clarity and objectivity of the PPP financing framework in defining criteria for project sponsor selection. This aspect is essential as it enhances investor confidence in the fairness of project selection processes, crucial for attracting private sector participation. However, a notable minority expressed

disagreement or indifference, suggesting areas where the framework could be refined to enhance transparency and stakeholder satisfaction. In this regard, the study established that 32 out of 78 respondents accounting for 41.03 percent and 17 out of 78 respondents accounting for 21.79 percent of the respondents agreed and strongly agreed that the current PPP financing framework provides a well – defined criteria for project sponsor selection respectively. On the contrary, 12.83 percent and 2.46 percent of the respondents disagreed and strongly disagreed that the current PPP financing framework provides a well – defined criteria for project sponsor selection respectively. However, 21.79 percent of the respondents were indifferent about this attribute.

The ability of the PPP financing framework to allow for fair and flexible tariff adjustments was perceived positively by a combined 43.59% of respondents, indicating recognition of its importance in adapting to changing economic conditions. This attribute of the financing framework guarantees the investors of the ability to adjust pricing to account for any unforeseen changes in the business environment. The study therefore deemed it crucial to examine this attribute of the investment framework. The study found that 18 out of 78 respondents accounting for 23.08 percent and 16 out of 78 respondents accounting for 20.51 percent of the respondents agreed and strongly agreed that the current PPP financing framework ensuring opportunity for fair and flexible tariff adjustment respectively. On the contrary, 12.82 percent and 2.56 percent disagreed and strongly disagreed that the current PPP financing framework ensuring opportunity for fair and flexible tariff adjustment respectively. On the other hand, 32 out of 78 respondents accounting for 41.03 percent of the respondents could neither agree or disagree with this attribute. Therefore, a substantial proportion of respondents remained neutral, highlighting potential uncertainties or complexities in tariff adjustment mechanisms that warrant further attention.

The study underscored the importance of risk mitigation mechanisms within the financing framework, with a majority agreeing that such provisions are essential for averting financial losses during project implementation. Risk mitigation in project implementation is an important aspect as it spells out the probability of the project success or failure. To this effect, the study examined the capacity of the PPP financing framework to provide effective mechanisms for financial risk mitigation, aimed at averting potential financial losses that may arise during the project implementation phase. The study established that 35 out of 78 respondents accounting for 44.87

percent and 16 out of 78 respondents accounting for 20.51 percent of the respondents agreed and strongly agreed that the PPP financing framework provides a mechanism for financial risk mitigation respectively. Despite this positive perception, 8.97 percent and 2.57 percent disagreed and strongly disagreed that the PPP financing framework provides a mechanism for financial risk mitigation respectively with 23.08 percent being indifferent about this attribute. This suggests a need for clearer delineation and effective communication of risk management strategies to enhance transparency and reassure stakeholders of the project's financial stability and resilience.

The capacity of the financing framework to ensure project profitability is paramount since the return on the investment remains one of the primary considerations for private investors when deciding to participate in PPP projects. Therefore, the study sought to examine the attribute of the financing framework's ability to provide sufficient profitability. The study found that 41 out of 78 respondents accounting for 52.56 percent and 8 out of 78 respondents accounting for 10.26 percent of the respondents agreed and strongly agreed that PPP financing framework provides for sufficient project profitability respectively. However, 12.82 percent disagreed with the attribute while 24.36 percent could neither support of decline to this attribute. The dissenting opinions and neutrality among a significant portion of respondents suggest that more robust mechanisms or incentives may be needed to fully align investor expectations with project outcomes.

The promotion of mature and available local financial markets by the PPP financing framework was viewed positively by nearly 60% of respondents, indicating recognition of its role in mobilizing adequate private finance. In this case, maturity should be in form of market depth determined by the number of financial instruments and products offered in the market. Nonetheless, disagreement and indifference among others underscored challenges related to market maturity and information symmetry, which are crucial for fostering investor confidence and enabling informed decision-making. The study therefore examined the aspect of the PPP financing framework's ability to promote mature and available local financial markets to support PPP project financing. The findings were that 38 out of 78 respondents accounting for 48.72 percent and 9 out of 78 respondents accounting for 11.54 percent of the respondents agreed and strongly agreed that PPP financing framework promotes mature and available local financial markets respectively essential for financial resources mobilization. However, 12.82 percent of the

respondents disagreed with this attribute while 21 out of 78 respondents accounting for 26.92 percent were indifferent. These findings suggest that while the framework is generally perceived as supportive, there remain gaps in market depth and accessibility that must be addressed to enhance its effectiveness in mobilizing long-term PPP financing.

4.2.4 Efficacy of the investment framework

The study examined the efficacy of the investment framework in influencing PPP project investment. Under this objective, the analysis focused on several key attributes of the investment framework, including its ability to ensure stable macro-economic conditions; guarantee long-term demand for electricity; promote rigorous project feasibility studies; and establish clear project appraisal policy supported by a thorough and realistic benefits assessment. These elements collectively determine the investment framework's capacity to attract and sustain private sector participation in PPP projects.

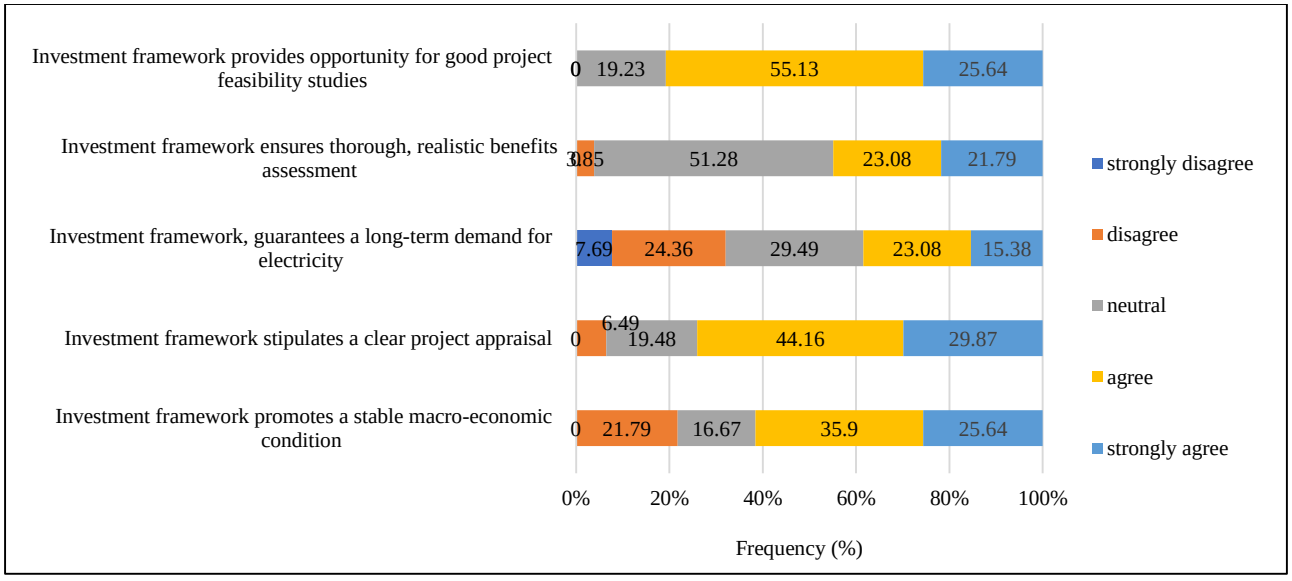


Figure 4.4 Rating of efficacy of investment Framework

Project feasibility is crucial in determining whether to invest in the project. The feasibility studies gauge the project's viability which then informs the investment decision. Therefore, the ability of the PPP investment framework to provide a good environment for project feasibility studies is crucial in attracting bankable projects. The study found that 43 out of 78 respondents accounting for 55.13 percent and 20 out of 78 respondents accounting for 25.64 percent of the respondents agreed and strongly agreed that the current investment provides the opportunity for good project

feasibility studies respectively. 19.2 percent of the respondents were of neutral opinion. These results indicate that a significant majority of respondents perceive the existing framework as supportive of comprehensive feasibility evaluations, underscoring its importance in enhancing investor confidence and ensuring the successful preparation of PPP projects.

PPP projects require a thorough assessment to determine their costs and benefits prior to making investment decisions. Further, such assessments are crucial in ensuring that projects in the PPP pipeline are bankable. Therefore, based on this understanding the study sought to examine whether the current PPP investment framework ensures thorough and realistic project benefits assessment. The study findings were that 18 out of 78 respondents accounting for 23.08 percent and 17 out of 78 respondents accounting for 21.79 percent of the respondents agreed and strongly agreed that the current PPP investment framework ensures thorough and realistic project benefits assessment. However, 40 out of 78 respondents accounting for 51.28 percent of the respondents did neither agree nor disagree on whether the current investment framework ensures thorough and realistic project benefits assessment. This outcome suggests that while some respondents recognize the framework's role in promoting project evaluation, a majority exhibit uncertainty, indicating potential gaps in the clarity, consistency, or enforcement of project appraisal and benefits assessment processes within Kenya's PPP framework.

The availability of demand for a project's final output not only influences investors' decisions to commit resources but also underpins the long-term sustainability of the project. It is, therefore, essential to ensure that sufficient and consistent demand exists for the project's deliverables. In this regard, the ability of the investment framework to guarantee long-term demand for the final project output is a critical determinant of investment success. Consequently, this study examined the extent to which the PPP investment framework provides assurance to private investors regarding sustained long-term demand for electricity, thereby enhancing confidence in project viability and returns.

The study found that 18 out of 78 respondents accounting for 23.08 and 12 out of 78 respondents accounting for 15.38 percent of the respondents agreed and strongly agreed that the current Kenyan investment PPP framework guarantees a long-term demand for electricity respectively. However,

24.36 percent and 7.69 percent of the respondents disagreed and strongly disagreed on the current investment framework's ability to guarantee a long-term demand for electricity respectively. Further, 23 out of 78 respondents accounting for 29.49 percent of the respondents could neither agree nor disagree with this attribute. These results suggest a divided perception among respondents, with nearly half expressing confidence in the framework's capacity, while a significant proportion remained sceptical or uncertain, underscoring the need for stronger policy mechanisms to reinforce demand stability assurances.

The ability of the PPP investment framework in enhancing proper clear project appraisal is key for PPP projects success. To this end, the study also focused on this attribute under the investment framework. The study established that 34 out of 78 respondents accounting for 44.16 percent and 23 out of 78 respondents accounting for 29.87 percent of the respondents agreed and strongly agreed that the current PPP investment framework stipulates the need for clear project appraisal to ensure that the projects in the PPP pipeline are bankable. Only 6.49 percent of the respondent disagreed with this attribute with 19.48 percent neither agreeing nor disagreeing. These results indicate that a significant majority of respondents perceive the existing framework as supportive of rigorous project appraisal processes, a factor essential for attracting private investment and ensuring project success.

Lastly under the investment framework, the study examined the attribute of framework's ability to promote stable macroeconomic condition to attract more investors. On this attribute 28 out of 78 respondents accounting for 35.9 percent and 20 out of 78 respondents accounting for 25.64 percent of the respondents agreed and strongly agreed that the current investment framework promote stable macroeconomic condition to attract more investors respectively. On the contrary, 21 out of 78 respondents accounting for 21.79 percent of the respondents disagreed with this view. However, 13 out of 78 respondents accounting for 16.67 percent of the respondents could neither agree nor disagree on the investment framework ability to promote stable macroeconomic condition to attract more investors. These findings suggest that while a majority perceive the framework as supportive of macroeconomic stability, a notable proportion of respondents remain sceptical, highlighting the need for further policy strengthening to sustain investor confidence.

The PPP investment framework plays a pivotal role in determining the success of PPP projects, as evidenced by the various attributes examined in this study. The findings of this research are consistent with previous empirical studies, which similarly highlight the significant influence of key investment framework attributes—such as macroeconomic stability, project feasibility, demand assurance, and clear appraisal mechanisms—on the overall success of PPP initiatives. These consistencies reinforce the argument that a well-structured and effectively implemented investment framework is essential for enhancing PPP performance and ensuring project sustainability. Regarding availability of financial markets for mobilizing capital, Pedo, et al (2018) asserts that availability of well-structured financial markets necessary for mobilization of financial resources to finance the PPP projects significantly and positive influenced performance of PPP in Kenya. Based on this finding, the study calls on the need to deepen financial markets by increasing the number of traded instruments to facilitate financial resources mobilization.

Macroeconomic fundamentals play a critical role in shaping implementation and success of national development projects. Therefore, the inclusion of macroeconomic stability as a core measure within the PPP investment framework is essential, as it directly influences investor confidence, financing availability, and the overall sustainability of PPP initiatives. A study by Mengistu (2013) on market availability and PPP success among Sub-Saharan African countries found that weak macroeconomic fundamentals, which lead to macroeconomic uncertainties, are negatively correlated with PPP activity. From the review of existing literature on the effect of macroeconomic stability, it is evident that only a limited number of studies have conducted comprehensive empirical analyses to determine the factors influencing PPP choice and performance. Within the Sub-Saharan African context, Mengistu (2013) further examined the impact of several macroeconomic variables on PPP-based infrastructure investments and established that market size serves as a key determinant of PPP activity. Conversely, high inflationary pressures and elevated taxation levels were found to be negatively associated with PPP engagement. Similarly, Yurdakul and Kamasak (2020) highlight that volatile economic and political environments are critical factors influencing PPP activity and investment decisions. Based on these insights, it is imperative for governments and private sector entities to make prudent and well-informed PPP investment decisions that consider economic volatility and political stability to ensure project sustainability and success.

Regarding the macroeconomic stability, Hakan *et al* (2022) examined Macroeconomic drivers of Public Private Partnership (PPP) projects. The study examined 137 countries that experienced challenges in securing financing for public infrastructure projects, with a specific focus on identifying key macroeconomic variables that influence investment decisions. The findings revealed that the macroeconomic environment plays a significant role in determining the level of PPP activity, particularly among low-income and developing economies.

A related body of literature further posits that a country's macroeconomic stability as depicted in its underlying macroeconomic fundamentals of the economy determine investments by the private sector in the PPPs, especially from the Foreign Direct Investments perspective. This in turn also influences the country's savings rate with the intention of investing the savings in the PPPs. In fact, according to Arbatli (2011) the level of the FDI flows as a proportion of GDP is a key determinant to the foreign investors' appetite towards the investments in the PPPs. By and large the stock levels of FDI serve as a key indicator of progress in PPP financing, as higher FDI inflows reflect greater investor confidence and the availability of long-term capital for infrastructure development.

In addition, Arezki et al., (2017) while focusing on the macroeconomic environment and PPPs activity asserts that savings' share in GDP are likely to be negatively correlated with PPP activities since savings deprives investment expenditure from the mere fact that savings is a deferred expenditure. The justification of the inverse relationship between savings and PPPs investment is provided by Reddy (2019) who asserts that savings are largely directed by the financial institutions towards interest – free short-term money markets instruments mainly treasury bills and also to the financial instruments such as treasury bonds, derivative instruments among others that tend to have lower risk exposure compared to the risk associated with the PPPs. Further, a study by Sanni (2016) points out favourable socio-economic factors as being a critical success factor for PPPs in Nigeria. In addition, Bogado (2015) posit that fostering macroeconomic stability and increased participation by the private sector requires a stable financial climate.

In support of this study's findings on PPP investment framework and PPP's success, previous empirical evidence in Thailand, asserts that potential macroeconomic uncertainties emanating from exchange rate risk have adversely affected the railway PPP (Allport et al. 2018). In addition,

is a salient example of the Kuala Lumpur's light rail transit project whose feasibility was adversely affected by high inflationary pressures in the country leading loan repayment inability.

4.2.5 Efficacy of the government policy

In addition to examining the efficacy of the legal, procurement, financing and investment framework, the study acknowledged that these frameworks do not affect project implementation in isolation but rather, there is a moderating effect of the government policy. To this effect, the study captured the moderating effect that the government policy has on the efficacy of the PPP framework in so far as PPP project implementation is concerned. The attributes of the government policy captured by the study included: Ability of the Government policies to promote operationalization of the PPP framework; Government policies subscription to international standards regarding operationalization of PPP framework; Decisions on implementation of the PPP framework are always prioritized by the government to bridge financing gap; government policies ability to ensure compliance to the laid down PPP framework; Government policy on Periodic reports are requirement on the status of PPP projects implementation; Government ability to put in place adequate institutional capacity to promote the implementation of PPP infrastructural projects and the government ability to provide adequate human resource and capacity to support the implementation.

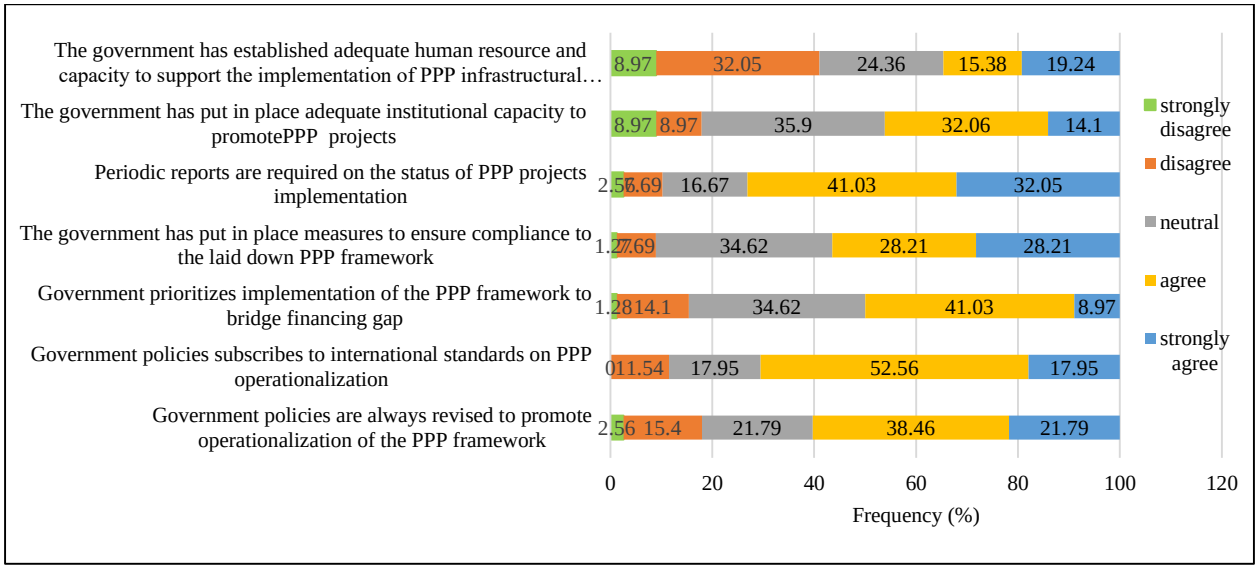


Figure 4.5 Rating of efficacy of government policy

Based of the respondents rating, 15 out of 78 respondents accounting for 19.24 percent and 12 out of 78 respondents accounting for 15.38 percent strongly agreed and agreed that the government policy has enabled provision of adequate human resource and capacity to support the implementation of PPP projects respectively. However, 25 out of 78 respondents accounting for 32.05 percent and 7 out of 78 respondents accounting for 8.97 percent disagreed and strongly disagreed that government policy has enabled provision of adequate human resource and capacity to support the implementation of PPP projects respectively. 19 out of 78 respondents accounting for 24.36 percent of the respondents could neither agree or disagree on the government policy ability to provide adequate human resource and capacity to support the implementation of PPP projects. These findings indicate a mixed perception among respondents, with a notable proportion expressing concern over the adequacy of human capital and institutional capacity for effective PPP project implementation, thereby highlighting an area requiring targeted policy intervention.

From the private sector perspective, institutional capacity is crucial for the success of PPP projects. On the government policy's ability to ensure adequate institutional capacity for PPP projects implementation, 25 out of 78 respondents accounting for 32.06 percent and 11 out of 78 respondents accounting for 14.1 percent of the respondents agreed and strongly agreed on the government policy ability to ensure adequate institutional capacity for PPP projects implementation respectively. However, 8.97 percent disagreed and with the government being capable of ensuring adequate institutional capacity for PPP projects implementation. 28 out of 78 respondents accounting for 35.9 percent of the respondents could neither agree or disagree on the government policy being capable of ensuring adequate institutional capacity for PPP projects implementation.

In order to effectively monitor project progress, periodic reporting and monitoring and evaluation is crucial. To this effect, 32 out of 78 respondents accounting for 41.03 percent and 25 out of 78 respondents accounting for 32.05 percent of the respondents agreed and strongly agreed that government policy on periodic reporting of project progress is important for ensuring PPP projects success respectively. However, 6.69 percent and 2.5 percent of the respondents disagreed and strongly disagreed that government policy on periodic reporting of project progress is important for ensuring PPP projects success respectively. In addition, 13 out of 78 respondents accounting

for, 16.67 percent of the respondents were of neutral responses with regard to government policy project progress periodic reporting being important for ensuring PPP projects success.

Compliance with the stipulated national PPP framework is important in attractive private sector investment in the PPP projects. To this effect, the importance of the government policy that seeks to ensure compliance with the PPP framework is underscored. From the study findings, 22 out of 78 respondents accounting for 28.21 percent equally agreed and strongly agreed that government policy that seeks to enhance compliance with the PPP framework is crucial in ensuring PPP projects success. However, 7.69 percent and 1.27 percent of the respondents disagreed and strongly disagreed that government policy that seeks to enhance compliance with the PPP framework is crucial in ensuring PPP projects success respectively. 27 out of 78 respondents accounting for 34.62 percent of the respondents did neither agree nor disagree on whether government policy that seeks to enhance compliance with the PPP framework is crucial in ensuring PPP projects success. These results suggest that while a significant portion of respondents recognize the value of compliance-driven government policy in fostering PPP success, a considerable share remains uncertain, implying a potential gap in policy awareness, enforcement consistency, or stakeholder engagement.

Kenya continues to experience a significant infrastructure financing gap amidst a growing demand for public infrastructure and essential services. Consequently, the adoption of innovative financing mechanisms, such as PPPs, has become imperative for narrowing this gap, particularly in light of rising recurrent expenditures and declining government revenues. In this context, the study sought to examine the extent to which government policy prioritizes the implementation of the PPP framework as a strategy for bridging the existing infrastructure financing deficit.

From the findings, 32 out of 78 respondents accounting for 41.30 percent and 7 out of 78 respondents accounting for 8.97 percent of the respondents agreed and strongly agreed that government policy the prioritizes the implementation of the PPP framework to bridge the financing gap is important in ensuring PPP projects success. However, 14.1 percent and 1.28 percent of the respondents disagreed and strongly disagreed with this attribute respectively. In addition, 34.62 percent of the respondents did neither agree nor disagree on whether government policy seeking

to prioritize PPP framework implementation is crucial for PPP projects implementation. These results suggest that while a substantial proportion of respondents recognize the importance of policy prioritization in promoting PPP project success, a significant share remains uncertain, indicating possible gaps in policy communication, implementation clarity, or alignment between policy intent and execution.

To attract private sector financing, particularly from foreign investors, adherence to international standards and best practices is essential in fostering investor confidence and credibility. Accordingly, alignment of the PPP framework and the relevant government policies with established international norms is strongly advocated, as this enhances transparency, predictability, and trust, key prerequisites for stimulating sustained private sector participation in PPP initiatives.

The study established that 41 out of 78 respondents accounting for 52.56 percent and 14 out of 78 respondents accounting for 17.95 percent of the respondents agreed and strongly agreed that government policies ascribe to international standards on PPPs operationalization respectively. However, 9 out of 78 respondents accounting for 11.54 percent of the respondents disagreed with this attribute while 145 out of 78 respondents accounting for 17.95 percent of respondents could neither agree nor disagree as to whether the existing government policies ascribe to international standards on PPPs operationalization. These findings suggest that while majority of respondents perceive Kenya's government policies as being generally consistent with international PPP standards, a notable proportion of neutrality and disagreement highlights potential gaps in policy harmonization and implementation consistency with global best practices.

Regularly reviewing government policies is imperative due to the dynamic nature of economic environments in which governments function. This becomes particularly crucial in the context of PPPs, which aim to attract private investors, both domestically and internationally. The ongoing evaluation and adjustment of existing policies are essential to enhance a country's competitiveness in attracting private funding for various projects. In the realm of government policies, this study specifically focused on scrutinizing the attribute of policy reviews to facilitate the implementation of the PPP framework. This examination underscores the significance of policy adaptability in promoting successful PPP initiatives. To this effect, the study found that 30 out of 78 respondents accounting for 38.46 percent and 17 out of 78 respondents accounting for 21.79 percent of the

respondents agreed and strongly agreed that government policies are always reviewed to promote the operationalization of the PPP framework in Kenya respectively. On the contrary, 15.4 percent and 2.56 percent of the respondents disagreed and strongly disagreed that that government policies are always reviewed to promote the operationalization of the PPP framework in Kenya respectively. In addition, 17 out of 78 respondents accounting for 21.79 percent of the respondents did neither agree or disagree on whether that government policies are always reviewed to promote the operationalization of the PPP framework in Kenya.

In implementing PPP projects, government policy plays a crucial moderating role. Previous studies have elicited the crucial moderating role between goverrnment policy and PPP projects success. Regarding the compliance with the giovernment policies, Xu (2023) asserts that while compliant government support can theoretically enhance a PPP firm's profitability, some supportive behaviour may harm the firm's profitability. Pongsiri (2012), and Zouggari (2013) point to the importance government policy in ensuring of transparency and effectiveness of the PPP legal framework. Government plays crucial role in creating a PPP unit and offering guidelines for its implementation. Similar argument is reported by World Bank (2017). Lee et al (2018) on examining the role of the government policy report that the high bureaucratic nature of government adversely affects investments in the developing economies leading to negative relationship between risk allocation and private investment.

Pérez-D'Oleo et al. (2015) reports a positive nexus between high institutional quality and private investment in PPP projects. Similar findings are reported by Sabry (2015) and BotaAvram (2014) who found reduced bureaucracy to lead to good governance hence increased private investment arising for increased investors' confidence and trust. Further, the government could intervene in promoting private portfolio investments in PPPs through subsidies. Government's subsidies in form of debt guarantees play an immense role in trading – off lender's risk and any form of risk premium attached by the lenders which potentially increases financing costs. Further, government policies targeting sectoral risks through sectoral directed subsidies are key in attracting private investments in the sector which are considered risky by private investors (Ameyaw, Chan, and Owusu-Manu 2017). Further, Pusok (2016) asserts that private investors will always demand for a high premium to cover the inherent risk arising from poor institutional quality and risk arising from political instability since such economies are considered risky investment destinations.

Moreover, government support programs attract private investments differently. According to Armada, Pereira, and Rodrigues (2012) direct support programs significantly increase private investments in PPPs while the indirect government programmes may fail to attain the expected results due to the underlying uncertainties and risks. Its notable that given the long project cycles of the PPPs, private investors keenly observe the government policies in the long run (Albalate, Bel, and Geddes 2015). In developing economies, financial markets are young and immature and thus indirect government interventions through market instruments such as guarantees and subsidies play a crucial role in determining PPPs success (Brown, Potoski, and Van Slyke 2016).

World Bank (2018) postulates underscore the importance of the government policy in implementing PPP projects in Fragile and Conflict Affected States. The government intervention underscores the success of PPPs by attracting private capital through promoting sustainability. Jamali (2014) asserts that government is crucial in ensuring protection of private investment from expropriation, enhances reliable and justices in arbitration procedures in case of any litigation, enhances respect for contract agreements by adhering to the rule of law, derisking the investments environment via various derisking programmes as well as facilitating processes for recovering of costs.

Also, government policy could promote the certainty of government-support programs that could significantly lower private sector risks, thereby enhancing investment (Urpelainen and Yang, 2017). A good example is the government may provide a guarantee on the minimum traffic for a tolled road project. This will incentivise the private investors to invest in the road infrastructure as the guarantee lower the risk of low demand that would arise from the low usage of the tolled road infrastructure. The guarantee goes a long way in offering minimum returns that the private investors would realize in such road infrastructure investments. Further, the introduction of the returns of investments guarantees by the government is a crucial financial subsidy that has significantly incentivized private portfolio investment in PPPs in Brazil (Brandao et al. 2012).

In addition, government-support program and the effect on the PPPs success is affirmed by Kaufmann, Kraay, and Mastruzzi (2011). Government commitment to adhere to the rule of law is cited as a key factor in PPPs success in so far as government policies is concerned. Further,

government commitment through quality of contract enforcement and upholding of property rights is crucial in promoting private sector investments in PPPs.

4.3 Diagnostic Tests based on parametric analysis

4.3.1 Correlation Analysis

According to Kothari & Garg (2014), correlation analysis is core in eliciting how strong the model varaiablers are related among themselve. The analysis is usually done for two variables at a time. Thereforte, the test is crucial in averrting some of the regression problems such as multicollinearity priro to estimating the regression model. To undertake this test, this study proposes to use Pearson's correlation analysis. This test computes the coefficients of correlation between the two variables at a time. In addition, the test has a capability of computing the significance levels of these coefficients to ascertain to what extent are the computed correlation coefficients significant.

Table 4.3 Correlational matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Project time	1.000								
(2) Project cost	0.663	1.000							
	(0.000)								
(3) Project outcome	0.586	0.738	1.000						
	(0.000)	(0.000)							
(4) Legal	0.384	0.569	0.600	1.000					
	(0.001)	(0.000)	(0.000)						
(5) Procurement	0.263	0.404	0.422	0.569	1.000				
	(0.020)	(0.000)	(0.000)	(0.000)					
(6) Financing	0.454	0.497	0.444	0.590	0.594	1.000			
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)				
(7) Investment	0.447	0.499	0.461	0.613	0.661	0.658	1.000		
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)			
(8) Govtpolicy	0.213	0.414	0.400	0.603	0.646	0.607	0.573	1.000	
	(0.061)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		
(9) Performance	0.702	0.805	0.887	0.523	0.389	0.469	0.487	0.295	1.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.009)	

Note: significance levels are in parenthesis

To determine the relationship among the study variables, the Pearson correlation matrix was estimated. The matrix presents the correlation coefficient among the study variables together with their respective significance levels. The results for correlation matrix are presented in table 4.14. From the results, it can be deduced that the project performance measures namely: project time, cost and outcome all have positive but weak correlation with all the PPP framework components.

However, the overall performance has positive and strong correlation with project time, cost and outcome since the overall performance is computed from the weighted ranks of project time, cost and outcome. Moderate positive correlation is reported between government policy and all the PPP framework components. Similarly, Moderate positive correlation is reported between investment framework and the other three PPP frameworks (legal, procurement and financing). This relationship is justified in that all the other three PPP frameworks are likely to inform investment since the investment decision are informed by the existing legislation as well as financial markets robustness. In overall the significance levels of all the correlation coefficients reveal the all the correlation coefficient are significant at 1 percent significance level.

4.3.2 Normality Test

Test for distribution of variables is a core test in any research embracing regression analysis for its data analysis. The tests simply indicate how the variables are generally distributed. The test can be done at the descriptive statistics level where variable skewness, and the kurtosis infer into distribution nature. Further then same test is applicable as a post estimation level where the distribution of the model residuals is of concern. In this case, the Ramsey test was applied.

Table 4.4 Linearity test for goodness of fit

Models	**Ramsey RESET test using powers of the fitted values Ho: model has no omitted variables**	
Model 1: Project time model	F(3, 65) = 6.03	Prob > F = 0.4011
Model 2: Project cost model	F(3, 65) = 4.86	Prob > F = 0.1041
Model 3: Project outcome model	F(3, 65) = 1.31	Prob > F = 0.2801

The results for Ramsey test are presented in table 4.15. The Ramsey test results for all the four models indicate that the probability values for the respective F – statistics for the models are all greater that 5 percent significance level. This leads to acceptance of the null hypothesis in all the four models implying that models have no omitted variables. The implication is that PPP project implementation is affected by legal, procurement, financing, investment framework and the government policy.

4.3.3 Heteroscedasticity Test

Heteroscedasticity is an econometric scenario whereby the variance model error terms vary across the observations. In this case, when this problem arises, the assumption of constant variance fails to hold anymore. The implication of such scenario is the model estimates are inconsistent, and the standard errors of the model are unreliable in testing the study hypotheses (Greene, 2003). This test is generally conducted after estimation of the regression model. In this study, the Breusch-Pagan-Godfrey test was applied to conduct this test.

Table 4.5 Breusch-Pagan / Cook-Weisberg test for heteroskedasticity results

Models	**Breusch-Pagan / Cook-Weisberg test for heteroskedasticity Ho: Constant variance**	
Model 1: Project time model	chi2(1) = 4.10	Prob > chi2 = 0.3430
Model 2: Project cost model	chi2(1) = 0.29	Prob > chi2 = 0.5882
Model 3: Project outcome model	chi2(1) = 5.44	Prob > chi2 = 0.1197
Model 4: Overall performance model	chi2(1) = 4.46	Prob > chi2 = 0.2346

The results show that for the project time model, the Chi2 value was 4.10 with the respective probability value being 0.3430. Similarly, for the project cost model, the Chi2 value was 0.29 with the respective probability value being 0.5882. The project cost model, the Chi2 value was 5.44 with the respective probability value being 0.1197 and for the overall project performance model, the Chi2 value was 4.46 with the respective probability value being 0.2346. In making the decision rule, we apply the 0.05 or 5 percent significance level used in undertaking the Breusch-Pagan-Godfrey test for heteroscedasticity. According to the results, the probability values for the respective Chi2 statistics for all the models were found to be greater than 5 percent significance level. This finding indicates the absence of heteroscedasticity in all the models implying the acceptance of the null hypothesis of no heteroscedasticity. This finding implies that our regression models were well specified and that the estimates of the models are best, linear and unbiased thus can be relied upon both for hypotheses testing and policy stipulation.

4.3.4 Multicollinearity

Multicollinearity problem emanates from the fact of two or more explanatory variables being strongly related to each other. Normally, the problem is revealed through a very high coefficient of determination of the model. The challenge arising from this problem is that whenever it occurs, one cannot objectively tell the exact effect of one explanatory variable on the dependent variable given the possible joint effect of the correlated explanatory variable on dependent variable. This study proposes to apply the Variance Inflation Factor to conduct the multicollinearity test.

Table 4.6 Multicollinearity test results

	Model 1		Model 2		Model 3		Model 4	
Variable	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
Procurement*govtpolicy	4.560	0.219298	4.56	0.219298	4.56	0.219298	4.56	0.219298
Financing*govtpolicy	2.740	0.364964	2.74	0.364964	2.74	0.364964	2.74	0.364964
Legal*govt	5.760	0.173611	5.76	0.173611	5.76	0.173611	5.76	0.173611
Investment*govtpolicy	8.650	0.115607	8.65	0.115607	8.65	0.115607	8.65	0.115607
Procurement framework	3.110	0.321543	3.11	0.321543	3.11	0.321543	3.11	0.321543
Financing framework	9.940	0.100604	9.94	0.100604	9.94	0.100604	9.94	0.100604
Govtpolicy	4.640	0.215517	4.64	0.215517	4.64	0.215517	4.64	0.215517
Legal framework	4.270	0.234192	4.27	0.234192	4.27	0.234192	4.27	0.234192
Investment framework	3.980	0.251256	3.98	0.251256	3.98	0.251256	3.98	0.251256
Mean VIF	**5.29**		**5.29**		**5.29**		**5.29**	

The multicollinearity test is presented in table 4.17. The results posit that the mean value of Variance Inflation Factor is equal 5.29 for all the four models. Applying the VIF of 10 as the test threshold, we conclude that the absence of multicollinearity among the variables since the mean Variance Inflation Factor for both models are less than 10. The finding of multicollinearity test implies that legal framework, procurement framework, financing framework and investment framework all affect PPP project implementation independently. Further, the test results indicate that government policy and the interactions between government policy and PPP frameworks affect PPP project implementation independently. Thus, no framework affects PPP project implementation through another framework.

4.4 Parametric analysis results – regression models result

Parametric analysis was relied upon to estimate the efficacy of the PPP framework. To this effect, the regression models were estimated where legal, procurement, financing and investment frameworks were regressed on the project time, cost and outcome. In addition, the PPP frameworks were regressed on the overall project performance which was computed from the three measures of the project performance namely: project time, cost and outcome. Further, its notable that in estimating the regression model, the moderating effect of the government policy was incorporated in the model first on its own and secondly the interactions of the government policy with each PPP framework.

In estimating regression model Ordinary Least Square model was applied. Specifically, a multiple OLS model was applied. The application of the OLS model was underpinned on the assumptions underlying the OLS regression model informed its choice for this study. To start with is the assumption that the parameters of the model are linear. Further, the model assumes normal distribution in the model's error term with a mean value of zero. This assumption implies to zero dependence between the explanatory variables and the error term of the model. Thirdly the model assumes variance error term is invariant across the explanatory variables in other words homoscedasticity. Further, is the absence of any linear relationship between the explanatory variables in other words absence of multicollinearity. Lastly is the independence of the error terms across the observations.

Table 4.7: Efficacy of PPP framework on project implementation

	Project Time model		**Project Cost model**		**Project Outcome model**	
	Coef.	St.Err.	Coef.	St.Err.	Coef.	St.Err.
Legal framework	0.495**	0.263	0.618***	0.215	0.618***	0.214
Procurement framework	-0.216**	0.322	-0.134	0.263	-0.331	0.262
Financing framework	0.032	0.309	0.621**	0.253	0.309	0.252
Investment framework	0.326*	0.255	2.432	0.527	0.231	0.208
Constant	2.095***	0.643	0.197***	0.205	2.708***	0.524

Note: Significance levels *** p<.01, ** p<.05, * p<.1

The regression model results on the efficacy of PPP framework on the project time, cost and outcome are presented in table 4.6. From the results, legal framework was found to have a positive effect on PPP project time, cost and outcome. The effect was found to be positive and significant

at 5 percent significance level given that the respective p – values is less than 5 percent significance level. Improvement in legal framework efficacy by one unit was found to improve project time, cost and outcome by 0.495, 0.618 and 0.618 unit respectively holding other factors constant. Similar results were found for the investment framework though insignificant for project time, cost and outcome whereby improvement in investment framework efficacy leads to improvement in project time, cost and outcome by 0.326, 2.432 and 0.231 unit respectively holding other factors. However, procurement framework was found to have a negative and significant effect on the PPP project implementation time, cost and outcome though insignificant for project cost and outcome. procurement framework was found to increase project time by 0.216 units, increase project cost by 0.134 units and adversely affect project outcome by 0.331 units. Further, financing framework was found to have positive effect on the PPP project implementation time, cost and outcome though not significant where improvement in financing framework efficacy leads to improvement in project time, cost and outcome by 0.032, 0.621 and 0.309 unit respectively holding other factors.

Table 4.8: Efficacy of PPP framework and government policy on project implementation

	Project Time model		**Project Cost model**		**Project Outcome model**	
	Coef.	St.Err.	Coef.	St.Err.	Coef.	St.Err.
Legal framework	0.441***	0.171	0.566***	0.159	0.101	0.345
Procurement framework	-1.690***	0.303	-0.595**	0.245	-0.036***	0.008
Financing framework	0.106	0.084	-0.034	0.113	0.020	0.031
Investment framework	0.199**	0.076	0.185	0.239	0.218	0.140
Govt policy	0.303	0.250	0.197	0.205	0.203	0.204
Constant	1.791	0.539	0.202	0.244	0.177	0.264

Note: Significance levels *** p<.01, ** p<.05, * p<.1

Upon adding government policy in the model, the results, the model estimates found that legal framework was found to have a positive effect on PPP project time and cost. The effect was found to be positive and significant at 5 percent significance level given that the respective p – values is less than 5 percent significance level. However, procurement framework was found to have a negative effect on the PPP project implementation time, cost and outcome with the effect being insignificant at 5 percent significance level given that the respective p – values is greater than 5 percent significance level. Financing framework was found to have a negative though insignificant. This could be explained by the fact that PPP projects are likely to be a bit expensive than government funded projects given the investment returns that private sector could be seeking to earn. Investment framework was found to have positive effect on project cost though insignificant. Further, investment framework was found to have positive significant effect on

project time but positive insignificant effect on project cost and outcome. However, government policy was found to positively influence project time cost and outcome though insignificantly.

Table 4.9: Efficacy of PPP framework and government policy moderating effect on project implementation

	Project Time model		Project Cost model		Project Outcome model	
	Coef.	St.Err.	Coef.	St.Err.	Coef.	St.Err.
Legal framework	0.618***	0.214	2.89	0.105	0.089**	0.066
Procurement framework	-0.331	0.262	-1.26	0.211	0.035	0.082
Financing framework	0.309	0.252	1.23	0.223	0.214	0.069
Investment framework	0.231	0.208	1.11	0.271	0.004	0.062
Legal *govtpolicy	0.081	0.466	0.089	0.066	0.595**	0.245
Procurement *govtpolicy	0.078	0.281	0.035	0.082	0.408**	0.357
Financing *govtpolicy	0.091	0.169	0.214***	0.069	0.106***	0.084
Investment *govtpolicy	0.028**	0.062	0.004	0.062	0.199**	0.076
Constant	2.708	0.524	2.432	0.527	2.095	0.643

Note: Significance levels *** p<.01, ** p<.05, * p<.1

Regarding the moderating effect of the government policy, interactions of government policy and respective PPP frameworks are included in the model. Results are reported in table 4.8. Regarding project time, only interaction between government policy and investment framework has a positive and significant effect on PPP project implementation time with the effect being significant at 5 percent significance level. These results are in convergence with the expected economic apriori given that the government policy plays a very crucial role in informing investment decisions. However, it's noted that the moderating effect of government policy on legal, procurement and financing framework has positive effect on PPP project implementation time though the effects are insignificant at 5 percent significance level.

Regarding project cost, only interaction between government policy and financing framework has a positive and significant effect on PPP project implementation cost with the effect being significant at 5 percent significance level. These results are in convergence with the expected economic a priori given that the government policy plays a very crucial role in informing financing platform through the interventions in the financial markets which is likely to provide avenues to raise cheap project funding hence lowering the overall project cost. However, it's noted that the moderating effect of government policy on legal, procurement and investment framework have positive effect on PPP project implementation cost though the effects are insignificant at 5 percent significance level.

However, regarding project outcome, the moderating effect of the government policy with all the PPP frameworks has positive effect on project outcome. The effects were further found to be significant at 5 percent significance level. This finding points out to the fact that government policy plays a very crucial role in moderating the effect of the PPP framework in achieving the intended project outcome in the long run.

4.5 Interpretation of results

This section provides a detailed interpretation of study's findings based on the results derived from data analysis. The interpretation is organised in accordance with the specific objectives of the study. Further, in this section, a review of the empirical studies in this field of research is undertaken with a view of determining which studies agree with study findings and which ones disagree with the study findings. Further, the section offers in-depth explanations and contextual insights into the possible underlying factors influencing the results, particularly regarding the efficacy of the PPP framework in project implementation within Kenya's context.

4.5.1 Objective 1: To establish the efficacy of PPP legal framework on implementation of energy infrastructure projects in Kenya.

By applying the OLS estimation, the study examined the efficacy of legal framework on the implementation of energy infrastructural projects. The estimation results revealed that the legal framework had a positive and statistically significant effect on PPP project implementation time at the 5 percent significance level, as indicated by the corresponding p-value being less than 0.05.

This finding implies that the existence of a robust PPP legal framework provides a platform for defining project timelines, from inception to completion, thereby contributing to more predictable and efficient project implementation. Further the positive and significant effect on project implementation time may further be attributed to the deterrent effect of legal enforcement mechanisms, where potential legal consequences for delays or non-compliance encourage timely project execution. In essence, the strength and clarity of the legal framework act as both a guiding and regulatory tool, ensuring adherence to contractual timelines and promoting accountability in PPP project delivery.

The analysis revealed that the moderating effect of the government policy and the legal framework exerts a positive influence on PPP project implementation time. This finding underscores the critical role the government policy in enhancing the efficacy of the PPP framework. Government policies serve not only as facilitative instruments that support effective project implementation but also as mechanisms for continuous legal and institutional refinement. Such policies may range from administrative facilitation to more comprehensive interventions, including periodic legal framework reviews aimed at addressing emerging issues within the PPP landscape. This ensures that the legal framework remains relevant, adaptive, and responsive to evolving market dynamics and global best practices, thereby sustaining the effectiveness and credibility of PPP implementation.

With regard to the effect on the project cost, the study established a positive effect of the that legal framework on PPP project cost. The effect was found to be positive and significant at 5 percent significance level given that the respective p – values is less than 5 percent significance level. This result can be substantiated by the fact that the PPP legal framework, through the promotion of efficiency in project approval processes—one of the key attributes examined under the legal framework—helps avert unnecessary project delays that could otherwise escalate overall project costs. By streamlining approval procedures, the framework minimizes administrative bottlenecks and enhances timely decision-making, thereby improving cost efficiency. Furthermore, the existence of comprehensive regulations and guidelines within the PPP legal framework provides clear mechanisms for resolving legal challenges that may arise during project implementation. This, in turn, reduces the likelihood of costly litigation and protracted dispute resolution processes, ensuring more predictable and financially sustainable project outcomes.

With respect to the overall project outcome, the study found that the legal framework had a positive and statistically significant effect on PPP project success at the 5 percent significance level, as evidenced by a p-value below 0.05. This finding can be attributed to the framework's ability to promote fairness, enhance efficiency in project approval processes, ensure consistent monitoring mechanisms, and provide comprehensive regulations and guidelines, all of which collectively contribute to the successful implementation of PPP projects.

Based on the study findings, the perception of fairness within the existing legal framework, as endorsed by 51% of respondents, underscores its role in creating an equitable environment for PPP implementation. This aligns with previous research, such as the work of Roehrich et al. (2014), which highlights the importance of a legal framework that ensures equitable treatment and clearly defines the rights and obligations of all parties involved. Such fairness is crucial in fostering private sector confidence and encouraging investment.

Furthermore, the positive perception of the framework's efficiency in the approval process, as indicated by 57.79% of respondents, suggests that the current legal provisions facilitate streamlined project selection and implementation, thereby reducing overall project costs. However, the significant proportion of respondents (17.95%) who expressed indifference, along with the 14.1% who disagreed or strongly disagreed, points to the need for continuous improvement and potential reform to address any existing inefficiencies or bottlenecks.

The findings also reveal that a majority of respondents (53.85%) agree that the legal framework includes consistent monitoring mechanisms, which are essential for effective project management during the implementation phase. This is critical for ensuring accountability and transparency, thereby enhancing the likelihood of project success. Nonetheless, the 24.36% of respondents who were neutral and the 5.13% who disagreed indicate that there is room for strengthening these mechanisms to ensure more robust and reliable monitoring practices. Additionally, the study highlights mixed perceptions regarding the comprehensiveness of the regulations and guidelines within the legal framework, with 35.9% agreeing and 21.79% strongly agreeing on its adequacy. The notable proportion of respondents (29.49%) who were indifferent and the 12.82% who disagreed suggest that the legal framework may need further development to fully meet the needs of PPP stakeholders. This underscores the importance of regularly updating and refining the legal framework to ensure it remains comprehensive and adaptable to evolving project requirements and challenges.

In reference to study’s empirical literature reviewed, the study findings are in concurrence with those of Albalate, Bel and Geddes (2018) who examined the influence of the PPP legal framework on PPP project implementation in the United States with a focus on the state and local road and

highways. Albalate, Bel and Geddes (2018) concluded that PPP legislation significantly and positively influences private investments mobilization towards the PPP projects. They estimated the PPP framework favourability index at 0.63 while the elasticity for the percentage of PPP investments was estimated at 0.52.

Further, in Tanzania, Kavishe, Jefferson and Chileshe (2020) examined PPP implementation in the housing sector. With the focus on the PPPs delivery challenges, the study sought to rank the top delivery challenges associated with PPPs in the housing sector. The study established that lack of a well-articulated and defined PPP legal framework and misinformation of the private financiers were the key delivery challenges affecting the thriving of PPPs in Tanzanian housing sector. In this case the PPP legal framework was found to provide a mechanism upon which the regulatory mechanisms for PPP implementation is based. Further the legal framework offers possible legal interpretation on other framework such as the procurement framework. In addition, the legal framework was regarded crucial in offering legal justification for PPPs in Tanzania.

In Kenyan context, Chileshe, Njau, Kibichii and Kavishe (2020) established that the key Critical Success Factors (CSFs) for the PPP projects included but not limited community acceptance, project feasibility, regulatory framework, availability of financial markets for financial resources mobilization and a well organised public agency are core CSFs. Similar results are reported for the PPP projects in the water sector by Obosi, (2017) who report that organizations that had adopted more private sector participation though having regulations that enabled private sector participation could deliver projects on time thus reducing time taken by the households in getting water by 78.3 metres.

4.5.2 Objective 2: To examine the efficacy of PPP procurement framework on implementation of energy infrastructure projects in Kenya.

The study applied OLS regression to estimate the efficacy of the PPP procurement framework om implementation of energy infrastructural projects in Kenya. Regarding project time, the estimation results revealed that PPP procurement framework has a negative and significant effect on the PPP project implementation time with the effect being significant at 5 percent significance level given that the respective p – values is less than 5 percent significance level. The negative effect of the

PPP procurement framework on project implementation time may be attributed to the lengthy and complex processes involved in procuring projects through the PPP model. The framework requires that, where public assets are utilized, procurement must comply with the provisions of the Public Procurement and Asset Disposal Act, which necessitates adherence to open tendering procedures. While this approach promotes transparency and accountability, it also tends to prolong the procurement cycle, delaying project initiation and completion. Additionally, the incorporation of local content requirements and the need to comply with various procedural approvals further extend the procurement timeline. Collectively, these regulatory and procedural demands contribute to the negative and significant relationship observed between the PPP procurement framework and project implementation time.

Further, the results reveal that the moderating effect of government policy on procurement framework has positive effect on PPP project implementation time though the effect is insignificant at 5 percent significance level implying to the rigidity nature of the procurement framework such that even the intervention of government policy cannot unlock the bottlenecks in the procurement framework. Regarding the project cost, procurement framework was found to have a negative and significant effect on the PPP project implementation cost with the effect being insignificant at 5 percent significance level given that the respective p – values is greater than 5 percent significance level.

This finding further reinforces the influence of the procurement framework on project timelines, demonstrating that lengthy procurement processes not only delay project implementation but also lead to increased project costs. The extended duration of the procurement cycle often results in additional expenses associated with bidding and negotiation, as well as administrative costs arising from contract award disputes and complaints lodged by unsuccessful bidders. These cumulative costs ultimately inflate the overall project expenditure, thereby diminishing cost efficiency and undermining the financial sustainability of PPP initiatives. However, the moderating effect of government policy on procurement framework has positive effect on PPP project implementation cost though the effects are insignificant at 5 percent significance level implying the government intervention through relevant government policy does not overturn the effect adverse effect procurement framework has on PPP project cost. However, procurement framework was found to

have a negative and significant effect on the PPP project implementation cost with the effect being insignificant at 5 percent significance level. In overall the study conclude that the PPP procurement framework has an adverse effect on project outcomes.

From the study findings, the perception that the procurement framework sets out predictable and well-timed identification of projects, as indicated by 34.62% of respondents agreeing and 19.23% strongly agreeing, suggests that the framework provides a level of certainty essential for effective project planning. However, the significant proportion of respondents (28.21%) expressing neutrality and those disagreeing (17.94% combined) indicates a need for further refinement to ensure clearer guidance on project timelines. This finding resonates with previous studies. Predictability in project timelines is crucial, as it allows for better planning and resource allocation, reducing uncertainties that can lead to delays and increased costs (Yescombe, 2011).

Additionally, recognition of both local and international arbitration mechanisms within the procurement framework, as agreed by 42.31% and strongly agreed by 26.92% of respondents, underscores the framework's capability to facilitate timely and cost-effective dispute resolution. This is crucial for preventing project delays. Nonetheless, the neutrality expressed by 26.92% of respondents and the small proportion (3.85%) disagreeing highlight areas for potential improvement to bolster confidence in these mechanisms. Effective dispute resolution mechanisms are vital for maintaining investor confidence and ensuring smooth project execution (Grimsey & Lewis, 2004).

The promotion of competitive procurement processes, acknowledged by 44.87% of respondents agreeing and 17.95% strongly agreeing, indicates that the framework effectively enhances competition and transparency in project selection. However, the identical proportion of respondents (17.95%) disagreeing and those expressing indifference (19.23%) suggest that further measures could be taken to reinforce these aspects and address any perceived shortcomings. Competitive procurement is essential for achieving value for money and fostering innovation (Iossa & Martimort, 2015).

Finally, the substantial agreement (53.85%) and strong agreement (14.1%) that the procurement framework promotes transparency in the procurement process underscores its role in fostering an open and accountable procurement environment. Yet, the disagreement expressed by 16.67% of respondents indicates that there are still transparency concerns that need to be addressed to ensure the framework's robustness and effectiveness. Transparency in procurement processes helps prevent corruption and increases public trust (Engel, Fischer, & Galetovic, 2014). With transparency in the PPPs, investors' confidence is boosted. Moreover, transparency is necessary reducing information asymmetry in the market. Information symmetry is importance in ensuring proper project pricing devoid of any mispricing arising from market information asymmetry.

In addition, the ability of the procurement framework to address the risks arising in the project between the project partners is key. World Bank (2018) asserts that a Competitive and transparent procurement processes is very crucial for successful closure and implementation of a PPPs. The ability of the procurement framework in accounting for possible project risk is of paramount importance. Risk of uncompetitive pricing, corruption in the bidding process as well as lack of clarity in project requirements and quotations all undermine PPP success. Thus, the procurement framework ability to address these risks is crucial for project success.

When comparing the study's findings with the empirical literature reviewed, it is evident that the results present a mixed pattern of outcomes, reflecting both areas of convergence and divergence with previous research on the efficacy of PPP frameworks in project implementation. In Indonesia, Atmo et al (2017) undertook a comparative performance of PPPs and traditional projects from the procurement framework point of view in the context of the power sector. The study sought to find out whether power projects procured via the PPP framework were any different from those procured via traditionally framework in terms of their performance and delivery. Upon analysis, the study found that PPP procured projects were completed on time and with operating availability compared to projects procured via traditional model. This finding contrasts with the results of the present study. However, it is noteworthy that no significant differences were observed in project cost outlays between PPP-procured projects and those implemented through traditional procurement models. This observation aligns with the findings of the current study, particularly when considering the moderating effect of government policy on the procurement framework. It suggests that government policy interventions, such as streamlined approval procedures, enhanced oversight,

and clear regulatory guidance, can mitigate cost disparities and promote greater efficiency in PPP project implementation. Similarly, O'Shea, Palcic and Reeves (2019) assert no difference in project time delivery between PPP procured projects versus traditionally procured projects in so far as the procurement framework is concerned.

Further, in the United Kingdom, Li et al., (2015a) report that lengthy procurement process, high implementation costs arising from such lengthy procurement framework are barriers to the success of PPP projects in the United Kingdom. Similarly, are the findings by Trung (2023) in Vietnam. Moreover, this study finding agrees with the findings by Chasey, Maddex and Bansal (2012) which compared the PPP procured projects versus traditionally procured project in the road sector in North America. The study focus was on the project cost. Primary data was collected vis interviews from the project executives. The study established that PPP procured projects posted cost overruns of 0.81 percent on average compared to traditionally procured projects which cost overruns were 1.49 percent for traditionally procured projects.

Further, the study findings on the efficacy of the procurement framework resonates with the Zhang (2005) who examined the possible effects of PPPs in infrastructure development implementation. Zhang (2005) found that inefficient public procurement framework adversely affects project implementation. Specifically, within the procurement framework, the study documents challenges such as: Inappropriate and unstandardized procurement framework; lack of public clients initiating the projects incorporating them in their development; high levels of rent seeking arising from unsolicited PPP schemes; lack of clear definition of project in a manner that take into account stakeholders' requirements; corruption in awarding contract; Poor contract negotiation procedures and very long procurement processes marred with lot of litigations. These lead to project delays due to possible litigation arising from legal suits filed by unsatisfied private tenderers.

The study findings however disagree with Chan et al (2010) who assessed the reasons behind the success of PPP projects in China. By adopting a survey design with 18 success factors, Chan et al (2010) found that among other factors, a transparent and efficient PPP procurement process supported by a comprehensive PPP procurement framework was a prerequisite for the PPPs to work in the provision of physical infrastructure in China. Transparent and efficient framework were found to promote competitiveness in bidding thus fair project pricing.

4.5.3 Objective 3: To examine the efficacy of PPP financing framework on implementation of energy infrastructure projects in Kenya.

The study findings on the efficacy of the PPP framework in the implementation of energy infrastructure projects in Kenya revealed that the financing framework had a positive but statistically insignificant effect on PPP project implementation time at the 5 percent significance level, as the corresponding p-values exceeded the 0.05 threshold. A similar trend was observed with respect to the moderating effect of government policy on the financing framework, which also exhibited a positive but insignificant relationship with PPP project implementation time. These results suggest that while a sound financing framework and supportive government policy may contribute positively to timely project delivery, their effects were not strong enough to be deemed statistically significant within the study's model.

With respect to the project cost, the study established that the financing framework had a negative and statistically significant effect on the PPP project implementation costs, with the effect being significant at 5 percent significance level. This finding can be attributed to the fact that PPP projects often entail higher financing costs compared to government-funded projects, primarily due to the return on investment expectations of private sector partners. Moreover, the result may also reflect the limited depth and maturity of local financial markets, which constrains the ability to mobilize adequate long-term capital domestically. Consequently, governments are often compelled to source financing from external markets, where borrowing costs tend to be higher, thereby inflating overall project costs.

Further, the inadequacy of the financing framework in providing effective mechanisms for financial risk mitigation, particularly against currency exchange losses, may also explain the negative effect of the financing framework on the PPP project costs. In the absence of robust hedging or risk-sharing provisions, private investors / lenders tend to internalize potential foreign exchange losses likely to be incurred and account for it in the overall project cost. The results indicate that the moderating effect of government policy on financing framework has a positive and significant effect on PPP project implementation cost with the effect being significant at 5 percent significance level. This finding could be informed by the ability of the government policy to intervene in some aspects of the financing framework such as enhancing flexible tariff

adjustment if necessary. Such intervention would therefore inform the finding of positive effect of the government moderating effect on financing framework.

Regarding the project outcome, the study found that the financing framework had a negative but statistically insignificant effect on PPP project outcomes, as the corresponding p-values exceeded the 5 percent significance threshold. Further, the moderating effect of government policy on the financing framework presented a positive effect on project outcomes. The effects were further found to be significant at 5 percent significance level.

The study findings on the efficacy of the financing framework on PPP projects implementation agree with the findings by Verweij and Meerkerk (2021) conducted an analysis of the PPP models among the Dutch infrastructure PPP projects and found that projects financed through DBFM PPP model demonstrated significantly better cost performance compared to projects financed through regular contracts. In addition, the study found that DBFM financed projects performed better in reducing project time overruns compared to project implemented under the regular contracts.

4.5.4 Objective 4: To examine the efficacy of PPP investment framework on implementation of energy infrastructure projects in Kenya.

Lastly, the study sought to examine the efficacy of the investment framework on the project time, cost and outcome. On project time, the study found that investment framework had a positive effect on PPP project time. The effect was found to be positive and significant at 5 percent significance level given that the respective p – values is less than 5 percent significance level. The moderating effect between government policy and the investment framework was found to have positive effect on PPP project implementation time though the effects are insignificant at 5 percent significance level.

In reference to the effect on the project cost, both the investment framework and its interaction with the government policy was found to have a positive though insignificant effect. However, on the project outcome, investment framework was found to have a positive and significant effect. Similar result was reported for the moderating effect of the government policy on the investment framework. The significance of the investment framework on the project outcome can be explained by the fact that a sound investment framework is effective in attracting private sector investment

into the PPP projects by guaranteeing return on investment. Further is the ability of a sound investment framework in facilitating reasonable decision making through informed feasibility studies thus building up private investor confidence in investing in PPP projects.

The findings on the efficacy of the investment framework agree with Pedo, et al (2018) who, in examining the effects of public private partnerships frameworks on performance of PPP road projects in Kenya, focused on capital markets, management of stakeholders and government policy. The study established that availability of well-structured financial markets necessary for mobilization of financial resources to finance the PPP projects significantly and positively influenced performance of PPPs in Kenya. Based on this finding, the study called on the need to deepen financial markets by increasing the number of traded instruments to facilitate financial resources mobilization. Additionally, is the need to implement measures aimed at improving market liquidity.

Further, the results agree with the findings by Ng'ang'a and Kisimbii (2018) that examined the incentives behind private sector PPP project in Mombasa County in Kenya and found that private sector participation in PPPs is largely influenced by project capital requirements, risk management and lifecycle of the project. In addition, the study findings are in tandem with Osei-Kyei and Chan (2015) who examined the success of PPP projects using s desktop review for published studies. The study found that among the key PPP projects success factors, existence of a good project's investment framework featured more often in majority of the studies reviewed. In addition to the investment framework, other factors highlighted in majority of the studies were but not limited conducive political environment, effective risk management framework, clear and transparent procurement framework as well as a strong private consortium.

Regarding availability of financial markets for mobilizing capital, Pedo, et al (2018) asserts that availability of well-structured financial markets necessary for mobilization of financial resources to finance the PPP projects significantly and positive influenced performance of PPPs in Kenya. Based on this finding, the study calls on the need to deepen financial markets by increasing the number of traded instruments to facilitate financial resources mobilization. Similar study on the market's availability and PPPs success by Mengistu (2013) among the Sub-Saharan African countries found that the financial market size was an important driver of PPPs. Additionally, heavy

tax burden and inflation showed negative correlations with the PPP activity. From the review of the effect of macroeconomic stability, it's eminent that to date, only a few studies have undertaken empirical analysis to determines PPP choice comprehensively.

Regarding the macroeconomic stability, in Thailand, potential macroeconomic uncertainties emanating from exchange rate risk have adversely affected the railway PPP (Allport et al. 2018). In addition, is a salient example of the Kuala Lumpur's light rail transit project whose feasibility was adversely affected by high inflationary pressures in the country leading loan repayment inability.

4.5.5 The moderating role of government policy on the efficacy of PPP investment framework on implementation of energy infrastructure projects in Kenya.

In implementing PPP projects, government policy plays a crucial moderating role. Previous studies have elicited the crucial moderating role between goverrnment policy and PPP projects success. Regarding the compliance with the government policies, Xu (2023) found that the moderating effect of government policy on investment framework has a positive and significant effect on PPP project implementation time with the effect being significant at 5 percent significance level. These results are in convergence with the expected economic a priori given that the government policy plays a very crucial role in informing investment decisions. Further, on project implementation cost the moderating effect of the government policy, results indicate that the moderating effect of government policy on financing framework has a positive and significant effect on PPP project implementation cost with the effect being significant at 5 percent significance level.

Regarding the effect on the project outcome, the moderating effect of government policy, results indicate that the moderating effect of government policy on all the PPP framework has positive effect on project outcome. The effects were further found to be significant at 5 percent significance level. This finding points out to the fact that government policy plays a very crucial role in moderating the effect of the PPP framework in achieving the intended project outcome in the long run.

Further, noting the PPPs have high and many risks, any government policies aiming at derisksing the investment in PPPs is a very welcome idea that goes a long way in promoting the PPPs success.

Government policies towards derisking markets in areas of low demand are key in attracting investors through guaranteed miminum demand. In addition, any government policies towards trading – off projects risks such as project financing, project ownbership, project designs and construction have similar outcome of increased private portfolio investment in PPPs (Wang, Xiong, et al. 2018). Such policies in derisking are crucial in risk allocation, risk transfer and risk diversification which is an incentive to private investors.

Further, government could intervene in promoting private portfolio investments in PPPs through subsidies. Government's subsidies in form of debt guarantees play an immense role in trading – off lender's risk and any form of risk premium attached by the lenders which potentially increases financing costs. Further, government policies targeting sectoral risks through sectoral directed subsidies are key in attracting private investments in the sector which are considered risky by private investors (Ameyaw, Chan, and Owusu-Manu 2017).

Moreover, government policy could promote the certainty of government-support programs that could significantly lower private sector risks, thereby enhancing investment (Urpelainen and Yang, 2017). A good example is the government may provide a guarantee on the minimum traffic for a tolled road project. This will incentivise the private investors to invest in the road infrastructure as the guarantee lower the risk of low demand that would arise from the low usage of the tolled road infrastructure. The guarantee goes a long way in offering minimum returns that the private investors would realize in such road infrastructure investments. Further, the introduction of the returns of investments guarantees by the government is a crucial financial subsidy that has significantly incentivized private portfolio investment in PPPs in Brazil (Brandao et al. 2012)

Moreover, its notable the policies developed by the government have different capabilities in attracting the PPP investors. Policies that have direct and deliberate move in cutting costs, providing incentives to investors, enhance financial markets for raising of capital as well as derisking the PPPs operating environment have a direct and immediate results in promoting private investments in PPPs (Armada, Pereira, and Rodrigues 2012). Moreover, government policies that indirectly support cost cutting and lowering the inherent market risks, promoting growth of young financial markets for capital raising also have positive impact in the growth pf the private investments portfolios in the PPPs (Yang, Hou, and Wang 2013).

4.6 Non-parametric analysis results

The study undertook the non – parametric analysis in addition to the parametric analysis for robustness check. Further, given that the study relied on ordinal data that was modified by application of Principal Component Analysis to aid in parametric analysis, it was prudent to apply the non – parametric analysis given that such analysis well fits the data. Non – parametric analysis was done at using Structural Equation Modelling.

4.6.1 Structural Equation Models

In addition to the Ordinary Least Square models, the study sought to examine the efficacy of the PPP framework on the PPP project implementation using non – parametric modelling. In this case the Structural Equation Modelling was applied. The model assumes a pathway analysis between the variables and estimates the coefficients for the respective pathways. The output of the Structural Equation Modelling is therefore represented in pathways diagrams. To avoid clumsy and misleading pathways within a single structural equation model, modelling was done for each framework at a time.

4.6.1.1 Structural Equation Model for efficacy of legal framework

Figure 6 presents that pathway analysis results for the SEM regarding the efficacy of the PPP legal framework in influencing PPP project implementation tine, cost and outcome. The output of the analysis is similar to the model estimated using the ordinary least squares method under the parametric analysis. From the analysis, legal framework has a positive effect on project time, cost and outcome. Further, positive effect of the moderating effect with government policy was found regarding project cost while a negative effect was reported for project time and outcome.

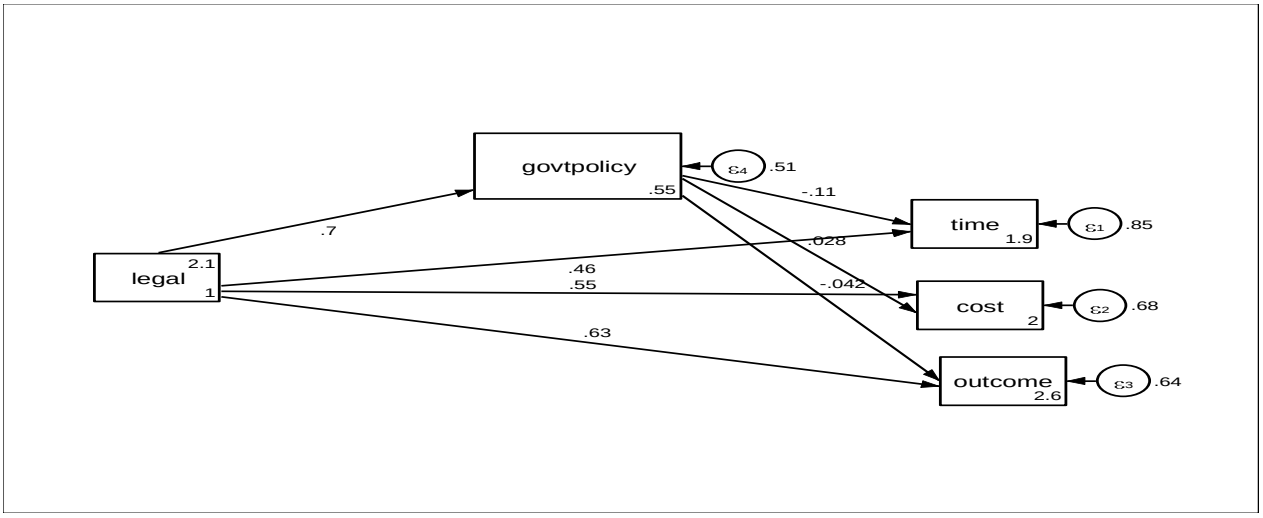


Figure 4.6: Structural Equation Model for Legal Framework Efficacy

The results of the structural equation model resonate with several empirical studies on the effect of legal framework on the project success. These findings align with empirical studies such as Albalate, Bel, and Geddes (2018) on PPP legislation in the United States, which underscore the positive influence of legal frameworks on private sector investment and project outcomes. Conversely, insights from Tanzania by Kavishe, Jefferson, and Chileshe (2020) highlight challenges stemming from inadequate legal frameworks in PPPs, emphasizing the critical role of well-defined regulatory environments in project success. Overall, these findings indicate that while the current PPP legal framework in Kenya provides a solid foundation for the implementation of energy infrastructure projects, there are areas that require ongoing evaluation and enhancement to ensure it fully supports efficient, fair, and well- monitored project execution. This continuous improvement is essential for maintaining investor confidence and achieving sustainable development outcomes in the energy sector.

Sabry (2015) and BotaAvram (2014) who found reduced bureaucracy to lead to good governance hence increased private investment arising for increased investors' confidence and trust. Further, direct support programs through the legal framework significantly increase private investments in PPPs while the indirect government programs may fail to attain the expected results due to the underlying uncertainties and risks. It is notable that given the long project cycles of the PPPs, private investors keenly observe the government policies in the long run (Albalate, Bel, andGeddes 2015).

Jamali (2014) underscores the importance of governments establishing strong regulatory systems for PPPs to succeed. He asserts that government plays a crucial role in ensuring protection of private investment from expropriation, ensuring fairness and justice in arbitration procedures upholding contractual obligations through adherence to the rule of law, and derisking the investments environment through well-structured mitigation programmes. Existence of a robust legal framework offers a well organised implementation structure. Similarly, in the context of the Caribbean and the Latin American countries, Unit (2014) report that high institutional quality, reflected in supportive government policies promoting the rule of law, mature financial markets and reduced bureaucracy as been instrumental in fostering private investments in PPPs. In addition, Daude and Stein (2007) assert that government effectiveness through upholding of the rule of law, control of corruption and promotion of good governance are paramount in governing economic and social interaction among the economic agents. Daude and Stein (2007) further assert that private investors pay key attention to attributes constituting the institutional quality in deciding which country to channel their investment portfolio.

These findings collectively suggest that the existence of a robust PPP regulatory framework provides a strong foundation for defining key project parameters, including project timelines, from inception to completion, thereby explaining its positive and significant effect on PPP project implementation. The fear of legal consequences resulting from delays or non-compliance may also motivate timely project delivery, further strengthening this relationship. Moreover, the moderating effect of government policy on the legal framework reveals a positive influence on project implementation time, highlighting the critical role of policy support in enhancing the overall efficacy of the PPP framework. Such policies may range from facilitative measures to more complex interventions, such as the periodic review and modernization of legal frameworks to align with emerging market trends and evolving PPP dynamics, thereby ensuring continued relevance and effectiveness.

4.6.1.2 Structural Equation Model for efficacy of procurement framework

The output of the analysis is similar to the model estimated using the ordinary least squares method under the parametric analysis. From the analysis, procurement framework has a negative effect on project time, cost and outcome. Further, positive effect of the moderating effect with government policy was found regarding project cost, time and outcome.

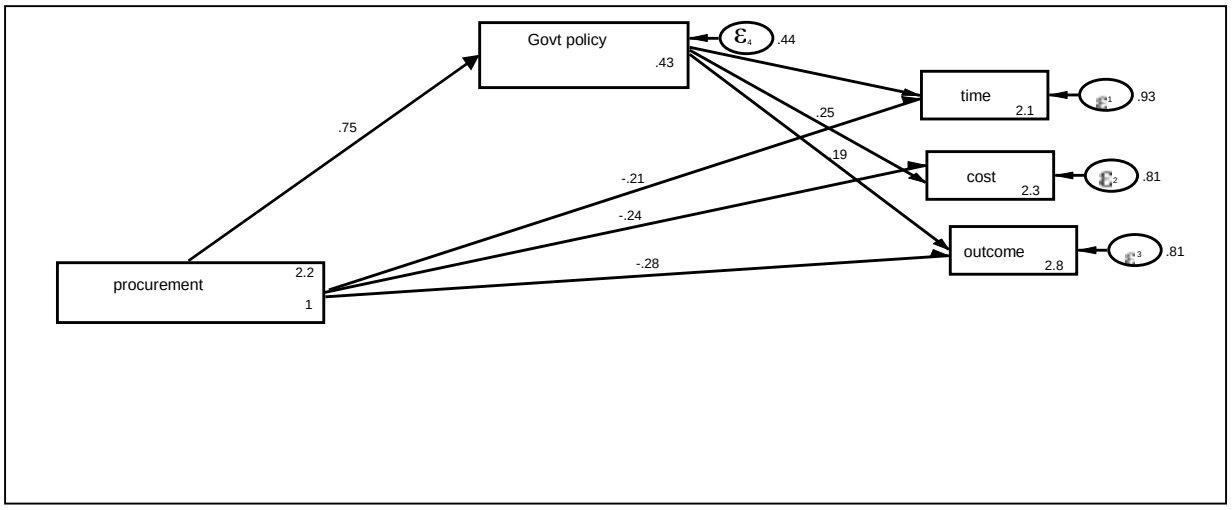


Figure 4.7 Structural Equation Model for Procurement Framework Efficacy

The results of the structural equation model resonate with several empirical studies on the effect of procurement framework on the project success. Zhang's (2005) examination of PPPs in infrastructure development underscores the critical role of efficient procurement frameworks in project implementation. Zhang identified common challenges such as inefficient procurement practices, corruption risks, and lengthy legal disputes that can hinder project progress. These findings resonate with the challenges observed in the Kenyan context, particularly concerning delays and inefficiencies attributable to the PPP procurement framework.

However, findings by Chan et al. (2010) in China suggest that transparent and efficient PPP procurement processes supported by comprehensive frameworks can enhance project success and infrastructure provision. This contrasts with some aspects of the Kenyan experience, suggesting potential lessons in improving procurement frameworks to achieve better outcomes. In conclusion, while the PPP procurement framework in Kenya exhibits significant challenges related to project implementation time, its impact on project costs remains nuanced and less pronounced. Addressing these challenges requires a balanced approach that considers both regulatory reforms and policy interventions aimed at enhancing procurement efficiency and project delivery within the PPP framework. A key finding of the study is the significant impact of lengthy procurement processes on PPP project completion timelines, particularly during the stages of tendering, tender document evaluation, and contract award. Prolonged procurement procedures tend to delay project

commencement and implementation, thereby undermining overall project efficiency and timely delivery.

The negative effect of the PPP procurement framework on project implementation time, implies that the framework contributes to prolonged project procurement processes due to stringent requirements such as adherence to public procurement laws and the incorporation of local content policies. These factors collectively extend project timelines, thereby potentially increasing overall project costs associated with bidding processes, negotiations, and legal challenges from unsuccessful bidders. Moreover, the results found that government policy interventions intended to moderate the effects of the procurement framework on project timelines were ineffective, suggesting the rigid nature of the framework.

Studies in Indonesia by Atmo et al. (2017) found that PPP-procured projects generally performed better in terms of timely delivery and operational availability compared to traditionally procured projects, contrary to the findings in Kenya. However, similar to this study's findings, Atmo et al. (2017) noted no significant cost differences between PPP and traditional procurement models, aligning with the notion that procurement frameworks moderated by government policies may have limited effectiveness in curbing cost overruns. The moderating role of government policy has a positive effect on PPP cost as evidenced by the results of the structural model equation for the effect on procurement framework on PPP success.

4.6.1.3 Structural Equation Model for efficacy of financing framework

The output of the analysis is similar to the model estimated using the ordinary least squares method under the parametric analysis. From the analysis, financing framework has a positive effect on project time, cost and outcome. Further, positive effect of the moderating effect with government policy was found regarding project cost and outcome while a negative effect was reported for project time.

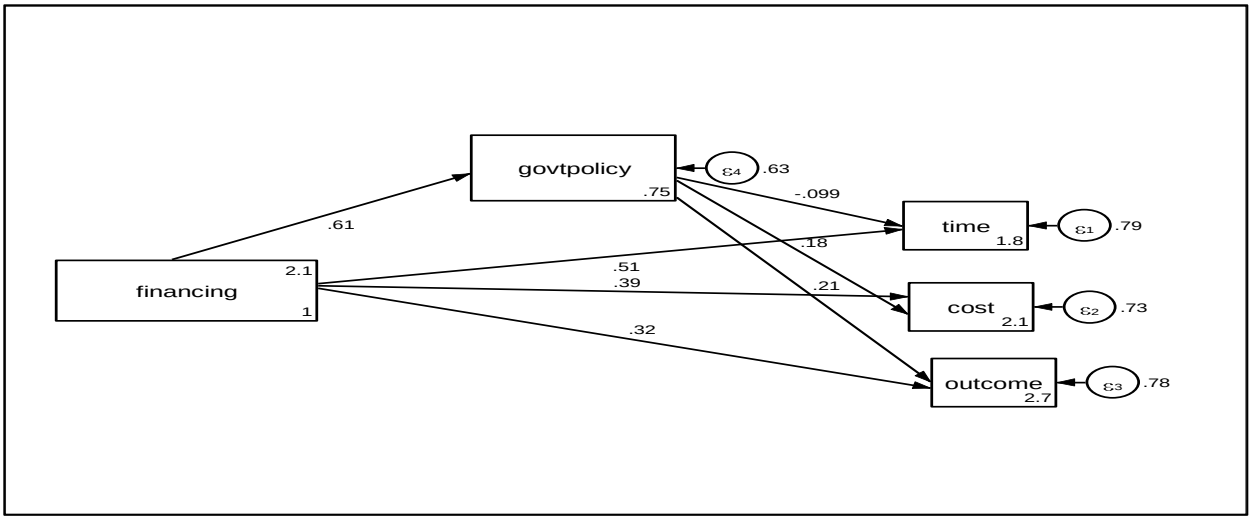


Figure 4.8 Structural Equation Model for Financing Framework Efficacy

The results of the structural equation model resonate with several empirical studies on the effect of financing framework on the project success. The study findings are in tandem with Osei-Kyei and Chan (2015) who examined the success of PPP projects using s desktop review for published studies. The study finding established that among the key PPP projects success factors, existence of a good project's investment framework featured more often in majority of the studies reviewed. In addition to the investment framework, other factors highlighted in majority of the studies included but were limited on conducive political environment, effective risk management framework, clear and transparent procurement framework as well as a strong private consortium. About availability of financial markets for mobilizing capital, Pedo, et al (2018) asserts that availability of well-structured financial markets necessary for mobilization of financial resources to finance the PPP projects significantly and positive influenced performance of PPP in Kenya.

4.6.1.4 Structural Equation Model for efficacy of investment framework

The output of the analysis is similar to the model estimated using the ordinary least squares method under the parametric analysis. From the analysis, investment framework has a positive effect on project time, cost and outcome. Further, positive effect of the moderating effect with government policy was found regarding project cost and outcome while a negative effect was reported for project time.

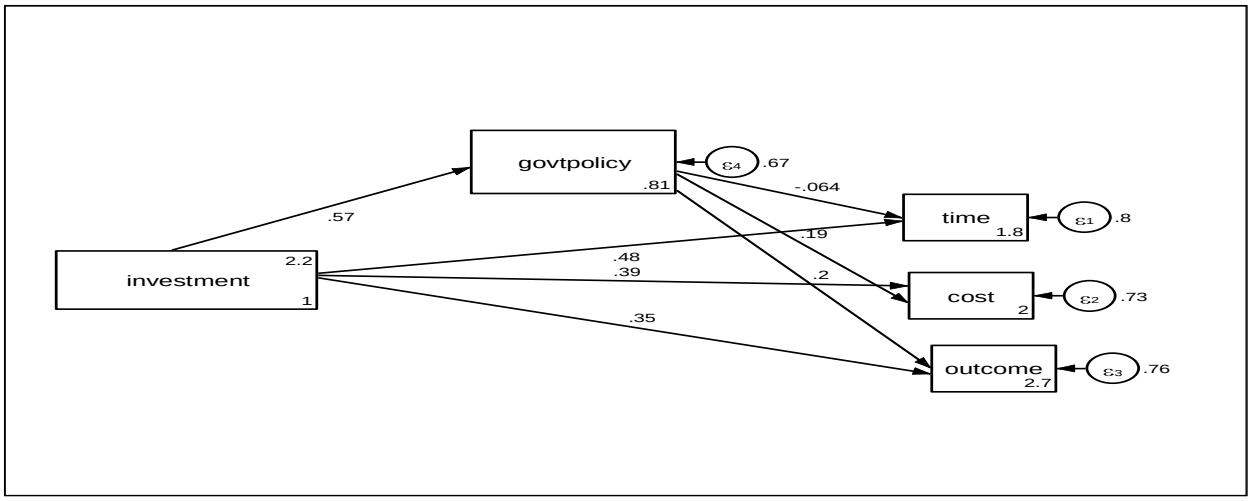


Figure 4.9 Structural Equation Model for Investment Framework Efficacy

The output of the analysis is similar to the model estimated using the ordinary least squares method under the parametric analysis. From the analysis, investment framework has a positive effect on project time, cost and outcome. Further, positive effect of the moderating effect with government policy was found regarding project cost and outcome while a negative effect was reported for project time.

The results of the structural equation model resonate with several empirical studies on the effect of investment framework on the project success. Osei-Kyei and Chan (2015) underscored the pivotal role of a robust investment framework in enhancing the success of PPP projects, alongside conducive political environments, effective risk management, transparent procurement frameworks, and strong private consortiums. These insights collectively emphasize the multifaceted benefits of an effective investment framework in promoting private sector confidence, optimizing project outcomes, and advancing sustainable infrastructure development in Kenya. Therefore, the study's findings underscore the importance of continually refining the PPP investment framework in Kenya to align with global best practices, enhance investor confidence, and mitigate implementation risks.

Similarly, Pedo et al. (2018) highlighted the importance of well-structured financial markets in Kenya for mobilizing resources and improving PPP project performance. They emphasized the need to deepen financial markets and enhance market liquidity to support sustainable infrastructure development. In addition, Ng'ang'a and Kisimbii (2018) identified capital requirements and

effective risk management as critical factors influencing private sector participation in PPPs, affirming the significance of a sound investment framework in project success.

The study established that the moderating role of government policy exerts a positive effect on PPP project costs, as evidenced by the results of the structural equation model assessing the relationship between the investment framework and PPP project success. This outcome can be attributed to the guarantees and support mechanisms provided by the government, which help to mitigate investment risks and assure private investors of minimum returns, particularly in capital-intensive infrastructure projects such as road development. Such guarantees enhance investor confidence and financial predictability, thereby facilitating private sector participation in PPP initiatives. Further, the introduction of the returns of investments guarantees by the government is a crucial financial subsidy that has significantly incentivized private portfolio investment in PPPs in Brazil (Brandao et al. 2012).

Moreover, its notable that the policies developed by the government have different capabilities in attracting the PPP investors. Policies that have direct and deliberate move in cutting costs, providing incentives to investors, enhance financial markets for raising of capital as well as derisking the PPPs operating environment have a direct and immediate results in promoting private investments in PPPs (Armada,Pereira, and Rodrigues 2012). Moreover, government policies that indirectly support cost cutting and lowering the inherent market risks, promoting growth of young financial markets for capital raising also have positive impact in the growth pf the private investments portfolios in the PPPs (Yang, Hou, and Wang 2013).

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND POLICY RECOMMENDATIONS

5.1 Introduction

The chapter provides a comprehensive summary of the study, encapsulating various key aspects. It begins by outlining the study's rationale, which serves as the foundation for the research. The chapter then proceeds to elucidate the study's objectives, and the research methodology adopted. In addition, the chapter covers the summary of the findings and conclusion of the study mainly focusing on the study findings drawn from the data analysis. These findings provide insights into the research questions and objectives, shedding light on the empirical outcomes of the study. Lastly, the chapter concludes by offering policy recommendations derived from the study findings, aligning with the overarching study objectives.

5.2 Summary of the findings

The primary focus of this study was to conduct an in-depth examination on the efficacy of Public-Private Partnership framework in the context of implementing energy infrastructure projects in Kenya. The study focus was on State Corporations operating within the Kenyan Energy Sector. To achieve a comprehensive analysis, the research was guided by four distinct and interrelated objectives: Firstly, the study aimed to assess the efficacy of the PPP legal framework on the successful implementation of energy infrastructure projects in Kenya. This involved a meticulous evaluation of the legal aspects governing PPPs in the energy sector. Secondly, the research delved into the examination of how the PPP procurement framework influenced the execution of energy infrastructure projects in Kenya. This encompassed an in-depth analysis of the procurement processes and their role in project implementation. Thirdly, the study explored the efficacy of the PPP financing framework in facilitating the realization of energy infrastructure projects in Kenya. This entailed a comprehensive assessment of the financial mechanisms and sources of funding within the PPP context. Lastly, the research sought to establish the effectiveness of the investment framework in driving the implementation of energy infrastructure projects in Kenya. This encompassed an analysis of the broader investment landscape and its impact on project execution. The study employed a combination of qualitative and quantitative research designs, specifically utilizing descriptive and causal-explanatory research methodologies. The target population of the

study from the public sector comprised the six electricity projects implementing State Corporations under the Ministry of Energy, Public-Private Partnership Unit, Energy and Petroleum Regulatory Authority, Ministry of Energy and The National Treasury. From the private sector / investors, the study's target population comprised the seven tier 1 commercial banks and six development partners. This study adopted a census, meaning that the sample size equated to the size of the entire target population. The rationale behind this decision was the relatively small population size, making a census approach more feasible and capable of yielding meaningful results.

The study relied on the primary data for the analysis to inform research conclusion and on policy pronouncements thereof. The data collection process aimed to gather insights from respondents, including their perceptions and experiences. This was achieved through the use of rating scales, where respondents assessed the performance of the PPP legal framework, procurement framework, and financial framework. These assessments encompassed past performance as well as anticipated future performance in the context of implementing PPP projects within predefined project delivery timelines, cost parameters, and desired project outputs. To ensure the validity and reliability of the study, a pilot test was conducted before the actual data collection. This preliminary testing phase helped refine the research instruments and methodologies, ensuring that the data collected would be accurate and consistent. Both the pilot test and the subsequent data collection phases were carried out meticulously to uphold the integrity of the study.

Regarding the legal framework, the study on the legal framework governing Public-Private Partnership projects in Kenya's energy sector reveals key insights. The findings revealed a positive and statistically significant effect of the legal framework on project implementation time, indicating that a robust regulatory environment contributes to defining and adhering to project timelines. This effect is attributed to the legal framework's role in mitigating risks associated with project delays and ensuring compliance, thereby enhancing overall project efficiency and reducing associated costs.

Moreover, the study observed a positive moderating effect of government policies on project implementation time within the PPP framework. This underscores the supportive role of governmental interventions in adapting and refining the legal framework to align with emerging market dynamics and stakeholder interests. Despite these positive impacts on project time, the

legal framework was also found to have a positive and significant effect on project costs. This outcome reflects the framework's emphasis on procedural efficiency in project approval processes, minimizing delays that could inflate overall project expenditures. Additionally, comprehensive regulations and guidelines provided by the legal framework were identified as instrumental in addressing legal complexities and reducing the likelihood of costly litigation, thus positively influencing project outcomes.

The study's findings regarding stakeholders' perceptions of the legal framework further corroborate these insights. Notably, most respondents acknowledged the framework's fairness, efficiency in project approvals, and inclusion of robust monitoring mechanisms. However, significant proportions expressed neutrality or dissent concerning the comprehensiveness of regulations, suggesting opportunities for enhancing stakeholder confidence through ongoing framework improvements. These findings align with empirical studies such as Albalate, Bel, and Geddes (2018) on PPP legislation in the United States, which underscore the positive influence of legal frameworks on private sector investment and project outcomes. Conversely, insights from Tanzania by Kavishe, Jefferson, and Chileshe (2020) highlight challenges stemming from inadequate legal frameworks in PPPs, emphasizing the critical role of well-defined regulatory environments in project success.

Overall, these findings indicate that while the current PPP legal framework in Kenya provides a solid foundation for the implementation of energy infrastructure projects, there are areas that require ongoing evaluation and enhancement to ensure it fully supports efficient, fair, and well-monitored project execution. This continuous improvement is essential for maintaining investor confidence and achieving sustainable development outcomes in the energy sector.

About the procurement framework, the results indicated a significant negative effect of the PPP procurement framework on project implementation time, implying that the framework contributes to prolonged project procurement processes due to stringent requirements such as adherence to public procurement laws and the incorporation of local content policies. These factors collectively extend project timelines, thereby potentially increasing overall project costs associated with bidding processes, negotiations, and legal challenges from unsuccessful bidders.

Moreover, the study found that government policy interventions intended to moderate the effects of the procurement framework on project timelines were ineffective, suggesting the rigid nature of the framework. Despite these challenges, the procurement framework exhibited a negative but statistically insignificant effect on project implementation costs, indicating that while it may contribute to delays, its impact on project expenses was not conclusively significant at the 5% level. This finding underscores the complex relationship between procurement efficiency and project cost containment within PPP contexts.

Comparing these findings with existing literature reveals mixed results. For instance, studies in Indonesia by Atmo et al. (2017) found that PPP-procured projects generally performed better in terms of timely delivery and operational availability compared to traditionally procured projects, contrary to the findings in Kenya. However, similar to this study's findings, Atmo et al. noted no significant cost differences between PPP and traditional procurement models, aligning with the notion that procurement frameworks moderated by government policies may have limited effectiveness in curbing cost overruns.

Additionally, research by O'Shea, Palcic, and Reeves (2019) and Chasey, Maddex, and Bansal (2012) also highlight varying impacts of PPP procurement frameworks on project outcomes, with considerations for cost efficiencies and operational effectiveness. These studies provide context to the complexities involved in balancing the benefits of PPP frameworks with the challenges posed by legal frameworks and procurement practices.

Furthermore, Zhang's (2005) examination of PPPs in infrastructure development underscores the critical role of efficient procurement frameworks in project implementation. Zhang identified common challenges such as inefficient procurement practices, corruption risks, and lengthy legal disputes that can hinder project progress. These findings resonate with the challenges observed in the Kenyan context, particularly concerning delays and inefficiencies attributable to the PPP procurement framework. However, findings by Chan et al. (2010) in China suggest that transparent and efficient PPP procurement processes supported by comprehensive frameworks can enhance project success and infrastructure provision. This contrasts with some aspects of the Kenyan

experience, suggesting potential lessons in improving procurement frameworks to achieve better outcomes.

In conclusion, while the PPP procurement framework in Kenya exhibits significant challenges related to project implementation time, its impact on project costs remains nuanced and less pronounced. Addressing these challenges requires a balanced approach that considers both regulatory reforms and policy interventions aimed at enhancing procurement efficiency and project delivery within the PPP framework. Of the key outcome is the effect the lengthy procurement process for PPP projects has on the project conclusion time mainly in the tendering process, review of tender document to the award of the contract. This lengthy procurement process makes the private sector shy away from engaging in the PPP projects. This calls for the need to review the procurement framework for efficacy with a focus on the time taken in the project procurement phase.

Regarding the financing framework, the study found that a significant proportion of respondents acknowledged the clarity and objectivity of the PPP financing framework in defining criteria for project sponsor selection. This aspect is essential as it enhances investor confidence in the fairness of project selection processes, crucial for attracting private sector participation. However, a notable minority expressed disagreement or indifference, suggesting areas where the framework could be refined to enhance transparency and stakeholder satisfaction.

Secondly, the ability of the financing framework to allow for fair and flexible tariff adjustments was perceived positively by a combined 43.59% of respondents, indicating recognition of its importance in adapting to changing economic conditions. Nevertheless, a substantial proportion of respondents remained neutral, signifying potential uncertainties or complexities in tariff adjustment mechanisms that warrant further attention. Thirdly, the study underscored the importance of risk mitigation mechanisms within the financing framework, with a majority agreeing that such provisions are essential for averting financial losses during project implementation. Despite this positive perception, a minority expressed scepticism, hence there is a need for clearer delineation and communication of risk management strategies to reassure stakeholders.

Moreover, ensuring project profitability emerged as a critical concern addressed by the financing framework, with over half of the respondents affirming its effectiveness in providing sufficient returns on investment. However, dissenting opinions and neutrality among a significant portion of respondents suggest that more robust mechanisms or incentives may be needed to fully align investor expectations with project outcomes. Lastly, the promotion of mature and available local financial markets by the PPP financing framework was viewed positively by nearly 60% of respondents, indicating recognition of its role in mobilizing adequate private finance. Nonetheless, disagreement and indifference among others underscored challenges related to market maturity and information symmetry, which are crucial for fostering investor confidence and enabling informed decision-making.

In conclusion, these findings suggest that while the PPP financing framework in Kenya has notable strengths in promoting project sponsor selection clarity, tariff flexibility, risk mitigation, profitability assurance, and local financial market development, there are areas requiring refinement in order to enhance the framework's efficacy, attract more private sector investment, and ultimately contribute to more successful implementation of energy infrastructure projects.

Lastly, on the investment framework, the study findings indicate that the investment framework has a positive and statistically significant effect on PPP project time, and this suggests that a well-structured investment framework facilitates timely project implementation. This positive influence can be attributed to the framework's ability to attract private sector investment by providing clarity and predictability, thereby reducing delays associated with project financing. In addition, the study explored the moderating effect of government policy on the investment framework, revealing a positive relationship with project time, albeit statistically insignificant. This indicates that while government policies may complement the investment framework in enhancing project timeliness, their impact may not always reach statistical significance, possibly due to varying regulatory environments or implementation challenges.

In terms of project cost, both the investment framework and its interaction with government policy were found to have a positive effect, although these effects were not statistically significant. This suggests that while the investment framework may support cost management strategies and attract

investment, its direct impact on reducing project costs may be influenced by other factors such as market conditions and project-specific challenges. However, the investment framework demonstrated a significant positive effect on project outcomes. This finding underscores the framework's role in ensuring the financial viability and overall success of PPP projects by way of informed decision-making through rigorous feasibility studies and providing a conducive environment for private sector participation, a robust investment framework enhances project outcomes by mitigating risks and attracting sustainable investment.

These findings align with existing literature. For instance, Pedo et al. (2018) highlighted the importance of well-structured financial markets in Kenya for mobilizing resources and improving PPP project performance. They emphasized the need to deepen financial markets and enhance market liquidity to support sustainable infrastructure development. Similarly, Ng'ang'a and Kisimbii (2018) identified capital requirements and effective risk management as critical factors influencing private sector participation in PPPs, affirming the significance of a sound investment framework in project success. Moreover, Osei-Kyei and Chan (2015) underscored the pivotal role of a robust investment framework in enhancing the success of PPP projects, alongside conducive political environments, effective risk management, transparent procurement frameworks, and strong private consortiums. These insights collectively emphasize the multifaceted benefits of an effective investment framework in promoting private sector confidence, optimizing project outcomes, and advancing sustainable infrastructure development in Kenya.

Therefore, the study's findings underscore the importance of continually refining the PPP investment framework in Kenya to align with global best practices, enhance investor confidence, and mitigate implementation risks. Policymakers can therefore further optimize the investment framework's efficacy and promote sustainable infrastructure development through PPPs by addressing regulatory gaps, fostering transparency, and promoting financial market development.

5.3 Conclusion

Based on the findings from the study on the efficacy of PPP frameworks in Kenya's energy sector, several key conclusions can be drawn regarding the legal, procurement, financing, and investment frameworks. First, regarding the PPP legal framework, the study reveals a positive and significant impact on project implementation time. This underscores the framework's role in defining clear project timelines and minimizing delays through robust risk mitigation and compliance mechanisms. However, while it contributes to project efficiency, the framework was also found to increase project costs, primarily due to procedural complexities and legal challenges. Stakeholders generally perceive the framework as fair and efficient, though there is room for improvement in regulatory clarity and stakeholder confidence.

Secondly, the PPP procurement framework exhibits significant challenges in terms of project implementation time, with stringent requirements often prolonging procurement processes. This can lead to increased project costs associated with bidding procedures and legal disputes. Government policy interventions aimed at moderating these effects were found to be ineffective, hence the need for more flexible and adaptive procurement policies. While the framework's impact on project costs was less pronounced, its inefficiencies in timeliness remain a critical area for reform.

Thirdly, the PPP financing framework plays a crucial role in attracting private sector investment by providing clarity in project sponsor selection criteria and facilitating fair tariff adjustments. Despite these strengths, there are challenges related to risk mitigation and profitability assurance, where stakeholders express varying degrees of confidence. These findings underscore the complex interplay between financing arrangements, project timelines, costs, and outcomes in the context of PPP projects. They emphasize the need for careful design of financing frameworks to strike a balance between project efficiency and cost-effectiveness while ensuring favorable project outcomes. Enhancing local financial markets and promoting investor confidence through transparent and robust financing mechanisms are essential for optimizing the framework's efficacy.

Lastly, the PPP investment framework demonstrates a positive and statistically significant impact on project time, highlighting its role in facilitating timely project implementation through clear investment guidelines and policy support. While the framework also influences project costs positively, these effects were not statistically significant, suggesting other mitigating factors at play. However, it significantly enhances project outcomes by ensuring financial viability and attracting sustainable investments, aligning with global best practices identified in literature.

In summary, these research findings underscore the pivotal role of a well-structured investment framework in influencing various aspects of PPP projects. Such a framework not only accelerates project timelines but also significantly enhances the likelihood of achieving positive project outcomes. This highlights the importance of fostering an environment that builds private sector confidence and ensures returns on investment within PPP initiatives. The study makes a substantial contribution to the body of knowledge in the Kenyan context, demonstrating how the efficiency of the PPP framework ensures project success, particularly in energy infrastructure sector. This is especially important given the limited existing research in this area.

Moreover, the study offers empirical study findings that can serve as a benchmark for other similar studies, such as those focusing on road infrastructure, where the PPP framework is highly relevant. Consequently, similar studies could be replicated in the road sector to examine the efficiency of the PPP framework in driving project success. Additionally, the study offers detailed insights into how the individual components of the PPP framework affects project success, as well as the overall impact of the framework. These findings provide empirical evidence for comparison with other existing studies in this field across different geographical contexts, demonstrating the effectiveness of the PPP framework in influencing the success of infrastructural projects.

In conclusion, it can be deduced that while Kenya's PPP frameworks show strengths in promoting project efficiency and attracting private investment, there remain challenges that need to be addressed. Continuous regulatory reforms, stakeholder consultations, and adaptive policies are essential to optimize these frameworks further. Aligning legal, procurement, financing, and investment frameworks with global best practices will not only enhance project outcomes but also foster sustainable infrastructure development in Kenya's energy sector. It is therefore notable to

address these challenges proactively, so that policymakers can leverage PPPs as a potent tool for advancing infrastructure and economic growth in the country.

5.4 Policy Recommendations

The study findings have led to the formulation of several policy recommendations aligned with the research objectives. These recommendations are intended to enhance the efficacy of PPP frameworks in the implementation of energy infrastructure projects in Kenya:

5.4.1 Effect of legal framework PPP project implementation

The study's findings indicate that the legal framework within Public-Private Partnership (PPP) projects had a positive impact on project time, cost, and outcome. This suggests that a well-structured and supportive legal framework can significantly contribute to the efficient implementation of PPP projects, ensuring they are completed within the planned timelines and budget while achieving the desired outcomes. Based on these findings, several policy recommendations and actions are proposed:

To keep breast with the changing regulatory environment, there is a need for frequent and immediate reviews and updates of legal issues that might affect PPP project implementation. The legal framework should adapt to changing operating environments and emerging issues, ensuring it remains effective and relevant. Consequently, the PPP legal framework should align with the provisions of the Energy Act of 2018 to address any legal gaps and inconsistencies. This alignment is essential for smooth and coordinated implementation of energy projects. Further, within the regulatory environment, revisions of regulations around emerging issues such as grid decentralization and opening distribution and transmission to the private sector should be incorporated to incentivize private sector participation in energy projects.

Further, to attract foreign private investors in the energy sector PPP projects, it is crucial to harmonize the PPP legal framework with international requirements and best practices. Aligning with global standards can enhance confidence among foreign investors. Moreover, given the growing importance of climate change and green financing, the PPP legal framework should be

updated to incorporate legal provisions that promote renewable energy projects and attract green financing. This will facilitate investments in renewable energies.

5.4.2 Effect of procurement framework PPP project implementation

The study's findings revealed that the PPP procurement framework has a significant negative impact on project implementation time, project cost, and project outcome. The lengthy procurement process associated with PPP projects appears to contribute to delays, increased costs, and unfavourable project outcomes. However, the study also identified a positive but insignificant moderating effect of government policy on the procurement framework, particularly in relation to project implementation time. Based on these findings, several recommendations are proposed to address these challenges and improve the efficacy of the PPP procurement framework: -

Firstly, there is a pressing need to review and streamline the PPP procurement framework to address issues that cause project delays, increased costs, and negative project outcomes. This review should focus on optimizing the procurement process. Reasonably, emphasize on the importance of adhering to stipulated timelines within the procurement process. Delays in procurement can lead to significant project delays and cost overruns. Clear guidelines and mechanisms for adhering to timelines should be established.

To fasten disputes resolution and address possible litigation related delays, exploration and implementation of Alternative Dispute Resolution mechanisms to address litigation and legal issues arising from the procurement process is underscored. This can help resolve disputes more efficiently and avoid costly legal redress. Further, is the need to encourage Privately Initiated Public-Private Partnerships, which may have fewer procurement-related challenges compared to traditional PPP projects.

Importantly, is the need to implement a pre-tender stage in PPP projects where only approved projects in the PPP pipeline are considered. Projects should meet specific criteria such as clear project descriptions, estimated costs, and tentative procurement dates. Projects that do not meet these criteria should be dropped to avoid delays. Supporting the recommendations towards reduced project delays, is the need to conduct awareness campaigns and sensitization programs to educate

stakeholders, including government agencies and private sector partners, about the importance of adhering to procurement timelines and best practices.

5.4.3 Effect of financing framework PPP project implementation

The study revealed several significant findings regarding the role of the financing framework in PPP project implementation. Firstly, it was evident that a well-structured financing framework positively contributed to expediting the delivery of PPP projects, particularly in terms of project implementation time. Additionally, government policies acted as positive moderators, enhancing the impact of the financing framework on project timeliness. Conversely, the study indicated that the financing framework had a notable negative and significant impact on PPP project implementation cost. This observation can be attributed to the inherent nature of PPP projects, which often involve higher expenses due to the private sector's pursuit of returns on their investments. Furthermore, the financing framework was found to have a negative and significant influence on project outcomes, implying that the financial structure can significantly affect the overall success and achievement of intended project objectives.

The study recognises the pivotal role played by financing markets in mobilising the necessary funds to address the infrastructure financing deficit. To this front, is a pressing need to revisit and revise the financing framework, with a particular emphasis on fostering innovative approaches to secure affordable funding for PPP projects. This includes expanding financial market offerings specifically tailored to PPP initiatives. More importantly in markets expansion is the consideration for financial market liberalization measures that offer more incentives to attract private sector investments. These incentives can contribute to bolstering the financial support for PPP projects.

Market restructuring is another policy alternative to market policy makers. Indicatively is the call to allow for pricing flexibility, especially in the case of electricity projects. It should promote competitive pricing while simultaneously safeguarding private investors against potential financial and economic risks. This may involve exploring foreign currency-denominated pricing or flexible tariff structures. Additionally, in efforts to manage potential market risk is the call for operationalization of financial hedging instruments within the financing framework through financial markets to cushion investors from potential losses. This provision can serve as a

significant enticement for private sector involvement in PPP projects. In the spirit of modernizing energy markets, there i8s need for providing financial compensation in the form of carbon credits can be a valuable strategy to ensure high profits for private investors participating in energy sector PPP projects.

Further, the development of financial products targeting the energy sector, such as green energy bonds, is recommended. These instruments not only attract private capital but also align with the growing focus on climate change and climate financing, appealing to large private foreign portfolios. To enhance the framework's attractiveness in projecting profitability, incentives for private investments in specific energy projects should be introduced. These incentives may involve reducing or eliminating taxation on equipment imports, tax exemptions for green energy technologies, and preferential corporate tax rates for energy project profits, among other measures.

5.4.4 Effect of investment framework PPP project implementation

In the study's examination of the efficacy of the investment framework on various aspects of PPP projects, several noteworthy findings were observed. Firstly, the research identified a positive and statistically significant effect of the investment framework on PPP project timelines, highlighting the framework's role in expediting project completion, and this effect was statistically significant at a 5 percent significance level. In terms of project cost, both the investment framework itself and its interaction with government policy were found to exert a positive influence. However, this impact did not reach a statistically significant level, suggesting that while there may be a positive trend, it does not attain a level of statistical significance.

On the other hand, when assessing project outcomes, the study revealed a positive and statistically significant effect of the investment framework. This result was consistent with the moderating effect of government policy on the investment framework, which also demonstrated a significant influence. This underscores the pivotal role of a robust investment framework in attracting private sector investments to PPP projects by instilling confidence in investors regarding the expected return on their investments. These findings collectively emphasize the critical importance of a well-structured investment framework in achieving positive project outcomes in PPP initiatives. They also underscore the need for policies and measures that facilitate private sector participation by providing assurance and incentives for investors within the framework.

Regarding the investment framework, first is the need to ensure a stable macroeconomic environment is paramount for attracting private investments in PPP projects. Policymakers should focus on fiscal policy pronouncements and the formulation of macroeconomic policies aimed at upholding the stability of macroeconomic fundamentals. Maintaining such stability enhances the country's competitiveness and attractiveness to private investors. This is core in creating and maintenance of a conducive investment environment are crucial to stimulate foreign direct investment directed toward PPP projects. A stable macroeconomic environment is instrumental in providing the economy with a competitive edge to allure private investments.

Further, the study recommends the establishment of information centres dedicated to raising awareness and providing crucial information about PPP projects. The government should take the initiative to enhance the PPP platform by creating a PPP investment information centre. This centre would serve as a vital resource, offering potential investors comprehensive information on PPP projects, including feasibility studies, project briefs, and other project-related data. Such an initiative ensures that private investors have access to the necessary information to make well-informed investment decisions.

5.5 Contribution of the study.

The study contributes to the body of knowledge in several aspects. Firstly, is the empirical integration of PPP framework components in project implementation analysis. The study presents a comprehensive empirical framework by simultaneously evaluating the efficacy of four distinct PPP sub-frameworks—legal and regulatory, procurement, financing, and investment—in influencing project implementation outcomes. This integrated approach departs from earlier studies that examined these frameworks in isolation, offering a more holistic understanding of how PPP frameworks interact to affect project delivery time, cost efficiency, and project output.

Secondly, is the study’s application of dual analytical techniques mainly the parametric and non-parametric approaches. The study advances methodological practice in public policy research by combining Ordinary Least Squares (OLS) regression and Structural Equation Modelling (SEM) to assess the relationships between PPP frameworks and project implementation. This dual approach

enhances the robustness of the findings and demonstrates how mixed-method quantitative analysis can yield deeper policy-relevant insights in infrastructure development studies.

Further, the study provides an evidence-based critique of PPP procurement and financing practices in Kenya. The study uncovers critical inefficiencies within Kenya's PPP procurement and financing frameworks. For example, it identifies that while the financing framework accelerates project implementation time, it negatively impacts project cost and outcomes due to private sector cost-recovery pressures. Similarly, the procurement framework, though essential for partner selection, is found to delay project execution due to excessive bureaucracy and litigation. These findings offer policy-relevant evidence to support reform in PPP processes in developing countries.

Lastly, the study offers theoretical and practical extension of government policy as a moderating variable. By incorporating government policy as a moderating variable, the study adds a novel layer to the theoretical modeling of PPP success. It shows that government policy can enhance or buffer the impact of PPP frameworks on project implementation outcomes. This theoretical contribution refines existing models of PPP efficacy and supports the case for stronger institutional and policy support to improve PPP outcomes, particularly in energy infrastructure sectors in Sub-Saharan Africa.

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APPENDICES: QUESTIONNAIRE

Questionnaire No……

QUESTIONNAIRE

My name is Fernandes Odinga Barasa a post graduate student at Kenyatta University undertaking a Degree of Philosophy in Public Policy and Management. The purpose of this questionnaire is to help in collecting data to undertake my thesis entitled "The efficacy of public-private partnership framework in the implementation of energy infrastructure projects in Kenya".

I wish to assure you that the information collected from you will be solely used for this survey and will be treated with the utmost degree of confidentiality. Kindly spare approximately 20 minutes to respond to the questionnaire

Respondent's Consent

To this effect, would you like to proceed with the survey? Yes |___| No |___|

(If yes, proceed to the survey)

SECTION A: RESPONDENT'S PERSONAL INFORMATION

Name of the institution	……
Gender of the respondent	Male |___| Female |___|
Position held at the institution	……
Number of years worked at the institution	……
Age group the respondent	31 – 35 yrs |__1_| 41 – 45 yrs |_3__| 36– 40yrs |__2_| 45 – 50 yrs |_4__| 51 – 55 yrs |_4__| Above 50 yrs |_6__|

Respondent's highest level of education	Undergraduate |___| Masters |___| PhD |___| Post-Doctoral |___|

SECTION B: EFFICACY OF LEGAL AND REGULATORY FRAMEWORK

In a scale of 1 to 5, kindly rate the following statements describing the efficacy of the PPP legal and regulatory framework in implementation of energy infrastructure projects in Kenya **(Where 1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strongly Agree).** Tick (√) the appropriate response once for every statement.

No	Statement	1	2	3	4	5
1	The existing PPP legal framework enhances fairness in the implementation of the PPP projects in Energy sector in Kenya					
2	The existing legal framework promotes efficiency in PPP project's approval process					
3	The existing legal framework ensures consistent monitoring mechanism for PPP project					
4	The current PPP legal framework provides comprehensive regulations and guidelines					
5	The existing legal framework accommodates different types of PPP models in Kenya					

SECTION C: Efficacy of Procurement component

In a scale of 1 to 5, kindly rate the following statements describing the efficacy of the PPP procurement framework in implementation of energy infrastructure projects in Kenya **(Where 1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strongly Agree).** Tick (√) the appropriate response once for every statement.

No	Statement	1	2	3	4	5
1	The current PPP procurement framework enhances transparency procurement process of energy infrastructure projects in Kenya					
2	The existing PPP procurement framework enhances competitive procurement process					
3	The current PPP procurement framework provides a due process through which the awarded projects can be revoked in case of disputes					
4	The current PPP procurement framework recognises the local and international arbitration for dispute resolution					
5	The current PPP procurement framework sets outs a predictable and timetabled identification of projects					

SECTION D: Efficacy of financing component

In a scale of 1 to 5, kindly rate the following statements describing the efficacy of financing framework in implementation of energy infrastructure projects in Kenya (**Where 1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strongly Agree).** Tick (√) the appropriate response once for every statement**.**

No	Statement	1	2	3	4	5
1	The existing PPP financing framework promotes mature and available local financial market					
2	The PPP financing framework provides for a sufficient profitability of the project to attract investors through tariff adjustment.					
3	The PPP financing framework provides mechanism for financial risk mitigation on currency exchange losses.					
4	The PPP financing framework promotes fair and flexible tariff adjustment if necessary					

No	Statement	1	2	3	4	5
5	The PPP financing framework provides for Well-defined criteria for project sponsor selection					

SECTION E: Efficacy of investment component

In a scale of 1 to 5, kindly rate the following statements describing the efficacy of investment framework in implementation of energy infrastructure projects in Kenya (**Where 1=strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strongly Agree).** Tick (√) the appropriate response once for every statement**.**

No	Statement	1	2	3	4	5
1	The existing PPP investment framework promotes a stable macro-economic condition for implementation of PPP projects in Kenya					
2	The current the existing PPP investment framework stipulates a clear project appraisal policy for project identification					
3	The PPP investment framework, guarantees a long-term demand for electricity					
4	The PPP financing / investment framework ensures thorough, realistic benefits assessment; Availability of Sound economic policy					
5	The PPP financing / investment framework provides opportunity for good project feasibility studies of energy infrastructural projects					

SECTION F: GOVERNMENT POLICIES AND REGULATIONS

Kindly rate the following statements describing government policies and regulations in relation to the PPP framework and its effect on project implementation. **Where 1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strongly Agree).** Tick (√) the appropriate response once for every statement**.**

No	Statement	1	2	3	4	5
1	Government policies on are always revised to promote operationalization of the PPP framework					
2	Government policies subscribes to international standards regarding operationalization of the PPP framework					
3	Decisions on implementation of the PPP framework are always prioritized by the government to bridge the infrastructural financing gap					
4	The government has put in place measures to ensure compliance to the laid down PPP framework					
5	Periodic reports are required on the status of PPP projects implementation					
6	The government has put in place adequate institutional capacity to promote the implementation of PPP infrastructural projects in Kenya.					
7	The government has established adequate human resource and capacity to support the implementation of PPP infrastructural projects in Kenya.					

SECTION G: PPP Project implementation

In overall, how would you rate the implementation status of PPP projects in energy sector on the following project implementation attributes. **(Where 1=Very poor, 2=Poor, 3=Good, 4=Very Good and 5=Excellent).** Tick (√) the appropriate response once for every attribute**.**

No	Statement	1	2	3	4	5
1	Project delivery time					
2	Project cost					
3	Project output					

THANK YOU FOR YOUR CO-OPERATION AND PARTICIPATION