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Influence of Private Sector Financing on Health Service Delivery in Level 4 Public Health Facilities in Nairobi County, Kenya

Maurice Mutua Maingi
Department of Health Systems Management, Kenya Methodist University, Kenya
Corresponding author email: maurimaingi@gmail.com

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Abstract

Private sector financing has increasingly become an important strategy for strengthening public healthcare systems, particularly in low- and middle-income countries where inadequate public funding constrains healthcare delivery. In Kenya, Level 4 public health facilities continue to face challenges, including insufficient financial resources, inadequate infrastructure, shortages of medical supplies, and rising demand for quality healthcare services. This study examined the role of private sector financing in improving health service delivery at Level 4 public health facilities in Nairobi County. Specifically, the study assessed the influence of private-sector financing on operational efficiency and healthcare quality, examined institutional factors affecting its integration into public healthcare, and evaluated the sustainability of private-sector financing in enhancing health service provision. The study employed a mixed-methods research design involving healthcare administrators, departmental heads, and members of sub-county health management teams in selected Level 4 public hospitals in Nairobi County. Quantitative data were analysed using descriptive and inferential statistical techniques, while qualitative data were analysed thematically to complement the quantitative findings. The findings indicate that private-sector financing significantly improves operational efficiency through enhanced infrastructure, greater availability of medical equipment, improved supply chain management, digital health innovations, and capacity building for healthcare workers. The study further established that effective institutional governance, supportive policy frameworks, stakeholder collaboration, and accountability mechanisms are essential for successful integration of private financing into public healthcare. Sustainable public-private partnerships were also found to contribute to improved healthcare quality and long-term financial resilience of public health facilities. The study concludes that strategically managed private sector financing can substantially strengthen health service delivery in Level 4 public hospitals. It recommends strengthening regulatory frameworks, promoting transparent public-private partnerships, enhancing governance structures, and developing sustainable financing models to support Universal Health Coverage and improve healthcare outcomes in Kenya.

Keywords: *Private sector financing, Public-private partnerships, Health service delivery, Level 4 public health facilities, Universal Health Coverage*

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1. Introduction

Healthcare financing remains one of the most critical determinants of health system performance globally, particularly in low- and middle-income countries (LMICs) where public resources are often insufficient to meet increasing healthcare demands. Sustainable financing enables health systems to strengthen infrastructure, procure essential medicines, adopt modern medical technologies, and maintain an adequate health workforce to deliver quality healthcare services. However, many LMICs continue to experience significant financing gaps that compromise service accessibility, quality, and efficiency, thereby limiting progress towards Universal Health Coverage (UHC) (World Health Organization [WHO], 2023).

In response to these challenges, governments have increasingly embraced private sector participation through public-private partnerships (PPPs), private investments, philanthropic funding, and private health insurance schemes to supplement public healthcare financing and improve service delivery. In Kenya, the health sector has undergone substantial reforms to achieve Universal Health Coverage, as outlined in the Kenya Health Policy 2014–2030 and the country's broader strategic priorities for the health sector. Despite these efforts, public healthcare facilities continue to face persistent challenges including inadequate budgetary allocations, shortages of medical equipment and essential medicines, aging infrastructure, overcrowding, and limited human resources for health (Ministry of Health [MoH], 2022).

These constraints are particularly evident in Level 4 public health facilities, which function as sub-county referral hospitals and provide a wide range of inpatient, outpatient, maternity, emergency, surgical, diagnostic, and specialized healthcare services. As demand for healthcare services continues to rise due to rapid urbanization and population growth in Nairobi County, existing public financing mechanisms have proven insufficient to meet the expanding healthcare needs.

Private sector financing has therefore emerged as an important complementary strategy for strengthening public healthcare systems. Through mechanisms such as public-private partnerships, infrastructure investments, equipment leasing, private insurance reimbursements, corporate social responsibility initiatives, donor-supported programmes, and digital health investments, private entities contribute financial resources, technical expertise, managerial capacity, and innovative technologies that improve healthcare delivery. Previous studies have demonstrated that effective integration of private financing can enhance operational efficiency, reduce patient waiting times, and increase patient satisfaction (Barasa et al., 2022; Basabih et al., 2022; WHO, 2023). Nevertheless, the success of these financing arrangements largely depends on supportive policy frameworks, effective governance, transparency, and accountability.

Although several studies have examined public-private partnerships and healthcare financing in the private sector in Kenya and other LMICs, research specifically on the role of private-sector financing in Level 4 public health facilities in Nairobi County remains limited. Existing literature has predominantly focused on national financing reforms, private healthcare

institutions, or large referral hospitals, with relatively little attention to county-level public hospitals, where most secondary healthcare services are delivered. Furthermore, there is limited evidence on how private-sector financing influences operational efficiency, healthcare quality, institutional integration, and long-term sustainability in devolved health systems.

This knowledge gap limits policymakers' and healthcare managers' ability to design evidence-based financing strategies that maximize the benefits of private-sector participation while safeguarding equity, accessibility, and the quality of healthcare services. Against this background, the present study examined the role of private sector financing in improving health service delivery at Level 4 public health facilities in Nairobi County. Specifically, the study assessed how private sector financing influences operational efficiency and healthcare quality. The study also evaluated institutional factors affecting its integration into public healthcare, and examined the sustainability of private financing mechanisms in strengthening healthcare service provision.

The findings provide empirical evidence that can inform national and county governments, healthcare managers, development partners, and private investors in developing sustainable financing models that support improved healthcare performance and accelerate progress towards Universal Health Coverage in Kenya. The study is significant because it contributes to the growing body of knowledge on healthcare financing in devolved health systems and provides practical evidence to strengthen collaboration between the public and private sectors.

The findings offer policy insights to improve governance frameworks, enhance accountability, promote sustainable public-private partnerships, and mobilize additional financial resources for healthcare. Ultimately, the study supports ongoing efforts to improve healthcare accessibility, efficiency, quality, and financial sustainability in Kenya's public health sector.

2. Materials and Methods

2.1 Study design

The study employed a mixed-methods research design using a convergent approach to examine the role of private sector financing in improving health service delivery at Level 4 public health facilities in Nairobi County, Kenya. The design combined quantitative and qualitative methods to provide a comprehensive understanding of the relationship between private sector financing and healthcare service provision. Quantitative data enabled an assessment of private-sector financing.

2.2 Study area

The study was conducted in Level 4 public health facilities located in Nairobi County, Kenya. Nairobi County is the country's capital and economic hub, with a rapidly growing urban population that places significant demand on public healthcare services. Level 4 hospitals serve as sub-county referral facilities offering comprehensive outpatient, inpatient, maternity, surgical, emergency, diagnostic, and specialized healthcare services. These facilities are strategically positioned within Kenya's devolved healthcare system and play a critical role in delivering secondary healthcare services while supporting the implementation of Universal Health Coverage initiatives.

2.3 Target population

The target population comprised hospital administrators, heads of clinical and non-clinical departments, finance and procurement officers, and members of the Sub-County Health Management Teams (SCHMTs) working within selected Level 4 public health facilities in Nairobi County. These respondents were considered appropriate because of their direct involvement in healthcare financing, policy implementation, hospital management, procurement, and decision-making on public-private partnerships and other private-sector financing mechanisms.

2.4 Sampling

A multistage sampling approach was adopted. Level 4 public health facilities were purposively selected for their implementation of private-sector financing initiatives and their strategic role in healthcare service delivery within Nairobi County. Respondents occupying key managerial and technical positions were selected through purposive sampling for their expertise in healthcare financing and hospital operations. Where larger respondent categories existed, proportionate simple random sampling was applied to minimize selection bias and ensure adequate representation of different professional groups. The sample size was determined using an appropriate statistical formula to ensure sufficient power for quantitative analysis.

2.5 Data collection

Primary data were collected using structured questionnaires administered to hospital management personnel and departmental heads. The questionnaires captured information on operational efficiency, healthcare quality, institutional factors affecting private-sector financing, and the sustainability of financing mechanisms. In addition, semi-structured interview guides were administered to selected key informants, including senior hospital administrators and members of the Sub-County Health Management Teams, to obtain in-depth perspectives on the implementation and effectiveness of private-sector financing.

Secondary data were obtained from hospital reports, policy documents, financial records, and relevant government publications to complement the primary data. Prior to the main study, the research instruments were pretested at a comparable public health facility to assess their clarity, validity, and reliability. Necessary revisions were made before full-scale data collection commenced.

2.6 Data analysis

Quantitative data were coded, cleaned, and analysed using the Statistical Package for the Social Sciences (SPSS) version 29. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize respondents' characteristics and study variables. Inferential statistical analyses, including correlation and multiple regression, were performed to assess the influence of private-sector financing on healthcare service delivery. Statistical significance was assessed at the 95% confidence level ($p < 0.05$).

Qualitative data obtained from key informant interviews were transcribed verbatim and analysed using thematic analysis. Emerging themes were identified, coded, and integrated with quantitative findings during interpretation to provide a comprehensive understanding of the study results.

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3. Results and Discussion

3.1 Respondent characteristics

A total of 355 questionnaires were distributed across the selected Level 4 public health facilities in Nairobi County, of which 304 were completed and returned, yielding a response rate of 85.6%. This high response rate indicates adequate representation of the study population and enhances the reliability of the findings. The respondents comprised hospital administrators, doctors, nurses, clinical officers, pharmacists, laboratory technologists, health records officers, patients, and a community health programme focal person. Healthcare providers constituted the majority of respondents, ensuring that the findings reflected the perspectives of professionals directly involved in healthcare financing and service delivery. Gender representation was balanced (51% male and 49% female), while most respondents (65%) were aged between 31 and 50 years, suggesting that the study captured views from experienced healthcare personnel actively engaged in managing public health services.

3.2 Effect of private financing on operational efficiency

The findings demonstrate that private-sector financing significantly enhances operational efficiency in Level 4 public health facilities. Respondents reported improvements in healthcare infrastructure, diagnostic equipment, electronic medical record systems, laboratory services, staff training, and hospital digitization, all of which contributed to reduced patient waiting times and improved service delivery. Regression analysis confirmed a statistically significant positive relationship between private sector financing and operational efficiency ($\beta = 0.356$, $p < 0.001$), while the overall regression model explained 37.4% of the variation in healthcare outcomes ($R^2 = 0.374$; $F = 35.42$, $p < 0.001$). Infrastructure improvements exhibited the strongest association with private financing ($\beta = 0.517$, $p < 0.001$), indicating that investments through public-private partnerships (PPPs), donor programmes, and private capital substantially strengthen hospital capacity and operational performance.

These findings suggest that private financing enables hospitals to address persistent resource constraints by expanding infrastructure, improving equipment availability, and increasing efficiency in service delivery. The qualitative findings reinforced this conclusion, with respondents indicating that private-sector support had become essential to maintaining hospital operations amid rising healthcare demand and limited public funding.

3.3 Effect on quality of healthcare

Private sector financing was also found to contribute positively to healthcare quality. Respondents reported improvements in diagnostic capacity, availability of specialized treatment services, medical equipment, and patient satisfaction. However, improvements in staffing levels and overall service efficiency were less consistent across facilities, indicating that financial investments alone cannot fully address systemic healthcare challenges. Regression analysis showed a significant positive relationship between private financing and patient satisfaction ($\beta = 0.291$, $p < 0.001$), suggesting that investments in infrastructure, equipment, and staff development positively influence patients' perceptions of healthcare quality.

Qualitative findings further demonstrated that private financing facilitated the acquisition of modern diagnostic technologies, the implementation of digital health systems, the renovation of healthcare facilities, and the expansion of specialized services. Respondents consistently acknowledged that these investments had improved both the quality and accessibility of healthcare services.

3.4 Institutional factors influencing integration of private sector financing

Despite the positive contribution of private financing, institutional and governance challenges were identified as significant barriers to its effective integration. Respondents cited bureaucratic delays, weak policy implementation, unclear PPP regulatory frameworks, procurement inefficiencies, inadequate stakeholder coordination, and political interference as major constraints on successful collaboration between public and private actors. These institutional weaknesses discourage long-term investment and reduce the effectiveness of financing partnerships.

The findings indicate that successful integration of private sector financing depends not only on the availability of financial resources but also on transparent governance structures, clear regulatory frameworks, accountability mechanisms, and effective coordination among stakeholders. Strengthening these institutional factors is therefore critical to maximizing the benefits of public-private collaboration within Kenya's devolved healthcare system.

3.5 Sustainability of Private Sector Financing

The study found that although private-sector financing contributes significantly to healthcare delivery, concerns remain about its long-term sustainability. More than half of respondents rated existing financing collaborations as only slightly sustainable, while relatively few considered them highly sustainable. In addition, most facilities lacked long-term contractual agreements with private partners, indicating continued dependence on donor-funded and project-based financing mechanisms.

Qualitative findings revealed that many financing arrangements remain fragmented, short-term, and inconsistently funded. Respondents emphasized that sustainability requires structured public-private partnerships supported by long-term contractual agreements, regulatory stability, financial accountability, and continuous stakeholder engagement. Without these measures, healthcare facilities remain vulnerable to funding interruptions when donor-supported programmes end.

3.6 Comparison with Previous Studies

The findings are consistent with previous studies demonstrating that private sector financing improves healthcare efficiency, infrastructure development, and service quality in low- and middle-income countries. Similar to the findings of Barasa et al. (2022) and Basabih et al. (2022), this study found that public-private partnerships facilitate acquisition of medical equipment, strengthen diagnostic capacity, and improve operational efficiency. Likewise, the positive association between private financing and healthcare infrastructure supports the findings of Bowie et al. (2023), who reported that mixed-financing models outperform systems that rely exclusively on public funding.

The institutional challenges identified in this study also corroborate the findings of Wafula et al. (2017), who observed that weak governance structures, regulatory uncertainty, and bureaucratic processes discourage sustained private investment in Kenya's public health sector. Similarly, concerns regarding sustainability mirror those reported by the World Bank and the World Health Organization, which emphasize that long-term success of healthcare financing partnerships depends on robust governance systems, accountability, and stable policy environments.

Overall, the findings demonstrate that private-sector financing is an important complementary mechanism for strengthening healthcare service delivery in Level 4 public health facilities. However, its effectiveness depends on sound institutional governance, supportive policy frameworks, transparent public-private partnerships, and sustainable financing arrangements that can support Kenya's Universal Health Coverage agenda.

4. Conclusion

This study examined the role of private sector financing in improving health service delivery at Level 4 public health facilities in Nairobi County, Kenya. The findings demonstrate that private sector financing plays a significant complementary role in strengthening public healthcare by enhancing operational efficiency, improving the quality of healthcare services, and supporting investments in healthcare infrastructure, medical equipment, digital health technologies, and human resource capacity. The study found that facilities benefiting from private-sector financing reported better service delivery outcomes, including improved patient satisfaction, increased access to diagnostic services, and greater operational effectiveness.

This study further contends that the successful integration of private sector financing is influenced by institutional factors such as governance, policy implementation, regulatory frameworks, accountability mechanisms, and stakeholder collaboration. While private financing provides an important source of additional resources, its effectiveness depends on transparent management structures and coordinated partnerships between the public and private sectors. Weak governance and bureaucratic inefficiencies continue to limit the full realization of the benefits of private-sector participation.

Finally, although private sector financing contributes significantly to healthcare delivery, its long-term sustainability remains uncertain due to reliance on donor-supported and short-term project financing. Sustainable financing models require long-term public-private partnerships supported by enabling policies, strong institutional governance, and continuous monitoring to ensure that investments contribute to resilient and equitable healthcare systems. Overall, private-sector financing should be viewed as a strategic complement rather than a substitute for government healthcare financing to advance Universal Health Coverage in Kenya.

5. Recommendations

5.1 Operational Efficiency

The Ministry of Health, Nairobi County Government, and the management of Level 4 public health facilities should strengthen public-private partnerships (PPPs) as a strategic mechanism for mobilizing additional financial resources to improve healthcare infrastructure and service delivery. Investment priorities should include the construction and modernization of health facilities, the acquisition of advanced diagnostic and treatment equipment, the expansion of

digital health technologies, and the improvement of supply chain systems. Such investments would enhance operational capacity, reduce service interruptions, improve resource utilization, and enable healthcare facilities to respond more effectively to the growing demand for quality healthcare services.

In addition, healthcare facilities should prioritize continuous capacity building for healthcare workers through regular training, mentorship programmes, and professional development initiatives supported by private sector partners. Investments in electronic medical records, integrated health information systems, inventory management technologies, and performance monitoring frameworks should also be expanded to improve efficiency in service delivery. These interventions will strengthen hospital management, reduce operational bottlenecks, improve coordination of healthcare services, and ultimately contribute to better patient outcomes and more efficient use of available resources.

5.2 Quality of Healthcare Services

Hospital managers, policymakers, and private sector partners should promote investments that directly improve the quality, accessibility, and safety of healthcare services. Priority should be given to expanding specialized clinical services, upgrading diagnostic and treatment technologies, strengthening laboratory services, and improving the availability of essential medicines and medical supplies. Greater investment in quality assurance programmes and accreditation initiatives will help ensure that healthcare services consistently meet national and international quality standards while improving patient confidence in public health facilities.

Furthermore, stronger collaboration between public healthcare facilities, private healthcare providers, development partners, and health insurance organizations should be encouraged to enhance patient-centred care. Such collaboration should focus on reducing patient waiting times, improving referral systems, supporting innovation in healthcare delivery, and strengthening continuous quality improvement programmes. Healthcare providers should also establish regular patient satisfaction assessments and quality performance evaluations to identify service gaps and implement evidence-based interventions that enhance the overall patient experience.

5.3 Institutional Factors Affecting Private Sector Financing

The national and county governments should strengthen the policy, legal, and regulatory frameworks governing private sector participation in public healthcare to create an enabling environment for sustainable investment. Clear operational guidelines for public-private partnerships, transparent procurement procedures, efficient contract management systems, and effective accountability mechanisms should be institutionalized to improve governance and enhance investor confidence. Regulatory reforms should also simplify administrative processes while ensuring that private sector engagement aligns with national healthcare priorities and promotes equitable access to healthcare services.

Healthcare managers should receive continuous training in financial management, contract negotiation, partnership governance, risk management, and monitoring of public-private partnership projects. Regular stakeholder engagement involving government agencies, private investors, healthcare providers, civil society organizations, and development partners should be institutionalized to strengthen collaboration, improve transparency, and facilitate joint

decision-making. Strengthening institutional capacity will enable healthcare facilities to effectively implement and manage private financing initiatives while ensuring accountability and long-term success.

5.4 Sustainability of Private Sector Financing

To promote long-term sustainability, policymakers should establish financing models that encourage long-term contractual partnerships rather than relying primarily on short-term donor-funded projects. The government should develop policies that incentivize private investment through blended financing mechanisms, tax incentives, health infrastructure bonds, corporate social responsibility initiatives, and expanded health insurance reimbursement systems. Diversifying financing sources will reduce dependence on unpredictable external funding, enhance the financial resilience of public healthcare facilities, and support the achievement of Universal Health Coverage.

Equally important, comprehensive monitoring and evaluation frameworks should be established to assess the effectiveness, efficiency, accountability, and long-term impact of private sector financing initiatives. Regular performance reviews, financial audits, and outcome evaluations should be integrated into all public-private partnership arrangements to ensure transparency and continuous improvement. Evidence generated by these monitoring systems should inform future policy decisions, strengthen accountability among stakeholders, and support the development of sustainable financing strategies to improve healthcare service delivery in Kenya over the long term.

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