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Effect of the Management Devolution Process on the Technical Efficiency of Public Health Facilities in Nakuru and Baringo Counties of Kenya

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Abstract

This study investigated the effect of the management devolution process on the technical efficiency of public health facilities in Nakuru and Baringo Counties, Kenya. Despite increased government expenditure, the public health sector continues to experience inefficiencies. Guided by Principal-Agent Theory, the study conceptualised national and county governments as principals and health personnel as agents responsible for implementing policies, managing resources, and delivering healthcare services. Management devolution was measured using performance contracting, Health Management Boards (HMBs), and Health Management Teams (HMTs). A quantitative descriptive research design was employed, targeting 3,199 employees from 401 Level 4–5 public health facilities in the two counties. Using Slovin's formula, a proportionate sample of 355 employees was selected. Primary data were collected using structured questionnaires and analysed using SPSS version 27. Technical efficiency was assessed using descriptive statistics, including frequencies, means, and standard deviations. The findings revealed a moderate positive and statistically significant relationship between management devolution process and technical efficiency ($\beta = 0.256$, $t = 5.220$, $p < 0.001$). The findings suggest that strengthening management devolution process through enhanced decision-making authority, planning, supervision, and performance management can improve technical efficiency in public health facilities. The study recommends that county health authorities strengthen Human Resource for Health management through adequate funding, strategic recruitment, and equitable staff deployment to address workforce gaps and enhance service efficiency.

Key words: Cobb-Douglas production function, health devolution process, management devolution, performance contracting, technical efficiency.



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INTRODUCTION

Health sector reforms initiated in developing countries in the 1980s and 1990s are one component of devolution. Proponents of devolution contend that it is a necessary process for improving health systems through improvements in allocative efficiency, cost efficiency, technical efficiency, economic growth, improved welfare and equity, increased citizen participation through matching of preferences, good governance, and accountability (Zhou, 2025; Oliveira et al., 2024; Ferrario et al., 2023). Global, regional, and local experiences with the devolution process offer mixed results. For example, empirical evidence shows that despite increased health expenditure, many health systems in Latin America are characterised by gross inequalities, stagnant public health expenditure as a share of Gross Domestic Product (GDP), and high out-of-pocket (OOP) expenditures. Furthermore, access to and utilisation of health care services have also been reduced. There has been a noticeable deterioration in public health facilities simultaneously with perilous working conditions of health personnel.

In the Philippines, devolution exacerbated inequities, weakened local commitment to priority health issues, and decreased the efficiency and effectiveness of service delivery (Charles et al., 2025). On the other hand, in Africa, devolution is perceived to be neither good nor bad. In most countries of sub-Saharan Africa (SSA), health care needs have increased due to evolving and re-emerging health challenges (Kaba et al., 2025). Institutional weaknesses and fiscal constraints inhibit the success of decentralisation in Africa (Sima et al., 2023). In Kenya, the provision of healthcare is among the critical strategic development goals set to be attained by the year 2030 (Marion, 2025; Macharia & Okiro, 2022). The Government of Kenya allocates financial resources in line with the World Health Organisation-recommended thresholds to enhance the provision of quality healthcare and ensure equitable access for all citizens (Adjagba et al., 2025; Kabia et al., 2022).

Additionally, the government has adopted and implemented a wide range of global and regional health policy frameworks. These include the Alma-Ata Declaration (WHO, 1978), the Global Strategy for Health for All by the Year 2000 (WHO, 1981), the United Nations Millennium Declaration (UN, 2000), and the Bamako Initiative (UNICEF, 1987). The national health policy initiatives of the Government of Kenya include the Kenya Health Policy 2014-2030 (MOH, 2014), Kenya

National e-Health Policy 2016-2030 (2016), Kenya Primary Healthcare Strategic Framework 2019 - 2024, Kenya Universal Health Coverage Policy 2020-2030 (MOH, 2020), Kenya Health Financing Strategy 2020-2030 (2020), Kenya, Community Health Policy 2020-2030 (2020), Social Health Insurance Act 2023 (GOK, 2023), and Facility Improvement Financing Act 2023 (GOK, 2023).

According to the Economic Survey (KNBS, 2025: 404-414), Kenya's health expenditure has increased over time. For example, this expenditure increased from Kshs. 90.8 billion in 2020 to approximately Kshs 122 billion in the 2024/25 period. The ratio of national government expenditure on health to total national government expenditure declined from 3.9 per cent in the 2020/21 period to 3.1 per cent in the period. Thereafter, this ratio steadily increased to 3.3 per cent and 3.5 per cent in the 2022/23 and 2024/25 periods, respectively. The County Governments' share of health expenditure to total County Government expenditure declined steadily from 26.2 per cent to 22.4 per cent within the period 2020/21 to 2024/25. In the period 2024/25, Kenya's national Government expenditure on health services is expected to grow by 13.4 per cent to KShs 122.0 billion. On the other hand, Kenya's county governments increased from Kshs. 108.8 billion in 2021/22 to Kshs. 123.7 billion in the period 2024/25. The high expenditure in the 2020/21 period was attributed mainly to the purchase of vaccines and personal protective equipment (PPEs) for combating the COVID-19 pandemic (Kairu et al, 2023).

Although the Kenyan government's health expenditure has increased in absolute terms, it is less than 7 per cent of Gross Domestic Product (Misango et al., 2022). The doctor-to-patient ratio in Kenya is 1: 6,069, which is significantly lower than the World Health Organization (WHO) recommendation of 1 doctor per 1,000 people (Nyakiongora, 2024; Ndingi, 2024). The disproportionate doctor-to-patient ratio and the relatively low health expenditure as a percentage of GDP inhibit the provision of adequate healthcare services in Kenya. Proponents of health devolution argue that it would bring decision-making closer to the citizens and allow for more tailored interventions based on local needs (Mwangi & Abuga, 2024; Abdi, 2024; Mogendi et al., 2023).

Empirical evidence shows that devolution can address the challenges of bureaucratic inefficiencies, poor accountability and transparency, unequal distribution of

resources, low citizen engagement, increased poverty, and marginalisation (Charles et al., 2025; Chinembiri, 2024; Oliveira et al., 2024). Furthermore, devolution is associated with increased citizen participation (Havasi, 2025; Ngetich & Choge, 2024; Chisika & Yeom, 2024; Barngetuny, 2024; Anami, 2023), enhanced accountability (Mckay & Moore, 2023), efficient resource allocation (Ain et al., Gammage et al., 2025), and improved service delivery (Otieno et al., 2023; Joseph et al., 2022).

However, evidence indicates that there is thin and mixed evidence of better service delivery attributed to devolution in Sub-Saharan Africa (Asuma & Murongo, 2024; Muwonge et al., 2022). Although health devolution was anticipated to yield numerous advantages as highlighted above, empirical evidence indicates that public health devolution process is inhibited by, among others, capacity gaps, human resource deficiency, lack of critical legal and institutional infrastructure, rampant corruption and a conflictual relationship with the national government, insufficient financial allocations, delayed disbursements of funds to Counties by the National Treasury, and corruption (Gikuni, 2023; Barasa et al., 2022; Ochieng'-Springer, 2022).

While the decentralisation of responsibilities has become a key priority for both national governments and international organisations, empirical research on the potential advantages of devolution remains limited (Bahasoan et al., 2025). Empirical evidence indicates that the effect of the devolution process on service delivery is weak, incomplete and often contradictory (Charles et al., 2025).

Empirical evidence shows that although increased government expenditure was expected to improve efficiency and health outcomes in the pre-devolution era, Kenya's public health sector is inefficient (Nyawira et al., 2023; Ntayia, 2023). However, there is a dearth of information on the technical efficiency of Kenya's public health facilities in the post-health devolution era. As a result of the financial constraints facing Kenya and many other developing countries, there is a need to manage financial resources prudently. The assessment of technical efficiency of public health facilities is one critical step in ensuring quality improvement through reduced inefficiency. It is envisioned that the findings of this study will add to the existing pool of knowledge and contribute to academic research. Best-practice providers identified by this study will be the benchmarks for

improved efficiency, effectiveness and quality of health service delivery in Kenya. The objective of this study was to assess the effect of the management devolution process on the technical efficiency of public health facilities in Nakuru and Baringo Counties of Kenya. The significance of this study is that it provides empirical evidence on how health management devolution process influences the technical efficiency of public health facilities in Nakuru and Baringo Counties, Kenya. By examining key management functions (e.g. planning, supervision, decision-making authority, and performance contracting), the study addresses a knowledge gap on the specific managerial mechanisms through which devolution affects health service efficiency. It is anticipated that the study findings will be valuable to the Ministry of Health and county governments in the execution of management policies that strengthen efficiency in public health facilities. The results can inform interventions that aim at improving managerial autonomy, accountability, human and financial resource utilisation, and service delivery while simultaneously supporting the realisation of Kenya's national health policy objectives. In the field of academics, the study contributes to the literature on health systems governance, decentralisation, and technical efficiency by providing evidence from county public health facilities in Kenya.

LITERATURE REVIEW

Recent empirical literature on the effect of the management devolution process on technical efficiency in Kenya's public health sector shows that the devolved management process has significantly altered decision-making structures, resource allocation, and accountability mechanisms in public health facilities across the counties in Kenya. Kairu et al. (2021) carried out a cross-sectional study in five purposively selected counties in Kenya, using a mixed-methods approach. The study demonstrated that health financing arrangements are a critical determinant of efficiency in Kenya's devolved health system. Furthermore, the study highlighted that fragmented budgeting processes, unpredictable funding flows, limited hospital autonomy, dependence on user fees and donor funding, and salary-dominated expenditure patterns undermine efficient service delivery. The study's mixed-methods design, comparative county analysis, and policy relevance constitute significant strengths. However, limitations related to purposive sampling, cross-sectional design, reliance on perceptions, and the absence of direct efficiency measurement highlight the need for more rigorous longitudinal and

quantitative research. The findings underscore a central governance paradox: devolution was intended to enhance local autonomy and efficiency, yet in many cases it has strengthened centralised county control over health facility finances, with important implications for efficiency, equity, and UHC attainment in Kenya. Musiega et al. (2022) examined how public financial management and budget execution processes affect county health-system efficiency in Kenya. Although this study demonstrated that governance arrangements matter for efficiency, it did not identify which managerial functions drive efficiency improvements.

Muwonge et al. (2022) examined the extent to which devolution had influenced the provision of basic services to citizens in Kenya. Although devolution was primarily introduced as a political reform, the institutions and systems established under the devolved framework were intended to promote greater socioeconomic equity through improved service delivery. The study found that the effects of devolution on service delivery were mixed, although there were indications of progress. On the positive side, devolution facilitated the creation of institutions and systems necessary for delivering devolved services and established a foundation for improving equity across Kenya. Nevertheless, challenges remain, particularly regarding uncertainties surrounding financing and the allocation of service delivery responsibilities.

The study by Nyawira et al. (2022) provides valuable evidence that human resource for health (HRH) management is a critical determinant of health system efficiency in Kenya's devolved context. The study demonstrates that staffing shortages, inequitable workforce distribution, weak motivation systems, and political interference undermine efficiency, while local autonomy offers opportunities for improved responsiveness. Despite its strong mixed-methods design and policy relevance, limitations relating to generalizability, subjective data, and limited quantitative efficiency measurement suggest the need for broader and more rigorous future research. Barasa et al. (2022) made a significant contribution by demonstrating that public health facility autonomy in devolved systems in Kenya is influenced by a complex interplay of legal, administrative, procedural, and political factors. The study challenges the assumption that decentralisation automatically enhances autonomy and shows that devolution in Kenya has often resulted in recentralised control of resources. While the study's complexity

perspective, longitudinal evidence base, and policy relevance are notable strengths, limitations related to reliance on secondary evidence, limited quantitative analysis, and restricted generalizability suggest the need for further empirical and comparative research.

Mbau et al. (2022) provide important evidence that despite the promise of devolution, substantial inequalities in the distribution of healthcare workers persist across Kenyan counties. The study demonstrates that workforce maldistribution undermines both efficiency and equity in healthcare delivery and highlights the need for stronger workforce planning and coordination mechanisms. Its use of national-level quantitative data and equity-focused analysis are notable strengths, although limitations related to cross-sectional design, reliance on secondary data, and limited contextual analysis leave important questions unanswered. The study underscores the continuing tension between local autonomy and national coordination in achieving an efficient and equitable health workforce system.

Achoki et al. (2025) analysed technical and scale efficiency across Kenya's 47 county health systems, while Musiega et al. (2022) investigated the influence of budget execution processes on county health-system efficiency. Similarly, studies on health facility autonomy reforms assessed the implementation experiences of devolved health governance structures. However, these studies largely conceptualised devolution as a macro-level governance reform and did not isolate management devolution processes (e.g. planning, supervision, performance contracting) as distinct determinants of technical efficiency. Consequently, the specific contribution of devolved managerial functions to efficiency outcomes in public health facilities remains inadequately understood. This knowledge gap necessitates empirical investigation into how management devolution processes influence the technical efficiency of public health facilities in Kenya. Musiega et al. (2026) examined the implementation process and experience of health facility autonomy reforms in Kenya: how post-devolution reforms increased decision-making powers at frontline facilities. However, the primary focus was implementation experiences, perceptions of autonomy, and reform processes rather than measuring the effects of distinct management devolution components on technical efficiency outcomes.

The reviewed studies collectively demonstrate that human resources, health financing, and governance

challenges influence the efficiency of Kenya's devolved health system. However, several contradictions and research gaps emerge. Most of the cited studies conclude that efficiency in Kenya's devolved health sector is compromised by shortcomings in health system governance. Whereas Kairu et al. (2021) aver that devolution has led to improvements in opportunities for local priority setting through decentralised financing, suggesting positive governance outcomes, Nyawira et al. (2022) and Munywoki et al. (2023) observe that the attainment of efficiency through health devolution has been limited by managerial shortcomings, corruption, human resource constraints, and political influence. Furthermore, although the study by Barasa et al. (2021) highlights that health financing has increased exponentially, it is noted that inefficiency results from fragmented funding, inequitable allocation, and weak public financial management. From the cited literature, there are some unresolved debates. There still remain contentious matters such as resource management versus resource availability. For example, while Barasa et al. (2022) highlight financial constraints, Mbau et al. (2022) and Nyawira et al. (2022) opine that managerial weaknesses account for the existing inefficiencies.

Most studies evaluate devolution as a broad governance reform rather than examining specific management processes within devolved health systems. As a result, discussion revolves around whether structural decentralisation on its own augments technical efficiency or whether definite managerial practices have a bearing on the successful implementation of devolved management processes in Kenya's public health sector. The other debatable issue revolves around whether governance or technical factors affect efficiency. For example, while Munywoki et al. (2023) attribute public health sector inefficiencies to governance failures (e.g. corruption), Mbau et al. (2022) and Nyawira et al. (2022) underline technical workforce management issues. It can be concluded that empirical studies on public health sector devolution have limited focus on management devolution processes and limited empirical-based assessment of technical efficiency at the public health facility level. Overall, empirical literature on public health devolution illustrates that financing, human resource management, and governance affect the efficiency of devolved public health. However, the empirical studies leave unresolved the magnitude to which the public health management devolution process influences technical efficiency. Therefore, this study responds to these gaps by providing a facility-level,

comparative, and quantitatively grounded analysis of the relationship between the management devolution process and technical efficiency of public health facilities in Nakuru and Baringo Counties of Kenya.

Theoretical Framework

This study was anchored on Agency Theory, which is attributed to Ross (1973), Jensen and Meckling (1976), Bossert (1998), and Brinkerhoff and Bossert (2013). Agency Theory identifies the relationship where one party (i.e. the principal) delegates work to another (i.e. the agent). Managers in a firm, institution or organisation are agents of shareholders who assume that the principle guiding them is geared towards the maximisation of shareholders' wealth. However, a problem arises when managers abandon the concerns of their principals and put their self-interests on the priority line (Muldoon et al., 2024; Thompson, 2023; Yilmaz, 2022). Agency Theory is associated with the challenges of information asymmetry, moral hazard, and monitoring costs. Information asymmetry occurs when agents possess more information about their activities and performance than principals. This information imbalance may inhibit the capacity of county governments to accurately assess the efficiency of public facilities and make informed decisions. Moral hazard arises when agents pursue personal interests rather than organisational objectives because their actions are difficult or costly to observe. For example, in devolved public health facilities, managers with decision-making authority vis-à-vis budgeting, procurement, staff deployment, and service delivery may misuse resources, engage in absenteeism, or prioritise personal interests if accountability mechanisms are weak. Such behaviour can lead to wastage of scarce health resources and reduced efficiency. Finally, monitoring costs relate to the resources that principals expend to oversee agents and ensure compliance with organisational objectives. In Kenya's devolved health system, county governments incur costs associated with supervision visits, audits, performance evaluations, health information systems, and monitoring of facility operations.

There are several perspectives for examining Agency Theory in relation to Kenya's devolved health sector. For example, the national government may be considered as the Principal while county governments are agents. At the local level, the county governments can be viewed as the Principal while the health workers are the agents since they are hired, managed, and paid by the county governments. Furthermore, citizens can be considered as

Principals while elected leaders at the county level are the agents. Further still, the patients can be perceived as the principal who appoints the health provider as an agent to provide health services.

Several studies have examined Agency Theory vis-à-vis health devolution process in Kenya. Kinyeki (2022) investigated the effect of corporate governance on health care service delivery in Kenya. The study showed that board size, accountability structures, and allocation of resources affect health care service delivery. Ngari & Ngari (2024) examined the effects of the implementation of corporate governance reforms on the delivery of health care services at Embu Level Five Hospital in Kenya. The findings revealed that the adoption of corporate governance practices had contributed to improvements in healthcare service delivery to patients. However, the study also identified concerns about the independence of the board of directors and conflicts of interest among managers responsible for hospital administration. Agency Theory was therefore relevant to the study objective of assessing the effect of the management devolution process on the technical efficiency of public health facilities in Nakuru and Baringo Counties, Kenya.

METHODOLOGY

This study adopted the Positivist research philosophy, which is objective and uses a systematic, scientific approach to research. According to Comte (1896), positivists perceive a world that is based on unchanging universal laws. Ali (2024) notes that the positivist paradigm is not only associated with scientific discovery but also involves the application of scientific methodology. This includes observation, data collection, developing a theory, forming hypotheses to test the theory, conducting research to test the hypotheses and supporting or adjusting the theory. Furthermore, the study adopted a quantitative descriptive research design. The descriptive cross-sectional design was considered appropriate because the study sought to determine whether the management devolution process statistically explains variations in technical efficiency across public health facilities in Nakuru and Baringo counties. The use of regression analysis enabled the testing of theoretically derived hypotheses and the estimation of the magnitude and direction of the relationship. In this study, the independent variable is the devolution process, while the dependent variable is technical efficiency. The target population was 3199 employees in 401 level 4-5 public health facilities (PHFs) within Nakuru and Baringo

Counties. To determine sample size, this study used Yamane's formula (1967), which is indicated in Equation

$$n = \frac{N}{1 + N(e)^2} \quad (\text{Equation 1})$$

Where n = Sample size, N = Total population, e = error tolerance (i.e. 0.05 for a confidence level of 95%).

Using Yamane's formula, the sample size for both Nakuru and Baringo counties was 355, which was derived as follows:

$$n = \frac{3199}{1 + N(e)^2} = 355 \quad (\text{Equation 2})$$

According to Krejcie and Morgan (1970), when the target population is 3199, the sample size should be 344. The sample size obtained by Yamane's formula is not significantly different from that obtained by Krejcie and Morgan (1970).

The study used both primary and secondary data. Secondary data were obtained through desk review. The study collected primary data through structured questionnaires from 355 employees in Level 4–5 public health facilities located in Nakuru and Baringo Counties, Kenya. The respondents comprised 227 employees from Nakuru County and 128 from Baringo County.

In this study, technical efficiency was assessed using exploratory analysis, which included descriptive statistics, frequencies, means, and standard deviations. To assess the effect of the management devolution process on the technical efficiency of public health facilities in Kenya, this study considered four variables, namely performance contracting (PC), health management board (HMB) and health management team (HMT). Thus:

$$\begin{aligned} TE &= f(PC, HMB, HMT) \\ TE &= \alpha_0 + \alpha_1 PC + \alpha_2 HMB + \alpha_3 HMT + \mu_1 \end{aligned} \quad (\text{Equation 3})$$

Where: TE = Technical efficiency, and are independent variables, while is the residual error.

The main ethical considerations of this study included obtaining a clearance letter from the Research and Publication Unit of the Open University of Tanzania and

an authorisation letter from the National Commission for Science, Technology and Innovation (NACOSTI) to collect data, informed consent, beneficence, fairness, veracity, and respect for anonymity and confidentiality.

FINDINGS AND DISCUSSION

In this section, the findings on the effect of the management devolution process, particularly the roles of performance contracting, the Health Management Board (HMB), and the Health Management Team (HMT) on the technical efficiency of public health facilities in Kenya are presented. The results are analysed using descriptive and regression statistics and discussed in

relation to existing empirical and theoretical literature on health sector management devolution process and efficiency.

Table 1 shows the effect of performance contracting on the technical efficiency of public health facilities of Nakuru and Baringo Counties in Kenya. On the other hand, Table 2 shows the effect of the Health Management Board and Health Management Team on the technical efficiency of public health facilities of Nakuru and Baringo Counties in Kenya.

Table 1: Effect of Performance Contracting on Technical Efficiency

	SD	D	NS	A	SA	CHISQ	P>CHISQ
Service delivery charter has been implemented	4	13	13	60	10	308.1	<.0001
Service delivery innovations have been realized	5.03	12.42	16.78	58.72	7.05	291.93	<.0001
There is resolution of public complaints	6.06	16.84	26.6	44.11	6.4	150.59.	<.0001
Governance has improved	5.33	16.67	16.67	56.33	5	267.37	<.0001
Productivity has increased	4.67	15.33	25	47.67	7.33	181.17	<.0001
Improved allocation of resources has positive effect on technical efficiency	6.71	8.05	18.79	55.7	10.74	250.53	<.0001
Increased revenue has positive effect on technical efficiency	5.33	11.33	21.00	52.67	9.67	219.17	<.0001
Setting of realistic targets has positive effect on technical efficiency	4.68	7.02	21.74	54.52	12.04	248.27	<.0001
Transparency in reward system has positive effect on technical efficiency	4.7	16.11	22.82	43.62	12.75	129.32	<.0001
Increased training needs have positive effect on technical efficiency	5	15.33	1300	52.67	14	209.83	<.0001
Involvement of all staff in performance contracting has positive effect on technical efficiency	5	13.67	19.67	47.33	14.33	156.67	<.0001
Adequate monitoring & evaluation of the performance contract has positive effect on technical efficiency	3.69	11.41	16.78	54.03	14.09	229.89	<.0001
Improved operational efficiency has positive effect on technical efficiency	3	10.33	21.67	53.00	12.00	230.73	<.0001
Improved financial performance has positive effects on technical efficiency	4.38	10.44	23.57	47.81	13.80	172.28	<.0001

Source: Research Data, 2026

Table 2: Effect of Health Management Board and Health Management Team on Technical Efficiency

	SD	D	NS	A	SA	CHISQ	P>CHISQ
HRH management has positive effects on technical efficiency	6.48	12.97	27.3	46.42	6.83	169.47	<.0001
Employment of staff has positive effects on technical efficiency	5.44	8.84	13.61	61.9	10.2	327.7	<.0001
Deployment of staff has positive effects on technical efficiency	4.79	12.33	19.86	50.68	12.33	188.41	<.0001
The power to fire employees has positive effects on technical efficiency	11.95	30.03	31.4	22.18	4.44	79.47	<.0001
Payment of salaries has positive effects on technical efficiency	3.39	12.88	16.95	52.54	14.24	210.64	<.0001
Meetings convened with stakeholders have positive effects on technical efficiency	4.39	7.77	21.28	56.42	10.14	269.14	<.0001
Existence of organizational structure that clearly spells out roles has positive effects on technical efficiency	3.02	9.06	20.13	54.7	13.09	247.3	<.0001
Clear terms of reference have positive effects on technical efficiency	3.03	8.42	27.61	47.14	13.8	186.35	<.0001

Source: Research Data, 2026

Table 1 shows that both the Health Management Board and Health Management Team have a statistically significant effect on technical efficiency across all indicators (all p-values < 0.0001). Overall, a great majority of respondents agreed that factors (e.g. staff employment, deployment, salary payment, stakeholder engagement, organisational structure, and clear terms of reference) positively influence technical efficiency. Notably, the highest levels of agreement were vis-à-vis employment, payment of salaries, stakeholder meetings, and organisational structure. This indicates the critical role that these factors play in enhancing efficiency. However, regarding the power to fire employees, there was substantial disagreement and neutrality. This indicates that it is a less influential or more controversial factor in improving technical efficiency.

REGRESSION ANALYSIS

Model Specification

To assess the effect of management devolution process on the technical efficiency of public health facilities in Nakuru and Baringo Counties of Kenya, the variables in the model include performance contracting (PC), Health Management Board (HMB), and Health Management Team (HMT).

$$TE = f(PC, HMB, HMT)$$

$$TE = \alpha_0 + \alpha_1 PC + \alpha_2 HMB + \alpha_3 HMT + \mu_i$$

(Equation 4)

Where:

TE = Technical efficiency; PC, HMB, and HMT are independent variables, while is the residual error.

Table 3: Value of R-Square

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.415 ^a	.172	.166	6.71473	.172	27.253	1	131	.000

a. Predictors: (Constant), management

Source: Research Data, 2026

Table 4: ANOVA

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1228.768	1	1228.768	27.253	.000 ^b
	Residual	5906.481	131	45.088		
	Total	7135.248	132			
a. Dependent Variable: technical efficiency						
b. Predictors: (Constant), management						

Source: Research Data, 2026

From Table 4 on ANOVA, it can be observed that (F (1,131) = 90.508, p-value = 0.000) is less than the 0.05 significance level. This implies that there is a significant relationship between the management devolution process

and technical efficiency. The results indicate that the management devolution process has a significant effect on the technical efficiency of public health facilities in Kenya.

Table 5 Coefficients of Regression Analysis

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	17.095	3.953		4.325	.000
	Management	.256	.049	.415	5.220	.000
a. Dependent Variable: technical efficiency						

Source: Research Data, 2026

Table 5 presents the regression analysis coefficients. The constant (B= 17.095) indicates that when management is zero, the predicted level of technical efficiency is 17.095. The key predictor, the management devolution process, has an unstandardized coefficient (B = 0.256), which implies that a one-unit increase in management is associated with a 0.256-unit increase in technical efficiency, assuming all other factors remain constant. This demonstrates a positive relationship between the management devolution process and technical efficiency. The t-value (5.220) is relatively high, with the corresponding p-value (0.000, $p < 0.001$). This indicates that management's effect on technical efficiency is highly statistically significant.

The results demonstrate that management devolution is positively and significantly associated with technical efficiency. Thus, improvements in management practices are associated with improved technical efficiency in health facilities. The coefficient of the management devolution process is 0.256 with a (t-value= 5.220, p-value= 0.000 < 0.05 significant level). This means that there is a positive effect of the management devolution process on technical efficiency. Therefore, an increase of 1 unit of the management devolution process leads to an increase of 0.256 in technical efficiency.

DISCUSSION

Human resources for health (HRH) constitute a fundamental component of the healthcare system (Cheng et al., 2022). Effective management of health workers is essential for strengthening healthcare systems and advancing the Sustainable Development Goals (SDGs) by facilitating universal access to competent, skilled, and motivated personnel. The quality of HRH is also a major determinant of healthcare service performance, particularly in developing countries, where persistent challenges include staff shortages, uneven distribution of personnel, inadequate competencies, and limited organisational support (Safitri & Claudia, 2025). Existing evidence further indicates that effective HRH management, appropriate organisational structures, clearly defined terms of reference, and proper staff deployment contribute positively to technical efficiency.

Human resources for health (HRH) account for a significant proportion of healthcare expenditure and play a central role in determining the efficiency and overall performance of health systems. In Kenya, a major challenge within the health sector is ensuring that all citizens, particularly vulnerable populations, have access to adequately trained and professional health workers (Malle, 2024). Following the adoption of devolved

governance, the responsibility for managing HRH was transferred to county governments. Against this background, the study sought to assess the effect of HRH management on the efficiency of county health systems in Kenya. A strong and well-managed health workforce is essential to healthcare systems, and investment in qualified, skilled, and motivated health workers can contribute to achieving the Sustainable Development Goals (SDGs) by promoting universal access to healthcare (van de Pas et al., 2023).

In Kenya, several studies have been conducted on the effect of Human Resources for Health (HRH) management (i.e., organisational structure, clear terms of reference, and deployment of staff) on technical efficiency. For instance, Onyango (2022), in assessing human relations factors influencing the performance of health workers, found that human relations significantly influenced the performance of health workers in public and private health facilities in Kisumu County, Kenya. Similarly, Hussein (2022) examined strategies affecting health worker performance in public health facilities in Wajir County and established that quality improvement guidelines, standards-based performance, recognition mechanisms, and professional regulations were positively associated with health worker performance.

Nyaboga and Muathe (2024) examined the effect of operational strategies on the performance of public hospitals in Kajiado County of Kenya. This study established that information management strategy, continuous quality improvement strategy, innovation strategy, and resource management strategy have a statistically significant effect on the performance of hospitals. Malle (2024) assessed the relationship between talent management practices and the performance of national referral hospitals in Kenya. The study findings indicated that talent planning, talent attraction, talent retention, and talent development have a positive and significant effect on the performance of national referral hospitals in Kenya. An evaluation of the influence of short-term employment contracts on the performance of health care workers at Nakuru County Level 4 and 5 Public Hospitals shows that benefits award, supervision, and employment relations have a positive influence on performance (Thirikwa, 2024).

This study highlighted challenges such as inadequate funding, staff shortages, poor distribution of health workers, and weak incentive structures. This is in line with available empirical evidence, which posits that

despite the positive effect of HRM for health on technical efficiency, the attainment of high levels of technical efficiency is inhibited by inadequate funding, shortage of health workers, inappropriate task shifting, and weak incentive structures (Kimani & Wambua, 2024; Nyawira et al., 2022). These challenges reduce worker motivation and compromise the quality and efficiency of healthcare delivery.

To determine the effect of performance contracting on technical efficiency, respondents were asked for their opinions about several aspects of performance contracting. These included service delivery charter and innovations, governance, resolution of conflicts, productivity, resource allocation and revenue, setting of realistic targets, transparency in the reward system, involvement of staff in performance contracting, adequate monitoring and evaluation, operational efficiency, and financial performance. Most respondents indicated that the aforementioned factors positively influenced the technical efficiency of public health facilities in Nakuru and Baringo Counties, Kenya. The majority of respondents agreed that performance contracting has led to improvements in service delivery, innovation, governance, productivity, resource allocation, and financial performance. This indicates a strong positive influence on efficiency. High levels of agreement were particularly observed in the implementation of service charters, innovation, governance, monitoring and evaluation, and the setting of realistic targets. This indicates that these are key drivers of improved efficiency. However, there are realistic levels of impartiality and disagreement in areas such as complaint resolution and transparency in reward systems. It can be concluded that whilst performance contracting is effective, there are some features of implementation that need to be strengthened.

In Kenya, studies conducted on the effect of performance contracting on technical efficiency have yielded mixed results. For example, the evaluation by Nyongesa and van der Westhuizen (2023) on the effect of performance contracting on public service delivery of employees in Huduma Centres in Western Kenya revealed that performance contracting increased service delivery. Mohamud (2023) investigated monitoring and evaluation practice and performance of health projects in Isiolo County of Kenya. Findings showed that monitoring and evaluation, stakeholder engagement, and staff training all had a moderately significant correlation with health project performance.

Conversely, the adoption of information systems was found to have a strong and statistically significant relationship with the performance of health projects. Similarly, Mugwiria and Osoro (2024), in examining contract management practices and procurement performance in public health facilities in Nairobi City County, established that contract planning and contract awarding had significant positive effects on procurement performance. Chebet et al. (2024) likewise found that contract management had a significant positive influence on purchasing consortia in county referral hospitals in Kenya's Coast Region. However, Maina (2024) reported a negative effect of performance contracts on service delivery at the Kenya Revenue Authority.

Empirical evidence demonstrates that the key challenges to performance contracting in Kenya's public health sector include resource and funding constraints, weak financial and cost management systems, inadequate human resource capacity, poor monitoring and evaluation systems, and policy and institutional fragmentation under devolution (Chepkirui, 2024; Ishak et al., 2023; Kamanda, 2023; Wanjiru, 2023).

CONCLUSION AND RECOMMENDATIONS

Conclusion: The study established that HRH management and performance contracting each have a significant positive effect on the technical efficiency of healthcare facilities ($p < 0.0001$). Most respondents agreed that factors such as staff employment, deployment, salary payment, stakeholder engagement, organisational structure, and clear terms of reference enhance efficiency, although the authority to dismiss employees remains contentious. Similarly, performance contracting was associated with improvements in service delivery, innovation, governance, productivity, and resource allocation, with strong emphasis on service charters, monitoring and evaluation, and realistic target setting, despite some concerns about transparency and complaint resolution. Empirical evidence from Kenya supports the importance of HRH management and performance contracting in improving performance; however, persistent challenges—including inadequate funding, staff shortages, weak incentive structures, limited human resource capacity, and fragmented policies under devolution—continue to constrain the

achievement of optimal technical efficiency in the public health sector.

Recommendations: This study assessed the effect of the management devolution process on the technical efficiency of public health facilities in Nakuru and Baringo Counties of Kenya. The study recommends that policymakers and county health authorities strengthen Human Resource for Health (HRH) management and performance contracting frameworks to enhance technical efficiency in public healthcare facilities. This can be achieved by ensuring adequate and timely funding for HR functions, addressing staff shortages through strategic recruitment and equitable deployment, and instituting competitive and performance-based incentive structures to motivate healthcare workers. Additionally, there is a need to harmonise and streamline HR policies across national and county levels to reduce fragmentation under devolution. Performance contracting systems should be made more transparent and inclusive by strengthening monitoring and evaluation mechanisms, improving complaint resolution processes, and setting realistic, measurable targets aligned with facility capacity. Further, capacity-building initiatives should be prioritised to enhance managerial and technical competencies of health personnel, while reinforcing stakeholder engagement and clear organisational structures. Addressing the contentious issue of employee dismissal requires the establishment of fair, consistent, and legally sound procedures to promote accountability without undermining workforce morale.

To address workforce gaps, Kenya's county government health authorities need to strengthen Human Resource for Health (HRH) management through adequate funding, strategic recruitment, and equitable staff deployment. Transparent and inclusive performance contracting systems, supported by effective monitoring, evaluation, and realistic targets, are critical for improving accountability and efficiency. In order to enhance consistency, transparency, accountability, and staff morale, it is important to harmonise human resource policies, enhance managerial capacity, and establish satisfactory procedures for employee terms and conditions of work.

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