# FISCAL DECENTRALIZATION AND ITS EFFECTS ON ACCESS TO HEALTHCARE SERVICES IN KENYA, MACHAKOS COUNTY

**Norah Ameliah Mwongera.**
Student, Master Policy of Arts (Public and Administration), Kenyatta University Kenya.
**Wilson Muna.**
Lecturer, School of School of Law, Arts and Social Sciences, Kenyatta University, Kenya.

**©2023**

**International Academic Journal of Arts and Humanities (IAJAH) | ISSN 2520-4688**

**Received:** 17th November 2023

**Published:** 27th November 2023

Full Length Research

**Available Online at:** https://iajournals.org/articles/iajah_v1_i3_457_477.pdf

**Citation:** Mwongera, N. A., Muna, W. (2023). Fiscal decentralization and its effects on access to healthcare services in Kenya, Machakos County. *International Academic Journal of Arts and Humanities*, *1*(3), 457-477.

## ABSTRACT

The inefficiencies in healthcare service delivery witnessed in most parts of the country has prompted the study to investigate the effect of fiscal decentralization on access to healthcare services. Fiscal decentralization plays a key role in service delivery in the public sector by ensuring that services are taken close to the people. The accountability of both levels of governments ensures effective service delivery in key sectors such as health, education and water service. In Kenya, fiscal decentralization is realized through devolution as anchored in the Constitution of Kenya 2010 following the promulgation on August, 2010, however, the process has not been effective due to inadequacy of funds, lack of accountability at both levels of government leading to inefficient healthcare service delivery despite the national government launching universal healthcare for all in four counties namely; Kisumu, Nyeri, Machakos and Isiolo. The study seeks to achieve three research objectives; first, to examine the relationship between revenue decentralization and access to healthcare, secondly, to examine the relationship between expenditure decentralization and access to healthcare and lastly, to analyze the effect of grants on access to healthcare services in Kenya, Machakos County. The study is anchored on fiscal decentralization theory because the theory shows the relevance of the fiscal decentralization in promoting service delivery to the public remotely. The study employs non-experimental research design with a panel data from Machakos County for a period of 2013-2022. The study found that revenue decentralization insignificantly affect healthcare services access, expenditure decentralization significantly affect healthcare services access negatively while grants plays a positive and significant role in access to healthcare services in Machakos County. The study recommended that more resources should be allocated towards the development of the sector to enhance services delivery to the public and the resources should be used prudently and every coin accounted for so that the value for money is realized to all.


**Keywords:** Fiscal Decentralization, Revenue Decentralization, Expenditure Decentralization and Access to Health.

## INTRODUCTION

Fiscal decentralization has been found to increase service delivery in the public sector by ensuring efficient allocation of resources (World Bank, 1994). The process ensures that services are provided on need basis of the local and the capacity of production. This is achieved through improvement in sub-national or county governments' accountability, minimal bureaucracy and adequate knowledge on cost associated with such services (Cuenca, 2020). The idea of decentralization was introduced by Oats (1972) formally gave light for decentralization in efficient provision of public goods and services.

Efficient provision of public goods and services realized under decentralization works better if the sub-national or county governments have capability to identify the type of services or goods that meet the needs of the citizen in the area, closeness of these services to the citizens and capacity of the county government to mobilize resources as well as remain accountable (Kisuko, Githu & Kweyu, 2022). Various studies have established that fiscal decentralization is measured through financial autonomy of sub-national government given by the ratio of own-source revenue to expenditure, sub-national own-source revenue to national revenue.

Fiscal decentralization is believed to take services closer to the public more efficiently despite the challenges the sub-national governments are facing in most jurisdictions (Arends, 2020). The process facilitates allocation of resources in more efficient way according to the needs of the citizens. Allocation of resources is made easier through redistribution scheme from national government to sub-national government at the interest of the public. Arends (2020) further notes a blame game between national and sub-national governments whose is underfunding services in the public sector. However, Shen and Zou (2015) opined that over-devolution has resulted in inadequate and insufficient funding of services in public services in rural areas. Proper mechanisms should be put in place to ensure efficient services are offered to the public that meet the national standards.

Over the past three decades, many developing nations have attempted to implement decentralization of public services, including Ghana, The Philippines and India (Bossert & Beauvais, 2002). However, the material currently available has not adequately addressed the topic of "Has the health devolution in the Philippines led to efficiency?" Making service delivery responsive to customer requirements and tackling issues of poverty and inequality have received the majority of attention when discussing the significance of decentralization (WHO, 2008). Kenya central government (CG) has transferred some of its public services to local authorities (LA). Each of the 47 different county governments is tasked with providing essential health services, while the national government is responsible for managing national health institutions and programs, providing technical support, building capacity, and coordinating the implementation of national health policy and regulations (Toroitich *et al.*, 2022).

Public healthcare facilities not only play a significant role in the delivery of important healthcare interventions, but they also use up a sizable portion of the resources available to the health sector. For instance, in low- and middle-income nations, public hospitals are claimed to spend between 30% and 50% of health sector resources. (Kairu *et al*., 2021).

The Kenya Vision 2030 and other national development blueprints acknowledge the necessity to give health investments top priority in order to ensure a populace that is healthy and productive. The Kenya Health Policy Framework 2012-2016 and the third National Health Sector Strategic Plan 2013-2017, two policy documents derived from this Vision, all acknowledge the need to scale up investment in health through increased budgetary allocations and also to priority issues related to the health workforce (Position paper No. 3,2011-2012).

There is sufficient evidence that nations that prioritize their citizens' health through rising health care spending get better health outcomes (Akinkugbe & Mohanoe, 2009). Kenya's public health expenditures, like that of many others in the SSA area, is still below the Abuja Declaration target of 15% of total national spending (Organization of African Unity - OAU, 2001).

The ability of county governments to create more revenue can benefit from decentralization as well (Mills *et al*., 1990; Saltman *et al*., 2007). The ability to decide on expenditures and the provision of a sufficient amount of money are crucial for the efficiency of local decentralized administrations (Collins *et al*., 2004; Dhakal, 2007). In Kenya, there are two main sources of income for county governments: those they get directly from citizens through taxation known as Own Source Revenues and those obtained at the national level and sent to the counties the greatest of which is the "equitable share" (Ahadi, 2019).

The national government provides the majority of the funding for county-level operations. The counties' ability to generate revenue from property taxes, business licenses, and entertainment taxes is one of the four funding sources (three national governments and one county government); another is an equitable share with the counties guaranteed at least 15% of national revenue; a fourth is an equalization fund set aside for marginalized communities and accounting for an additional 0.5% of national revenue; and the fourth is conditional and unconditional grants from the country (Kimathi, 2017).

According to a 2018 research commissioned by the National Treasury and the World Bank, overall Own Source Revenue collection in Kenyan counties might nearly quadruple if all counties operated as well as the most successful ones presently does. Public hospitals had the financial autonomy to manage and use the money they received from user fees, supply side subsidies (drugs and supplies, support for operations and maintenance, and staff costs), and National Hospital Insurance Fund (NHIF) reimbursements in their bank accounts (Kairu et al., 2021). User fees as well as district health management teams (DHMTs) and health facility management committees

(HFMCs) were first implemented in the 1980s (Oyaya & Rifkin 2003). User fees are now commonly acknowledged to be ineffective at providing health facilities with significant revenue (James et al., 2006). Additionally, it has been discovered that they lessen demand for health services, particularly among the poor. As a result, intended enhancements to care's accessibility and quality have typically not materialized (Lagarde & Palmer 2008; McPake *et al*. 2011; Ridde & Morestin 2011). The '10/20' policy was introduced in 2004 as a result of the realization that user fee rates were too large and unpredictable. The goal of this program was to cut and standardize prices at dispensaries and health centers to 10 and 20 Kenyan Shillings, or 0.15 and 0.29 US dollars, respectively.

In order to create synchronized and well-coordinated processes, Kairu (2021) suggested that the national government and county governments reassess the planning and budgeting process for county health systems. The duties that would be performed by counties were transferred right away. This occurred at a time when the majority of county governments had not fully developed their organizational frameworks to carry out these duties (Tsofa et al., 2017). According to the study, transfers of responsibilities from the national to the county levels took place before the proper institutions and structures were in place at the county level and before the counties were equipped to handle newly delegated responsibilities. The initial lack of readiness resulted in significant interruptions to health services, including cuts to funding for facilities, a backlog in paying salaries to healthcare workers, and strikes by those same personnel.

## Problem Statement

Development of fiscal decentralization in the health sector has remained in contention is yet to be realized due to blame game between the national and sub-national governments on which branch underfunds the health sector. As a matter of concern, every country should invest in the healthcare of its population, who serve as the human capital and the engines of economic progress. Health is the foundation of a nation's ability to prosper economically. Those that are ill are less productive as a group (Kelley, 1988; Bloom *et al.,* 2004; Webber, 2002).

After the promulgation of the 2010 constitution, in particular, between 2013 - 2020, spending on healthcare increased only by two percentage points, from 7.8 per cent in 2013 to 9.1 per cent of the entire budget in 2020 (Republic of Kenya, 2021). This is according to an analysis of both annual financial budgets of both national and county governments by the controller of budget over the same period. There also has been a decline in donor funding over Financial Year (FY) 2018/19–FY 2020/21 which can be mainly attributed to a one-off loan to purchase medical equipment (computerized tomography [CT] scanners) in FY 2018/19 and the government’s full takeover of funding the health systems management component of the national immunization program in FY 2020/21 (Republic of Kenya, 2021).

According to MOH report (2019), despite international obligations like the Abuja declaration, where it is anticipated to contribute at least 15% of the overall allocation to healthcare, Kenyan government budgetary allocation for healthcare continues to fall short of the fundamental minimum. However, healthcare spending has increased significantly, from roughly KSh 271 billion (6.7% of GDP) in 2012/13 to KSh 346 billion (5.2% of GDP). The Ministry of Health provided Kshs. 155 billion for healthcare in 2017–18. This issue has made it impossible for the health sector to influence the allocation of additional resources in the larger government resource allocation processes, which may be the reason why the majority of developing nations are unable to consistently meet their health sector's medium-term targets.

The Kenyan government boosted its allotment to the MOH's development budget in fiscal year 2022/2023 by Ksh 15.6 billion, which was sufficient to counteract the dwindling donor contributions over the previous three years. According to Omar (2002), decentralization of the health system always results in the addition of new duties for local decision-makers, such as planning and resource allocation, but these duties are frequently neglected because local decision-makers' capacity to handle them is frequently lacking. Despites the continuous increase in budgetary allocation to the health sector, access to healthcare still relative low as witnessed by relatively high number of maternal deaths, infant deaths and neonatal as well as postnatal deaths. A number of studies have been carried out in fiscal decentralization; Sanogo (2019) investigated the impact of fiscal decentralization on public service delivery, Kiross *et al*., (2020) investigated the effect of public expenditure decentralization on maternal and neonatal mortality rate, Hao *et al*., (2021) and Cahyaningsih & Fitrady (2019), analyzed the causal relationship between fiscal decentralization and public health, even though the reviewed literature considered various aspects of fiscal decentralization on public service, however, none of the reviewed studies investigated the effect of fiscal decentralization on access to healthcare in Kenya with a focus on Machakos County which the study is anchored.

### Objectives of the Study

i. To examine the relationship between revenue decentralization and access to health.
ii. To examine the relationship between expenditure decentralization and access to health.
iii. To analyze the effect of grants on access to healthcare services in Kenya

## LITERATURE REVIEW

### Theoretical Review

The study review theories that are relevant such as fiscal decentralization theory and the revenue decentralization theory which are explained below:

## Fiscal Decentralization theory

Moving resources closer to the populace or voter is the principle underlying fiscal decentralization, which is an unstoppable trend. Fiscal decentralization is at the top of the national development policy agenda in the majority of developing nations, including Kenya. Financial and technical support for the fiscal decentralization process has been regularly provided by organizations like the World Bank, USAID, development banks, and other bilateral donors (Bahl, 1999). Due to political animosity, the majority of nations have not achieved fiscal decentralization. In Kenya, for example, the national government is required to send the sub-national governments 35 percent of the country's total income. However, after the 2010 constitution's adoption, which gave rise to devolution, a type of fiscal decentralization, only approximately 15 percent has been transferred to the sub-national government. The World Bank has identified sixty nations where fiscal decentralization is the primary driver of development policies (Kee, 2003).

Decentralizing the budget includes giving lower tiers of government some control over spending and/or earnings. The degree to which subnational entities are granted liberty to choose how to allocate their expenditures is a crucial aspect in determining the type of fiscal decentralization (World Bank, 2001). When local governments have the authority to decide how to raise money and spend it, this is referred to as fiscal decentralization (Kim, 2008). Alternatively, according to Akorsu (2015), financial decentralization is a series of measures intended to boost the income or fiscal independence of sub-national governments. It comprises giving sub-national government agencies duties and obligations related to income collection and expenditure (Yusoff et al., 2016) Many nations all around the world have given sub-national governments more political and financial authority over the course of the previous few decades. According to data compiled by Garman et al. (2001), by the turn of the millennium, decentralization of authority was occurring in more than 80% of the 75 developing countries examined. In industrialized countries, the situation is essentially the same. Kenya now relies on three main sources of funding for health care: household out-of-pocket expenses, government expenditure, and donations.

The key advantages of fiscal decentralization are that it increases economic efficiency in terms of taxation revenue generation and more effective public benefit spending of the collected tax revenues, enabling value for money. Second, if there is value for money in terms of service delivery, citizens are more willing to pay greater taxes. Since there are no user fees involved, the notion makes it easier to collect taxes without encountering any resistance at a reduced cost (Oats, 2008). The idea is pertinent to the current study because it places a strong emphasis on the subnational level of government's financial autonomy in making judgments about their own expenditure priorities that benefit the populace.

## Public Choice Theory of Budget

Gallagher (1993) introduced the Public Choice Theory of Budget, which claimed that a typical government should have a variety of resources at their disposal for funding operations. Even if resources are said to be scarce in developing countries, a significant amount of money must be allocated to development projects that can strengthen the nation's economy (Sobel, 2001). A worry has been raised about the government's allocation of public resources since most countries, including those in Africa, are responsible for financing essential services like schools and healthcare service providers. In order to ensure equitable distribution of national resources, Gallagher, as cited by Agarwal (2015), contends that incentives must be given to those involved in the allocation process. Based on the concept of market failures, a condition which mean that the market is apparently unable to predict supply, demand and pricing conditions of goods and services. Agarwal (2015) contends that in order to address this shortcoming, the government must distribute resources across the entire nation.

The idea assumes significance in the current study since it clarifies the justification for the equitable share and why it has been required within County governments in order to increase service delivery efficiency. The notion of population choice is frequently used to explain why political decision-making produces outcomes that are in opposition to what the majority of the population wishes (Epstein, 1990). However, postponed maintenance is a fair solution to financial gaps to a certain extent. According to the locative effectiveness theory, facilities should be maintained and public health personnel should have access to sufficient medication even in times of budget cuts (Standfield, 2017). This theory is relevant to the current study because it explains how fiscal decentralization enhances service delivery through efficient resource allocation and utilization of public resources to ensure efficiency in service delivery.

## Empirical Literature Review

### Fiscal decentralization and healthcare service delivery

A study conducted by Sanogo (2019) investigated the effect of fiscal decentralization on access to public services and poverty reduction on Cote D'Ivoire municipal governments found that increase in local revenue generation positively influence access to public services such as healthcare, education, sanitation, water and public utilities. Further, it was revealed that revenue decentralization robustly improve access to public services within the municipalities in the country because the municipal government are capable of providing the services in a more efficient way particularly in a less tribal region and in urban areas. The delivery of these services raises questions and forms the gap for most studies across the world. Panel data was collected for a period 2001-2011 and analyzed using generalized fixed effect model with a two-stage least square method. Revenue decentralization was measured as a ratio of own source revenue to total revenue, adult

illiteracy, access to health and food as well as standard of living measured by the level of sanitation, water access, electricity and asset ownership. The study recommended that municipals should have autonomy in setting own revenue targets through tax reforms at the county level.

Arends (2020) investigated the dangers of fiscal decentralization on public service delivery in lower and middle income economies with a focus on education and health sectors found out that fiscal decentralization significantly promote regional balancing and create a conducive environment for competition and improve the performance of the economy at large. Despite improvement in regional balancing, there is need for accountability in the expenditure of the funds by local governments. A panel data was used to analyze the study findings using panel regression model for a period 2013-2022. From the findings, the study agitated for financing of projects in the two sectors that are within the context of the community and meet the needs of the citizen.

Hao, Liu, Lu, Shi & Wu (2021) investigated the interrelationship between fiscal decentralization, income inequality and public health in China and found that high income inequality negatively affect access to healthcare services in Chinese provinces while fiscal decentralization has both direct and indirect significant negative effect on public health. Fiscal decentralization plays a key role in ensuring effective and efficient service delivery to the public in more decentralized nations of which Kenya is a member through the promulgation of constitution 2010. The study employed panel data for a period 2002-2012 from 23 provinces in China on study variables such as income inequality measured by Gini index and disposable per capita income, fiscal decentralization measured by the ratio of provincial own revenue to national revenue and public healthcare service delivery measured by perinatal mortality rate as dependent variables while per capita capital stock, education level, real gross domestic product per capita, expenditure on health per person, imports and exports, population growth rate and urbanization rate. The variables were converted to real variable by dividing by gross domestic product deflator for each region. The variables of the study were estimated using single equation and simultaneous equation models. The study further opined that fiscal decentralization leads to income inequality, therefore, the study recommended for a reduction in the level of fiscal decentralization to ensure minimum income inequality and effective access to public health.

## Revenue decentralization and access to healthcare service delivery

Kyriacou & Roca-Sagalés (2019) examined the impact of decentralizing spending on health, education and social protection in European nations opined that the quality of public services improve by decentralization of spending while the same lowers the quality of healthcare services in the public sector this is because the cost of providing the services in the education and social protection sectors are outweighed by the benefits derived from the services provided, however, in the healthcare sector the study revealed that the cost of providing services outweigh the benefits received by the healthcare services seekers. These costs include benchmarking, sorting, tax

revenue collection and information dissemination to the public. Further, the study revealed that decentralization alone is not enough to ensure efficient service delivery but anchoring the process on a policy to policy basis improves the quality of the services offered in the public sector. The study used panel data on all study variables collected from 30 European nations for a period 1996-2015. The variable were government effectiveness, education decentralization expenditure, decentralized health spending, decentralized social protection spending and other spending by the governments not related to the concern services as control variable. The data collected was analyzed using ordinary least square panel corrected standard errors which is more robust as it captures both heteroscedasticity and serial correlation between the independent variables and the residual that avoids spurious results. The study recommended for more decentralization of key services for efficiently. The measure of dependent variable is fictions since it is based on perceptions of the service seekers.

Diaz-Serrano & Meix-Llop (2019) investigated the impact of both fiscal and political decentralization on public service delivery; the results show a positive significant impact of fiscal decentralization on the quality of public service delivery. Education outcomes were used as a proxy to measure the quality of service delivery. On the other hand, political decentralization was found to have significant negative effect on service delivery since the citizen were unsatisfied with the manner in which services were provided in the education sector. This is because of the mismatch between the different levels of both political and fiscal decentralization. It was noted that high rate of political decentralization not accompanied by efficient fiscal decentralization renders sub-national government capability to decide on which service to delivery but with inability to delivery due to fund inadequacy. Panel data was source from 22 countries and multilevel and ordinary least square fixed-effect estimation technique was used to analyze the data. The study recommended that decentralization of public services should be accompanied by adequate funds to ensure efficient service delivery in both education and healthcare sectors.

## Expenditure decentralization and access to healthcare service delivery

Di Novi, Piacenza, Robone & Turati (2019) analyzed whether expenditure decentralization affect regional health disparities in Italy found out that expenditure decentralization insignificantly affect health disparities between region but significantly affect within regions. Additionally, the study results indicated that fiscal disparities in terms of economic development create expenditures disparities that fuels increase in healthcare service delivery disparities. Quasi-experimental research design was employed with cross sectional data from 1994-2007 in 15 regions in the Italy. The data was analyzed using ordinary least square estimation model. The recommendation was that institutional backing is necessary for efficient and effective fiscal decentralization that improves service delivery. Similarly, sub-national governments endowed with adequate resources should have autonomy in revenue generation and incurring expenditures with more accountability to ensure efficient service delivery to the general public.

Cahyaningsih & Fitrady (2019) conducted a study to examine the causal effect between fiscal decentralization and education as well as health in Papua province Indonesia found a negative significant influence on education and health outcomes in the province therefore, fiscal decentralization has no effect on education and healthcare contradict other literatures. However, asymmetric fiscal decentralization does not influence education and healthcare service delivery; this is because it enhances inequality among regions, areas and people (Siregar & Badrudin, 2019). Panel annual data was collected from 21 provinces for a period 1994-2016, the data was analyzed using synthetic control regression method that incorporates both the control and treated groups. Root mean squared prediction error (RMSPE) was used to check the best estimation technique and robustness of the model. The study recommended that national government should strictly supervise sub-national governments to boost their capability by constant training of staffs to ensure effective service delivery in both education and healthcare.

Kiross, Chojenta, Barker & Loxton (2020) found a negative influence of public health decentralize expenditure on mortality and neonatal mortality rate, however, private health expenditure insignificantly influence access to health hence does not affect mortality and neonatal mortality in low and middle income countries. Public funding were found to include internal revenue generation, internal transfers, grants, subsidies and external transfers while private funding sources were revealed to include contributions by households, corporations and non-profit organizations towards financing the health sector. The study used a panel data for a period 2000-2015 from 46 countries in Africa which was analyzed using random effect regression model. The data was collected from World Bank development indicator on study variables such as expenditure on health, income per capita as independent variable while mortality rate as the dependent variable. Other variables included were HIV/AIDS prevalence rate, maternal rate, access to water, education and fertility rate in the country. Health financing was found to be a significant determinant policy issue that influence national and sub-national policy formulation at both levels.

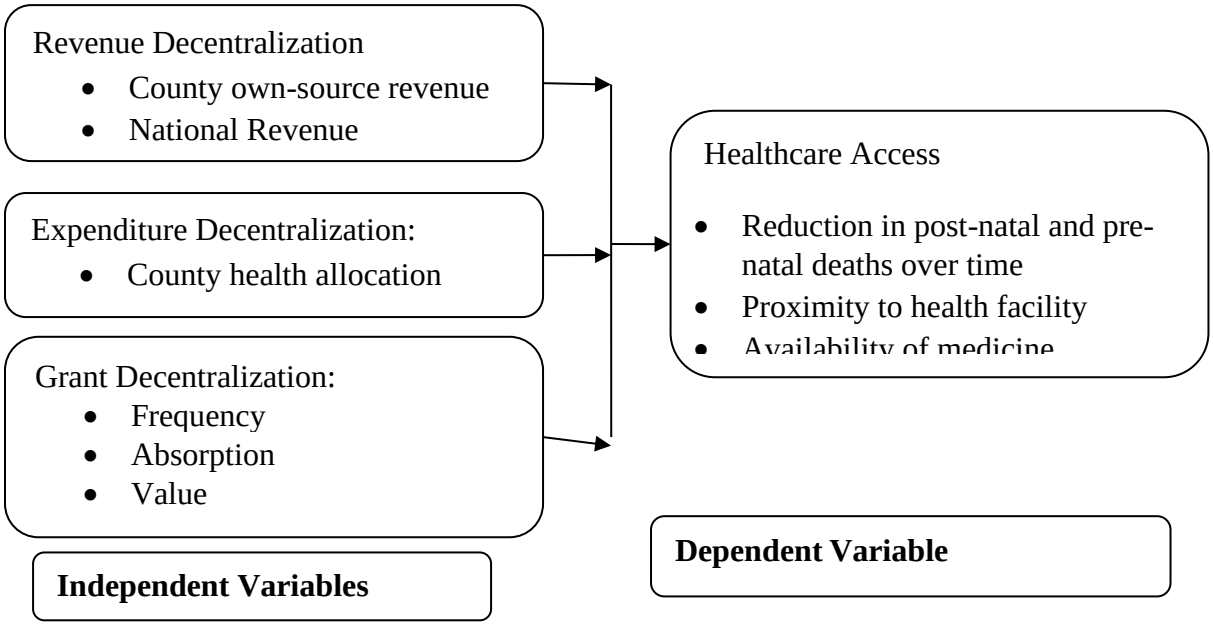
## Grants and access to healthcare service delivery

Within (2022) carried out a study on determinants of primary health care service delivery in Mbale district in Uganda and found that level of public education, sufficient nutrition, adequate and access to drugs and treatment, level of sanitation, own-source immunization, control of diseases and accountability greatly determinant quality of access to healthcare services. The study employed quantitative and qualitative research design using purposive sampling techniques. Primary data for this study was collected using questionnaire from both rural and urban areas. Further the study revealed that serious gaps in the provision of healthcare services particularly in rural areas due to improper infrastructures put in place such as hospital infrastructures, lack of laboratory equipment and inadequate drugs. Own-source revenue generation was found to have a significant influence on healthcare services because the municipalities have autonomous power in making decision on how and when to use the revenue at the interest of the local citizens The study

suggested improvement in generating own-sources of revenue is necessary to enhance access to health services, also innovations should be prioritized in order to effectively and efficiently offer healthcare services.

Kisuko, Githui & Kweyu (2022) determined the effect of utilization of public resource on efficiency of service delivery in Machakos County found ineffective use of public resources in the county leading to delay in provision of services to the public. Further, the study revealed that a lot of effort has been put to generate own-source revenue to speed up service delivery, however, the main source of own-revenue was found to be donors from external sources. It was revealed that decentralization of revenue and donors or grant significantly contribute to public service delivery in the county. The study employed descriptive research design with random sampling technique to sample 195 respondents to participate in the study. The primary data collected was supplemented with secondary where primary data was collected using questionnaires while secondary data was collected using checklist sheet. The data was analyzed using Pearson's correlation to determine the correlation between service delivery and resource utilization. From the findings, the study recommended the need to evaluate fund utilization at the county level and at the same time, national government should timely disburse funds to the county government to ensure effective and efficient service delivery to the public.

**Conceptual Framework**




## RESEARCH METHODOLOGY

The study adopted a non-experimental research design to determine the effect of fiscal decentralization on healthcare service delivery in Kenya focusing on Machakos County. The research design is chosen because the researcher has no room to manipulate the variables to show

the relationship between the dependent and independent variables. Panel data for a period 2010-2022 for all study variables were used to analyze the study findings. The study variables are healthcare expenditure decentralization which will be measured by expenditure on healthcare services, gross national income per capita, grants, labour, infrastructures, education level, capital stock per capita, population, revenue, private investment, private domestic credit availability and political instability will be measured by a dummy variable where zero (0) represents political stability and one (1) represents political instability.

The study is guided by three objectives and to achieve the objectives, the study employ different empirical models that suite each objective. To specify the model to achieve objective one, all the variables enters equation 2.5 as capital and only units of labour enter the equation as labour. The model is specified as follows;

$HC = f(CS, EDUC, GNI, REV, HBE, INVST\ L, INFR, Pop, Grnt, PDC)$ ……..……..……..3.1

Where;

HC – Healthcare access, HBE- Healthcare budgetary expenditure, CS-per capita capital stock, EDUC-enrolment rate, GNI- gross national income per capita, INFR- Infrastructure development expenditure, PDC private domestic credit, Pop–population growth rate, INVST-investment and L-labour units, Grnt- grants and REV- revenue income

Taking the logarithm of the function, the model is specified as follows;

$lnHC = \beta_0 + \beta_1 lnCS + \beta_2 lnEDUC + \beta_3 lnINFR + \beta_4 lnPDC + \beta_5 lnPop + \beta_6 lnINVST + \beta_7 lnL + \beta_8 lnGrnt + \beta_8 lnREV + \beta_8 lnHBE + \beta_8 lnGNI + \varepsilon$…… 3.2

In order to estimate equation 3.2 ARDL model was used since the variables are expected to be stationary at different levels. Similarly, the error correction model (ECM) will estimate the short-run effect of revenue income, budgetary health expenditure and grants on access to healthcare. Therefore ARDL incorporating error correction model will be used to evaluate the effect of fiscal decentralization on healthcare service delivery in both short-run and long-run period.

To achieve objective one, two and three of the study, multivariate regression analysis was carried out on equation 3.2 where the magnitude of the coefficient, direction of change of each variables and statistical significance was discussed especially the coefficient of revenue, expenditure on health and grants since the three variables measure the objectives of the study.

The study used quarterly time series data for each variable for Machakos County. The data was obtained from County integrated reports, controller of budget reports, Central Banks of Kenya, National Bureau of Statistics such as economic surveys and Official Development Indicators reports for the period 2013-2022.

The study conducted time series tests on the data to ensure that spurious results are not achieved. The time series tests that conducted are time series unit root test, correlation analysis and auto serial correlation.

The study employed different estimation techniques because the variables are expected to become stationary at different levels and also co-integrate at different level. Autoregressive Distributed Lags (ARDL) was used because the variables become stationary at level and after first differentiation due to its superiority over Ordinary Least Square (OLS) as the latter does not incorporate non-stationarity of the data. However, Vector Auto-regressive (VAR) model was used since the variables co-integrate of different order. The VAR model was used when the time series variables co-integrate at both level I (0) and first difference I (1) for estimation purposes.

## RESULTS AND FINDINGS

The study employs measures of central tendencies, kurtosis, skewness, maximum and minimum. The results show that the amount of capital stock in the county had a maximum value of Kshs 6,812 million with a mean value of Kshs 1,814 million. The highest own source revenue collected was 1,680 million with a mean value of Kshs 450 million. The county received grants amount of Kshs 3,230 million with a mean value of kshs 875 million. Out of the allocation to health sector, the highest absorption rate was 95.1 percent and the gross secondary enrolment rate which measures literacy level to consume healthcare services was 91 percent. The total number of doctors and nurse (health officers) had a maximum value of 78 with maximum number of infant deaths in the county being 107.

The analysis also shows that variables such as capital stock, own source revenue, grants, health development expenditure, absorption rate, health officers and infant deaths were skewed to right while exchange rate, gross secondary enrolment rate, private domestic credit and real gross domestic product (GDP) were skewed to left. However, infant deaths and private domestic credit were found to be statistically insignificant while the rest of the variables were statistically significant at 5 percent significance level.

### Empirical Analysis Results

The study sought to investigate the effect of fiscal decentralization on access to healthcare service delivery in Machakos County. On the same note, the study sought to achieve three objectives and the results are presented in table 1 as follows;

| Dependent Variable: Infant Deaths | | | | |
|---|---|---|---|---|
| **Variables** | **Coefficient** | **Standard Error** | **t** | **P-value** |
| Health officers | 1.1857 | 0.5840 | 2.0301 | 0.0500 |
| Ln Grants | 7.3249 | 3.2387 | 2.2616 | 0.0311 |
| Ln total health allocation | 6.2923 | 3.0732 | 2.0475 | 0.0495 |
| Ln Health Development Expenditure | -3.4283 | 1.9921 | -1.7209 | 0.0002 |
| Health Expenditure Absorption | 0.7273 | 0.1924 | 3.7803 | 0.0007 |
| Gross Enrolment rate | 0.8061 | 0.1442 | 5.5894 | 0.0000 |
| Ln Own Source revenue | -1.7041 | 1.5892 | -1.0723 | 0.2921 |
| Constant term | 59.8214 | 40.062 | 1.4932 | 0.0146 |
| | | | | |
| R-Squared | 0.8349 | Durbin Watson | | 2.3647 |
| Adjusted R-Squared | 0.8153 | F-Statistics | | 47.833 |
| F-Statistics Probability | 0.000 | Observations | | 40 |

**Source: Computations from Study Data**

The results show that the value of adjusted R-squared is 0.8153 implying that about 81.53 percent of the changes in access to healthcare services is determined by revenue decentralization, expenditure decentralization and grants from other financial institutions and or bodies as well as organizations interested in uplifting the health status in the country. Additionally, the value of Durbin Watson is found to be 2.4 above the threshold of 1.8 and according to rule of the thumb, Durbin Watson value greater than 1.8 is just good enough to state that there is absence of serial correlation among the independent variables hence no chance of auto serial correlation amongst the independent variables. Moreover, the value of the constant term was positive (59.82) and significant implying that without the factors the study considered, healthcare access level would be about 59.82 percent points implying that the revenue decentralization, expenditure decentralization and grants importantly influence access to healthcare services and Lastly, the value of F-statistics is 47.83 with a p-value less than 0.05 at 5 percent significance level, implying that the mode is fit and good to estimate the effect of fiscal decentralization on access to healthcare services in Machakos County.

## Revenue Decentralization and Access to Healthcare Services

The first objective of the study was to examine the relationship between revenue decentralization and access to healthcare services in Machakos County. To achieve the objective, the study regressed own source revenue against infant death which was used to measure the level of health care access in the county and interpreted the coefficient of the natural log of own source revenue. The coefficient was found to be negative (-1.7041) and insignificant at 5 percent , this implies that

a rise in revenue generation by the Machakos County government one percent point leads to a decline to access to healthcare services by 1.7 percent points hence a negative relationship.

This finding negates that of Sanogo (2019) and Arends (2020) that a positive relationship between the two variables and opined that an increase in local revenue generation positively influences access to healthcare services by the public in Cote D'Ivoire and other middle income economies. The different results could be due to variations in political priorities and channeling of funds to other more pressing sectors and emergencies. However, the finding corroborates Hao *et al.,* (2021) that found a negative but significant relationship of revenue decentralization on access to public health. The literatures have shown that in a more decentralize economies provision of healthcare services is likely to improve with enhanced accountability and transparency.

Similarly, the study finding confirms Kyriacou and Roca-Sagalés (2019) that improvement in local revenue generation lowers quality of healthcare services provided this is due to increase in cost of providing the service in both private and public health facilities. The same sentiments were also echoed by Kisuko *et al.,* (2022) while analyzing the effect of grants on healthcare services access. The study opined that the main source of own-source revenue is grants or donor funds to the health sector which positively influence and increase access to healthcare services in the county.

### Expenditure Decentralization and Access to Healthcare Services

The second objective of the study was to examine the relationship between expenditure decentralization and access to healthcare services in Machakos County. To the objective, the study interpreted the coefficient of the natural log of total health allocation, health development expenditure and health expenditure absorption rate. The results show that all the coefficients were positive and statistically significant at 5 percent level of significance implying a positive relationship health expenditure and access to healthcare services.

The coefficient of natural log of health development expenditure was negative (-3.428) and significant at 5 percent level of significance meaning that an increase in health expenditure by one percent point translates to a decline in healthcare services access by 3.43 percent points in the county. The finding agrees with Kiross *et al.,* (2020) that found a negative influence of decentralized spending on public health access due to continuous increase in neonatal and mortality deaths in developing nations. Similarly, the finding confirms Di Novi *et al.,* (2019) that expenditure decentralization significantly improves access to healthcare services within a region due to similarity in societal factors and believes. Additionally, the validates the negative significant relationship by Cahyaningsih and Fitrady (2019) this is an increase in expenditure in the health sector maybe one centered such as infrastructure development as opposed to equipping the facilities with health machinery, drugs and health officers to enhance access to health services.
The study also found that the coefficient of health expenditure allocation and absorption rate were positive and statistically significant at 5 percent level of significant indicating that an increase in

budgetary allocations and absorption of the same leads to an increase in access to healthcare services. The findings verify that of Di Novi (2019) that increase absorption rate and budgetary allocation improves healthcare services accessibility this is because increased budgetary allocation ensures development of health infrastructures, accessibility roads and installation of power to run the machineries hence enhancing delivery of healthcare services.

## Effect of Grants on Access to Healthcare Services

The third objective of the study is to analyze the effect of the grants on access to healthcare services in Machakos County. To achieve the objective, the study analyzed the coefficient of grants advanced to the county to improve access to healthcare services.

The finding shows that the coefficient of natural log of grant is positive (7.325) and significant at 5 percent level of significance implying that an increase in grants by one percent point enhances healthcare services access by 7.33 percent points. The finding corroborates within (2022) that grants greatly contributes to the development of laboratories, wards, equipping the hospitals and ensuring adequate drugs in the hospitals. Grants also found to enhance sanitation level, public health education and control of contagious diseases hence improving access to healthcare service delivery. Additionally, the positive and significant influence of grant on access to healthcare services confirms Kisuko *et al.,* (2022) that efficient utilization of donor funds also facilitates provision of healthcare services in Machakos County as the county government has the ability and the freedom to make independent decisions on how to allocate the funds to a more priority and pressing areas in the health sector that is more beneficial to the citizens and where the value for money is realized.

Other factors the study considered that positively and significantly influence access to healthcare services are health officers and education level. The coefficient of health officers was positive (1.186) and significant at 5 percent level of significance implying that an increase in health officers by one personnel results to an increase in access to healthcare service delivery improves by 1.2 percent points. At the same time, more years in schooling measured by gross enrolment rate increases consumption of healthcare services. The finding shows that the coefficient of gross enrolment rate was 0.806 and statistically significant at 5 percent significance level indicating one more year of schooling makes individuals to consume more of healthcare services by 0.81 percent points. This is because more educated and knowledgeable individual knows when to consume healthcare services as opposed to less educated person.

## CONCLUSION AND RECOMMENDATIONS

### Conclusion

The study was guided by three objective namely, to examine the relationship between revenue decentralization and access to healthcare services, additionally, to examine the relationship between expenditure decentralization and access to healthcare services and lastly to analyze the effect of grants on access to healthcare services in Machakos County, Kenya.

From the findings, the study concluded that total health budgetary allocations, health expenditure absorption which measured expenditure decentralization have significant and positive effect on access to healthcare service delivery in Machakos County, however, health development expenditure which indicates the amount of funds allocated for infrastructure development and improvement, equipping of hospitals which necessary machineries to enhance service delivery has negative and significant effect to healthcare service delivery.

Similarly, labour units measured by number of health officer engaged in providing healthcare services positively and significantly influence access to healthcare services by the public in Machakos County. Further, the level of education of the public measured by secondary gross enrolment rate positively and significantly affect access to healthcare services, this is because an educated individual knows when and how to consume healthcare services hence seeks for healthcare services on need basis. Lastly, total grant offered by National Government, international and local non-governmental organizations has positive and significant effect on healthcare services delivery in the County. Therefore, the study generally concludes that fiscal decentralization improves access to healthcare services in Machakos County.

### Recommendations

The study has shown that grants, number of staffs employed (health officers), health allocations, health expenditure absorption rate and education level (secondary gross enrolment rate) significantly affect access to healthcare service delivery in Machakos County. Therefore, adequate measures should be put in place to ensure efficient and effective healthcare services are delivered to the public at all corners of the country. The measures are not limited to ensuring adequate budgetary allocation, optimal utilizations of fund allocated, adequate number of health officers and improvement in literacy level in the country.

From the findings, it has been shown that health officers has positive and significant effect on access to healthcare service delivery therefore, the study recommends that both County and National Governments should adequate number of health officers in different departments to

enhance provision of healthcare services hence improving access to healthcare services to members of the public.

Total health allocation has positive and significant effect on access to healthcare service delivery. The study recommends that both County and National Governments through budget officer should allocate adequate funds to health and maximum utilization of the fund (absorption rate) sector to facilitate infrastructural development, acquisition of machineries and stocking of the facilities with drugs as this ensures that all members of the public visiting the facility get the service in line with health problems each is suffering from.

The National Government should continue to subsidize education across the country as this leads to increase in literacy level in the country and a literate person is cautious of health status hence seeks healthcare services when needed. This in turn improves access to healthcare services in the County and country at large. The recommendation is based on the fact that education level of individuals was found to have positive significant effect on healthcare service access. Lastly, the findings also reveal that grants towards health sector has positive and significant effect on access to healthcare service delivery in the county, therefore, the study recommends that all players interested in improving access to health should continue and up-scale grants to County health sector as this ensures that all citizens have access to affordable, efficient and effective healthcare services their area of locality.

## REFERENCES

Sanogo, T. (2019). Does fiscal decentralization enhance citizens' access to public services and reduce poverty? Evidence from Côte d'Ivoire municipalities in a conflict setting. *World Development*, *113*, 204-221.

Hao, Y., Liu, J., Lu, Z. N., Shi, R., & Wu, H. (2021). Impact of income inequality and fiscal decentralization on public health: Evidence from China. *Economic Modelling*, *94*, 934-944.

Cahyaningsih, A., & Fitrady, A. (2019). The impact of asymmetric fiscal decentralization on education and health outcomes: evidence from Papua Province, Indonesia. *Economics & Sociology*, *12*(2), 48-63.

Siregar, B., & Badrudin, R. (2019). The Evaluation of Fiscal Decentralization in Indonesia Based on the Degree of Regional Autonomy. *Journal of Reviews on Global Economics*, *8*, 611-624.

Arends, H. (2020). The dangers of fiscal decentralization and public service delivery: a review of arguments. *Politische Vierteljahresschrift*, *61*(3), 599-622.

Kiross, G. T., Chojenta, C., Barker, D., & Loxton, D. (2020). The effects of health expenditure on infant mortality in sub-Saharan Africa: evidence from panel data analysis. *Health economics review*, *10*(1), 1-9.

Kruk, M. E., Galea, S., Prescott, M., & Freedman, L. P. (2007). Health care financing and utilization of maternal health services in developing countries. *Health Policy and Planning*, *22*(5), 303–310. http://www.jstor.org/stable/45090415

Bahl, R. (1999). Fiscal decentralization as development policy. *Public Budgeting & Finance*, *19*(2), 59-75.

Kee, J. E. (2003). Fiscal decentralization: Theory as reform. *The George Washington University*.

Oates, W. E. (2008). 5 CHAPTER on the Theory and Practice of Fiscal Decentralization. *Institutional foundations of public finance: Economic and legal perspectives*, 165.

Within, P. I. O. (2022). Primary Health Care Services Delivery (PHCSD) Under Revenue Autonomy: Proposed Innovative Options Within Own Source Revenue.

Cuenca, J. S. (2020). Efficiency of Local Governments in Health Service Delivery: A Stochastic Frontier Analysis.

Kisuko, A., Githui, T., & Kweyu, M. (2022). Public Resource Utilization and Efficiency of Service Delivery of the County Governments in Kenya: A Case of Machakos County. *Journal of Public Policy & Governance*, *6*(1).

Sobel, R. S. (2001). The budget surplus: a public choice explanation. West Virginia University, College of Business and Economics, Working Papers, November, 19, 01-05

Wernerfelt, B. (1984). A resource-based view of the firm. Strategic management journal, 5(2), 171-180.

Tsofa, Benjamin et al. "How Does Decentralisation Affect Health Sector Planning and Financial Management? A Case Study of Early Effects of Devolution in Kilifi County, Kenya." International Journal for Equity in Health 16 (2017): 151.

Tsofa, Benjamin et al. "Devolution and Its Effects on Health Workforce and Commodities Management – Early Implementation Experiences in Kilifi County, Kenya." International Journal for Equity in Health 16 (2017): 169

Barasa, Edwine et al. "Recentralization within decentralization: County hospital autonomy under devolution in Kenya" PLoS ONE (2017): 12 (8)

Republic of Kenya. (2020). Office of Controller of Budget report 2020. Nairobi: Kenya National Bureau of Statistics.