

**HEALTHCARE BUDGET ALLOCATION AND ECONOMIC GROWTH
AMONG COUNTY GOVERNMENTS IN THE NORTH RIFT REGION IN
KENYA**

BY


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**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF
THE REQUIREMENTS FOR THE AWARD OF THE MASTER OF
BUSINESS ADMINISTRATION IN FINANCE OPTION, FACULTY OF
BUSINESS AND MANAGEMENT SCIENCE, UNIVERSITY OF NAIROBI**

OCTOBER, 2021

DECLARATION


I declare that this is my work and has not been presented to any institution or university other than the University of Nairobi for examination.

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This research project has been presented for examination with my approval as the University Supervisor.

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ACKNOWLEDGEMENTS

Because of God's mercy and wisdom, I was able to accomplish this assignment despite the pressures of my professional and personal obligations.

I would want to express my gratitude to my mentor, Dr. Duncan Elly, for his unwavering encouragement, constructive criticism, and, above all, his patience during this process.

This endeavor would not have been possible without his counsel and direction.

I would want to express my gratitude to Dr. Kennedy Okiro, my moderator, for his insightful reading and helpful criticism of the project while it was being developed.

My colleagues at the university have been a great help to me.

DEDICATION

I would want to dedicate my effort to my mum, my wife Caroline, my children, Cindy, Jaden and Chamin and my siblings for their support, thoughts, and prayers during the process. They have a special place in my heart, and I am grateful to God for their love and support. Finally, I would want to dedicate this endeavor to my colleagues at the County for their support and prayers.

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ABSTRACT

Economic growth and development are often seen to occur when a country or state guarantees that the available resources are distributed across a wide range of productive economic units. Investment in the health of a country's citizens is crucial since they are the driving force of economic growth and its human capital. A diseased population is the epitome of inefficiency. It is delegated to the counties, but despite international obligations such as the Abuja declaration requiring the national government to devote at least 15% of its total yearly allocation to healthcare, Kenya's healthcare budgetary allocation remains below the minimum. Despite this, the government's healthcare spending has increased. As a consequence, researchers in Kenya's North Rift Economic Block attempted to quantify the economic effect of health budget allocation. Following Solow Growth, Swan Wagner's Increase in State Spending and Buchanan Theory of Healthcare Spending, the study was done. A census was conducted in Kenya's North Rift Economic Block's eight counties using descriptive research. Between 2016 and 2020, researchers collected data for this study. In addition to descriptive statistics and panel regression analysis, SPSS was employed for statistical analysis. The county's gross product was shown to have a statistically significant positive link with healthcare budgetary allocation and internal appropriations. However, there is no statistically significant association between national budget share allocation and gross domestic product for the county. Healthcare budgetary allocation was shown to have a positive and substantial link with county economic development, as was the case with counties' own source income, according to the regression findings. Economic growth in the North Rift Region Economic Block Counties was positively associated with the national budgetary allocation share, but the association was not statistically significant. Investment in North Rift Region Economic Block county governments is impeding both healthcare and economic progress, thus the county governments' administrations should spend more monetary resources toward health care activities so that the counties may expand economically. Also planned was an investigation of how healthcare financial allocations affect the economic growth of counties, which included qualitative views and opinions from county officials as well as ordinary residents.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

"Health is riches," as the adage goes." Various study domains and economic development policy formulation institutions continue to pay attention to how health influences the country's economy's expansion. Health care investment has been the subject of a lot of arguments and studies about how it effects a country's GDP. Healthier people are better equipped to absorb and use information, and hence are more productive, according to Bloom and Canning (2000). Health care expenditures in high-income countries average 7% of their GDP, but in low-income countries, the figure is 4.2 %. (World Bank, 2004) Growth and growth in the economy have a major impact on healthcare expenditure since it determines how much money a country has available to spend on health care.

Various theories may explain the connection between healthcare budget allocation and expenditures. Countries that save more have higher per capita income, according to the Solow-Swan Theory of Growth (Solow, 1956). Fozzard's (2001) Theorem of Budgetary Allocation asserts that in order to maximize profits, every sector of the economy must be given the opportunity to participate in budget allocation. Decisions on healthcare investments should be made independently of need, according to Buchanan's thesis (1965).

This procedure of distributing resources in Kenya altered dramatically with devolution since there are now 47 devolved entities instead of just one regional economic bloc. Many Kenyans work in manual labour-intensive jobs, making the country one of the most labour-intensive nations in the world. Because this workforce relies completely on a worker's physical power, he or she must be in excellent health to be effective. According to Bloom et al., more productive employees are those who are in better physical and mental health (2004). Kenya's economic growth and development are limited by a variety of factors, according to the World Bank (2018). Numerous critical challenges, such as a lack of healthcare and poverty and inequality and weak governance and climate change need to be addressed.

1.1.1 Healthcare Budget Allocation

The best way to distribute a budget is not universally understood. The World Health Organization (WHO) defines budget allocation as all financial resources devoted to delivering healthcare services such as disease prevention and treatment, family planning, nutrition, and emergency assistance (WHO, 2012).

Investing in health care has recently been popular as a way for countries to boost their economies. Reforms in health care have been adopted throughout Africa in an attempt to boost financial support for the industry. Abuja (2001), Addis Ababa (2006), and Ouagadougou (2008) are examples of these declarations.

Healthcare finance in Africa has been cited as one of the key roadblocks to better healthcare. The African continent, which includes Kenya, continues to have the highest rate of maternal and new-born deaths in the world. Infections with HIV/AIDS are more common in Africa. In healthcare, inefficiencies and inequities abound in both the allocation of resources and the delivery of treatment. The natural logarithm of the yearly sum spent by county governments for health care will be used to calculate healthcare budget allocation in this research.

1.1.2 Economic Growth

Inflation-adjusted gains in the value of goods and services are an important indication of economic development, according to the International Monetary Fund (2012). It has long been customary to use GDP as a yardstick to assess the expansion of the global economy. An increase in the state's ability to produce products and services is linked to economic development by Bakang (2015). GDP, per capita income, economic value of goods and services, international trade balance, life expectancy, personal consumption and literacy are some of the most important measures to assess an economy's success. GDP, per capita income, economic value of goods and services.

The government of Kenya has worked hard to promote fast economic development both before and after devolution, with varying degrees of success in various years. For the years 2012 - 2017, Kenya's Gross Domestic Product (GCP) increased and decreased

There are two methods to estimate economic growth. In this context, gross domestic product (GDP) and gross national product (GNP) are the two terminologies utilized. In simple terms, GDP measures the overall value of goods and services produced in a certain geographic area, whereas GNP measures the entire value of goods and services produced nationwide (Surbhi, 2015). In this study, GDP is used to quantify economic growth.

1.1.3 Healthcare Budget Allocation and Economic Growth

Health care spending and economic development continue to attract the attention of a wide range of international stakeholders. There is a lack of consensus among the many studies that have been conducted. Using the Solow model, Hashmati (2001) claims that health care expenditure and economic growth may be linked.

According to Kar and Taban (2003), spending on healthcare in Turkey is negatively correlated with economic growth. A similar trend was identified by Yumuşak and Yildirim (2009), who obtained the same findings as Kara and Taban (2003). According to Arsoy (2010) who utilized a longer period of time (from 1960 to 2005), the two are favorably connected. According to Rono (2013), healthcare investment and the development of the economy are connected. As the economy improves, the government spends more money on health care, according to Nyamwange (2012).

1.1.4 Counties in the North Rift Economic Block

The North Rift Economic bloc is an economic cooperation of eight North Rift counties. It is one of the six regional Economic blocs formed after the introduction of devolution in Kenya. The Economic blocs were formed to spur economic growth within the respective counties. In 2015, the North Rift economic bloc was founded, which includes eight counties: Elgeyo Marakwet, Trans Nzoia, Nandi, Samburu, Turkana, West Pokot and Uasin Gishu. The blocs aim is to strengthen trade, joint investments and other desired initiatives. The eight member counties share administrative boundaries. The region is known for pastoralism, maize and wheat production, tea

production, athletics, tourism potential and energy opportunities. This region contributes significantly to the economic development of Kenya.

Currently, in Kenya, the majority of healthcare services have been devolved along with other areas of economic growth. The 2014 County Allocation Revenue Act aims to ensure that counties get a fair share of national revenue (Kenya Gazette, 2014). Additionally, a disadvantaged-county revenue equalization fund exists.

Due to a shortage of money, many of the objectives of county governments cannot be met, as stated by Mutai (2015). There is considerable variation in the economic growth of Kenya's counties. The challenges faced by different regions of the country are unique. The dry and semi-arid temperatures of some of these villages create starvation and thirst, while the insecurity of others leads to residents battling over cattle rustling and pastoralism land (GoK, 2018).

1.2 Research Problem

Nations and states are often thought to experience economic growth and development when they guarantee that their resources are distributed across a wide variety of productive economic units. Health and well-being of a country's citizens are essential for economic success and should be given top priority by any government. An infected population is the greatest waste of effort and money (Kelley, 1988; Bloom et al., 2004; and Webber, 2002).

Despite international agreements like the Abuja declaration, which requires that the government contribute at least 15% of total allocation to healthcare, according to MOH (2019) Kenya's budget allocation for health care continues to fall short of the criteria. KSh 271 billion (6.7 percent of GDP) was spent by the government on healthcare in 2012/13, however this figure has risen from KSh 346 billion in 2012/13 (5.2 percent of GDP). In 2017/18, the Ministry of Health budgeted KSh. 155 billion for healthcare.

According to Hashmati (2001), a country's health and economic growth are linked on a global scale. As stated by Kar and Taban (2003), healthcare spending is associated with lower economic

growth. In their investigation, Yumuşak and Yildirim found a similar pattern (2009). Arsoy (2010) found that healthcare spending has a direct bearing on economic growth.

Cameroon researchers identified a high correlation between a country's national health care spending and its economic growth (Mandiefe and Tieguhong 2015). Spending on healthcare has a detrimental impact on the Nigerian economy, according to Ogundipe and Lawal (2011). Economic growth is directly linked to health expenditure in the same country, according to Bakare and Sanmi's findings (2011). Contradictory results have been observed in these research projects.

Economic growth was shown to be a significant driver of health care spending in Nyamwange (2012). This research shows that economic growth is an important predictor of health care expenditures. An investigation was undertaken by Rono (2013) in attempt to better understand the relationship between healthcare and economic development. A positive association was found in his conclusion. Simiyu (2015) claims that long-term growth in the economy is not related to governmental spending. Kenya's economic growth was linked to the country's human capital development between 1981 and 2011, according to Oloo (2009), who performed a study on the subject from 1981 to 2011.

Health care expenditure and economic development are topics on which academics have a wide range of opinions and perspectives. Between industrialized and developing nations, there is also a significant difference in results. This research will be conducted to answer the question: What effect does county health budget allocation have on the county economy's development?

1.3 Research Objectives

1.3.1 General Objective

The goal of the research was to investigate the impact of Health Budget Allocation on the economic development of North Rift County Governments.

1.3.2 Specific Objectives

- i To ascertain the effect of county health budget allocation on economic development in the North Rift Economic blocs county administrations.
- ii To ascertain the influence of national allocation on economic development in the North Rift Economic block's county governments.
- iii To evaluate the relationship between county governments' own-source income and economic development in the North Rift Economic block.

1.4 Value of the Study

Governments at all levels, including federal and state, should utilize the findings of this study to develop and implement health policy. The findings and conclusions of this study may be used as a foundation for making decisions about how to maximize the economic advantages of healthcare spending.

Findings gleaned from this research may be used by the government and other health care stakeholders to plan, design, and implement interventions, as well as to negotiate financing for the health sector. Additional investigations may be inspired by the findings of this study and might be a useful resource for future research. Future scholars may utilize it as a source of information.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This section will review recent theoretical and empirical work on the relationship between a nation's health and wealth. Each of these topics is thoroughly explored in its own chapter: economic development, empirical research, conceptual framework, and inadequacies in the present framework.

2.2 Theoretical Review

The statements, limitations, and justifications for their relevance to this research of three relevant theories are all examined in depth in this paper.

2.2.1 Solow-Swan Theory of Growth

Economic growth may be explained by capital accumulation, population and labour growth, and productivity gains, according to the theory of economic expansion established by Solow Robert and Swan Trevor in 1956. According to this paradigm, increasing human capital boosts economic development since more productive, better-educated, and healthier individuals are at the core of it. Public goods such as education, infrastructure, and healthcare are essential to a nation's development (Romer, 1996).

Neo-classical economic theory has been attacked for its normative bias since it describes an economy that is virtually "utopia" in nature, which is not really possible. If the world as it is today were to follow the model, it describes the social optimality that may exist (Romer, 1996). In addition, the theory makes the unrealistic assumption that everyone in the economy is operating rationally. Economic development and expenditures on education and health care are inextricably linked.

2.2.2 Wagner Theory of Increasing State Spending

Public spending rises in tandem with economic development regardless of the nature or size of the economy, according to Adolph Wagner (1890). The belief that a free market economy can produce a state of well-being motivates individuals to seek out higher social amenities and services as their wealth increases. According to Wagner, investment in the economy was a function of the economy's growth; as the economy grew, so did funding for investment in the economy.

A one-way causal relationship exists between government spending and economic growth, or government expenditure enhances productivity. Because it was created during the industrial revolution, critics argue that many of its assumptions are no longer valid in the post-industrial era of the twenty-first century (Likierman, 1988). As this study examines the connection between national budget allocation expenditure and economic development, Wagner's Organic state theory is relevant.

2.2.3 Theory of Budgetary Allocation

According to Fozzard (2001), all sectors of the economy should have a say in budget allocation to maximize benefits for everyone. Governments choose investment portfolios based on their ability to enhance utility while also minimizing risk, according to Khan (2002). According to Fozzard's model of budget allocation, healthcare is a critical department that cannot be overlooked when preparing a company's budget (Fozzard, 2001).

2.2.4 Buchanan's Theory of Healthcare Spending

On the demand side of health services, Buchanan proposed this theory in 1965, which claims that healthcare expenditure decisions should not be made primarily on the shortage of supply to

reduce inefficiencies. Hospital congestion and infrastructure issues, as well as understaffing and insufficient infrastructure, are considered to be the main causes of healthcare inefficiency.

This theory is criticized for failing to take private healthcare providers' role into account. Many countries and economies do not have comprehensive control over the health care market since the best healthcare facilities are privately owned and run. Because a country's per capita income influences its healthcare expenditure (Leu, 1986), and because Bloom and Canning (2000) believe that a healthy nation is a wealthy one, the importance of this theory to this research can be seen.

2.3 Determinants of County Economic Growth

This part focuses on the growth of a county's economy. Health care funding, interest rates, inflation, and the foreign currency exchange rate are all covered in this section.

2.3.1 Budget Allocation on Health

Rosen (2002) argues that taxation, expenditure, and debt management all have a role in determining how resources and income are allocated and distributed. WHO defines budget allocation as "all financial resources that are utilized for healthcare giving operations, such as treating and preventing sickness; family planning and nutrition" (World Health Organization, 2012).

Government health spending rises when the economy expands, as Nyamwange (2012) argues. However, this study shows that economic expansion affects healthcare costs rather than the other way around. There was a clear correlation between human resource development and Kenya's economic growth from 1981 through 2011, according to a study by Oloo (2009). As part of his research, he examined the link between healthcare and education expenditures and economic development.

2.3.2 Interest Rates

According to Ngugi & Kabubo (1998), interest rate is the cost of borrowing money. It is expressed as a percentage calculated annually and as a fraction of the amount one borrows. According to Rapach et al. (2005), it is among variables of economic factors that can be relied upon to explain the direction to which economic expansion could take.

Interest rates had a considerable influence on Nigeria's economic development between 1980 and 2016, according to a research by Utile, Okwori, and Ikpambese (2018). Study's aim was to assess how changes in the currency, inflation, and interest rates on savings accounts effect GDP. The researchers employed a multiple regression technique and established that rate of exchange and inflation rate inversely and insignificantly related to the country's GDP.

2.3.3 Inflation Rate

Inflation according to Mishni (2004) refers to the rate by which money loses its purchasing power. It refers to the rate of price index increase. Inflation is considered a key member among the enemies of economic growth. Inflation diminishes the value of money, making the lives of most people more difficult, suffocates the economy, and so prevents its expansion.

Inflation and economic growth as a field of research has been written on by various researchers. For instance Khan (2014) established that inflation negates growth of an economy in their study about inflation and how it impacts the growth of economy. In Tanzania, Kasidi and Mwakanemela (2013) examined inflation and how it impacted the economic growth of the country between 1990 and 2011. They established existence of a negative influence that is caused by inflation on the economy during the study period and concluded that there was no any health relationship in the long term.

2.3.4 Foreign Exchange Rate

Exchange rates between currencies are always changing, and this is the case with foreign currencies. The fluctuation involves depreciation and appreciation of the country's currency. A currency appreciates when it increases in value as compared to another and vice versa is true. The appreciated currency gains value while the depreciated currency loses value (Papell, 1998).

Exporters and brokers can be cushioned against exchange losses arising from erratic exchange rate appreciation by hedging practices. Measures that exporters can implement to reduce the impact of currency fluctuations include: hedging, diversifying and streamline operations by implementing just-on-time delivery and reducing inventory costs (Cherop & Changwony, 2014).

2.4 Empirical Studies

This section reviews past research on health care spending and economic development. This section is divided into three subsections: global, regional, and local studies.

2.4.1 International Studies

Soukiazis and Cravo used panel data to investigate the relationship between economic growth and public health (2007). Infant mortality was shown to be negatively correlated with income. For every 1 percent drop in infant mortality, they found that per capita income increased by 0.13% to 0.20%, according to regression analysis. This was true across all 77 of the countries they looked at.

According to Lahirushan and Gunasekara (2015), long-term growth in Asia's economy is linked to public resource spending. The research, which was conducted in Singapore, Thailand, and Malaysia as well as Bhutan, South Korea, China, and Japan, drew on data collected between 1970 and 2013. The study's findings concluded that there was a one-way causation link and that public spending is a significant factor in growing the economy.

Kurt (2015) conducted a study from 2006 to 2013 on the economic effect of health care in Turkey. In response to Ram's finding, the Feder-recommendation model advises the government to spend in health to increase both productivity and total demand for products and services.

2.4.2 Regional Studies

Bakare and Sanmi (2011) argue that health care spending in Nigeria is directly linked to the country's economic development. Health care spending and economic growth are strongly linked by conventional least squares and multiple regression analysis results. Thus, they urged policymakers and implementers to keep increasing the share of cash allotted to healthcare in each fiscal year's budget.

Cameroon's national budget allocations to public health care were evaluated by Mandiefe and Tieguhong (2015) for the Cameroon economy. Their estimations and time series data were based on the Vector Error Correction Model from 1988 to 2013. According to their findings, public healthcare spending has a significant economic benefit over the long run. Health care expenditure should be increased to 10% or 15% of GDP, they said in a statement released in Abuja.

Ogundipe and Lawal (2011) studied the economic effect of Nigeria's healthcare expenditures. Using the same approach of analysis, Bakare and Sanmi (2011) conducted a research in the same country and at the same time. Thus, they concluded that healthcare spending had a negative influence on economic growth.

Ghana's agricultural production growth was researched in detail by researchers from Benin et al. (2009) in the country's agro-ecological zones. According to their results, government investments in rural regions that improve agriculture production, health, education, and infrastructure have a significant impact on the local economy.

2.4.3 Local Studies

Simiyu undertook a research of the influence of government expenditure on Kenya's economy (2015). Between 1963 and 2012, the data utilized was derived from secondary sources. According to him, both economic growth and government spending tend to stabilize in the long term. The findings also show that there is no direct link between government expenditure and the economy's performance.

Manyalla (2000) surveyed the association between expenditures on learning and health care and economic development. He argued that health care and education investments increase the health of residents, and that per capita income is a strong predictor of death. A lack of resources, both social and financial, is to blame for most of the problems in the healthcare system, he stated.

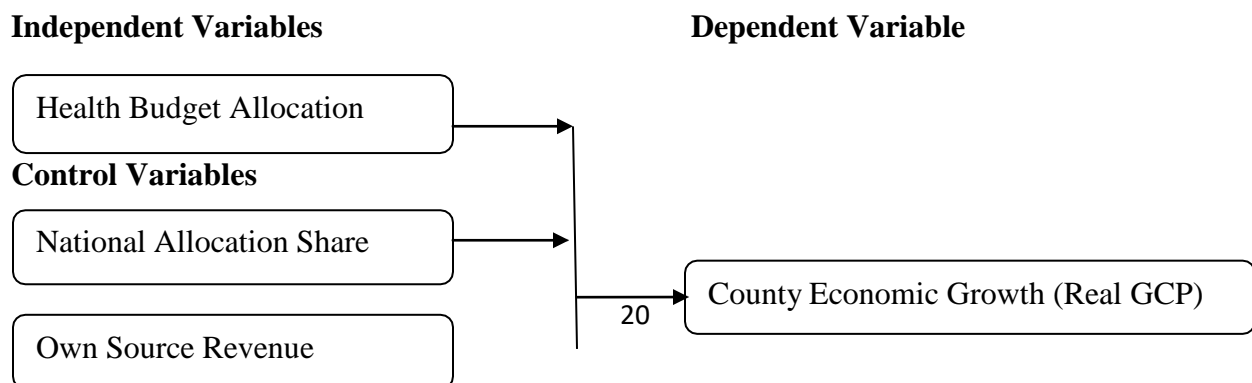
Kenyan economic development was studied using a log-linear model developed by Muturi and Kosen (2013). This examination focused on the defence, health, education, transportation, communications, agricultural, and manufacturing sectors. They observed a long-term relationship between educational investment and agricultural investment and GDP. An insignificant positive correlation was found between defense, health, transportation, and communication.

Ochieng (2010) studied the effect of investing in the health of the country on Kenyan residents' quality of life. According to his findings, when health care expenditure is broadly implemented, it has little effect on economic activity or productivity. According to him, raising the share of GDP committed to health care and expanding vaccination coverage are all important components of maximizing the return on health care investment by the federal government.

2.5 Conceptual Framework

Economic growth and healthcare budget allocation are examined in this research. Allocation of Healthcare Budgets will be the independent variable. Interest rates, inflation, and currency exchange rates will be used as control variables, while real GCP growth will be used as the dependent variable, as shown in Figure 2.1.

Fig 2.1 Conceptual Framework





Source: Author (2020)

2.6 Summary of the Literature Review and Research Gap

In the literature studied, there seems to be a wide range of opinions on the subject matter at hand. This association hasn't been investigated in Kenyan counties by any of these research. To close this knowledge gap, further research on the effects of county-level healthcare budget allocation on Kenya's economic development is required.

Table 2.6: Summary of Literature and Research Gap

Author	Focus	Methodology	Findings	Knowledge Gaps	Focus of current Study
Bakare and Sanmi (2011)	The relationship between Nigeria's economic growth and health care spending.	Multiple regression analysis	A significant positive relationship	Conducted in a foreign state and at a national level	Finding out how health care spending affects a county's economic development.
Ogundipe and Lawal (2011)	The link between healthcare expenditure and economic growth	Multiple regression	Healthcare impacts economic growth negatively	Study conducted in a foreign state and at a national level	Finding out how health care spending affects a county's economic development.
Mandiefe and Tieguhong (2015)	The correlation between public health care and the growth of Cameroonian economy	Vector Error Correction Model (VECM)	Healthcare has an important impact on the economy's growth.	Conducted in a foreign nation at a national level	Understanding how health care spending affects local economic development.
Soukiazis and Cravo (2007)	The link between economic growth and health	Regression analysis	They discovered that the incidence of infant mortality was inversely linked to income.	Conducted at a national level during a pre-devolution era	Finding out how health care spending affects a county's economic development.
Kosen and Muturi (2013)	Budgetary allocations to various sectors in Kenya's economy have a direct effect on its growth	Descriptive Analysis	Investing in agriculture and education has a beneficial impact on the economy, whereas spending on defence, health care, transportation, and communication has a negative impact on the economy.	Focused on national government sectorial units	Finding out how health care spending affects a county's economic development.
Simiyu (2015)	Kenya's economic development and public spending	Descriptive Analysis	No causal relationship	Conducted at a national government level	Finding out how health care spending affects a county's economic development.

Lahirushan & Gunasekara (2015)	Public expenditure and growth of economy in Asia	Descriptive analysis	Government expenditures has a favourable effect on economic growth.	Conducted on a different continent at an international level	Finding out how health care spending affects a county's economic development.
Manyalla (2000)	Relationship linking education and health expenditure to economic growth in Kenya.	Descriptive Analysis	Improved healthcare and education affects the economy positively	Study combined education and health variables.	Finding out how health care spending affects a county's economic development.
Ochieng (2010)	Relationship between government expenditure on health	Descriptive Analysis	Spending on health care does not boost economic activity and productivity, nor does it encourage female literacy.	Conducted during pre-devolution era and at a national level.	Finding out how health care spending affects a county's economic development.

Source: Researcher (2020)

CHAPTER THREE: METHODOLOGY

3.1 Introduction

Health care budget allocation is quantified using several approaches in this chapter.. Data collection, diagnostic testing, and data analysis are all covered in this chapter's sections.

3.2 Research Design

Researchers employ study design as an umbrella technique to handle a variety of research topics, according to Lavrakas (2008). In this study, descriptive study was used. Research variables and their connection to each other are described in a descriptive study design. Between 2017 and 2020, the model is expected to show trends in the development of local economies, health budget allocations, self-generated income, and national budgetary allocations. This research methodology was also utilized to explain the relationship between study variables.

3.3 Population of Study

According to Mugenda & Mugenda, the study's target group is made up of people, things, or events that meet certain criteria (2003). The researchers performed a census since their target population was so small (just eight counties).

3.4 Data Collection

Data from the Kenya National Bureau of Statistics (KNBS) and the Kenya Central Bank were used as secondary data sources. They gave details on health budget allocations and national and self-generated funds from the county governments. Between 2016 and 2020, data were gathered.

3.5. Diagnostic Tests

3.5.1 Testing for Stationarity

For the purpose of determining whether the data being used is stationary and preventing the appearance of an unintended regression as a result of utilizing non-stationary data, the collected data was subjected to an examination for stationarity. Stability was tested using an enhanced Dickey Fuller test.

3.5.2 Test for Endogeneity

Endogeneity is the measure of how original data is. This was carried out to establish existence of Endogeneity in the estimation of the model estimation. The testing was achieved with the use of Instrumental Variable approach.

3.5.3 Granger Causality Test

Using the Granger (1969) method, the percentage of current public healthcare expenditure that is explained by prior values of public healthcare expenditure and then if adding lagged GDP per capita values per capita may enhance the explanation were tested. In most circumstances, a two-way causal link is seen, which means the relationship is a bi-directional one.

3.6 Data Analysis

Analysis of the collected data was performed using the SPSS version 21. The data was analyzed using descriptive statistics, such as the mean and standard deviation.

3.6.1 Regression Model

To discover the relationship between county economic growth and the allocation of county health fund resources, regression analysis was used.

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Y = County Economic Growth (CGP) – Dependent variable

X₁ = Health Budget Allocation

X₂ = National Budget Allocation

X₃ = Own Source Revenue

β_0 = Constant term of the model

$\beta_1 - \beta_3$ = Co-efficients of determination.

ε = error term estimate

3.6.2 Test of Significance

The statistical significance of the link between county economic growth and the allocation of health care resources was determined using a 5% p-value (computations were done using a 95 percent confidence interval). An F-statistic significance criterion of 5% was employed to evaluate the fit of the analytical model.

3.5.3 Measurement of Variables

Growth in the economy was the dependent variable, while health care spending, the national budget, and the county's own source of revenue were the independent variables. Table 3.1 provides the specifications for measuring the model's variables.

Table 3.1: Measurement of the Variables

No.	Variable	Measurement
Y	County Economic Growth	Measured as the annual real Gross County Product
X ₁	Health Budget Allocation	Measured as the natural logarithm of the annual amount of money budgeted for health by the county governments
X ₂	Interest Rates	Measured as the annual CBK lending rates
X ₃	Inflation Rate	Measured as the percentage change in Kenya's consumer

CHAPTER FOUR
DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

This section sums up the results of the data analysis. When looking for a relationship between research variables, quantitative and correlative data analysis are both used. Data is presented in a series of tables. As a consequence of this, the most significant outcomes of the study are presented.

4.2 Descriptive Statistics

Table 4.1 shows the average gross county product for the time period to be Kshs 81,380.76 million, with a minimum gross county product of Kshs 17,076 million and a maximum gross county product of Kshs 162,273 million, with a standard deviation of Kshs 39,043.67 million. The average health care budget allocation is Kshs. 1,274,120,500.00 as the minimum health care budget allocation is Kshs. 513,290,000 and the maximum health care budget allocation is Kshs. 2,123,870,000.00 with a standard deviation of Kshs. 427,672,452.57.

Table 4.1: Study Variables Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
1. Gross County Product	40	17,076.00	162,273.00	81,380.76	39,043.67
2. Healthcare Budgetary Allocation	40	513,290,000.00	2,123,870,000.0	1,274,120,500.0	427,672,452.57
3. National Allocation Share	40	3,459,771,007.3	11,634,574,357	5,784,354,305.4	2,165,263,119.1
4. Own Source Revenue	40	83,218,907.00	819,220,211.00	267,453,286.45	201,743,941.27
Valid N (listwise)	40				

In table 4.1 above, the average national budget allocation for the period is Kshs, 5,784,354,305.4 as the minimum national budget allocation is Kshs. 3,459,771,007.03 and the maximum national budget allocation is Kshs. 11,634,574,357 with a standard deviation of Kshs. 2,165,263,119.10. The average own source revenue is Kshs. 267,453,286.45 as the minimum own source revenue is

Kshs. 83,218,907 and the maximum own source revenue is Kshs. 819,220,211 with a standard deviation of Kshs. 201,743,941.27.

4.3 Diagnostic Tests

This involved testing for multicollinearity, normality and heteroscedasticity of the data that is used in the current study.

4.3.1 Multicollinearity Tests

In order to determine whether the variables in the study are linked, researchers used Multicollinearity. When working with time series data, researchers are often confronted with the issue of multicollinearity. The VIF was used to determine whether this data was multicollinear (VIF). Values below 10 imply no multicollinearity, whereas values over 10 suggest that there are concerns with multicollinearity in the data.

Table 4.2: Multicollinearity Variance Inflation Factors

Model	Collinearity Statistics		
	Tolerance	VIF	
1	Healthcare Budgetary Allocation	.911	1.098
	National Allocation Share	.973	1.028
	Own Source Revenue	.926	1.080

a. Dependent Variable: Gross County Product

As evidenced in Table 4.2 above, all the variables returned $VIF < 10$ inferring that Multicollinearity does not exist. Specifically, health care budgetary allocation $VIF = 1.098$, National budgetary allocation $VIF = 1.028$ and Own source revenue $VIF = 1.080$.

4.3.2 Normality Tests

There are results of a normalcy test in Table 4.3. Since it is widely accepted that linear regression data are regularly distributed, normality testing is used to look for abnormalities in the data used for analysis.

Table 4.3: Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Gross County Product	.151	40	.022	.925	40	.011
Healthcare Budgetary Allocation	.116	40	.195	.955	40	.115
National Allocation Share	.220	40	.000	.844	40	.000
Own Source Revenue	.125	40	.118	.937	40	.027

a. Lilliefors Significance Correction

There was no normal distribution in the data on health care budgetary allocation ($P > 0.05$), national allocation ($P < 0.05$), own source income ($P < 0.05$), or gross county product ($P < 0.05$), as tested by the Shapiro–Wilk and Kolmogorov Smirnov tests. This necessitates standardization of analysis.

4.3.3 Heteroscedasticity Tests

Heteroscedasticity of the data was tested using a Breusch–Pagan test to see whether error terms were consistent across observations. When a population has a constant variance, heteroscedasticity is an issue in regression analysis. Table 4.4 shows that heteroscedasticity is not a problem if the p-value is more than 0.05, but if the p-value is less than 0.05, there are issues that need to be addressed. There is no Heteroskedasticity concern with the research variables since the p value is larger than 0.05.

Table 4.4: Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.179222	Prob. F(3,36)	0.1074
Obs*R-squared	6.147650	Prob. Chi-Square(3)	0.1046
Scaled explained SS	2.426769	Prob. Chi-Square(3)	0.4887

4.4 Correlation Analysis

A statistically significant high link between gross county product and health care budgetary allocation ($r=0.679$) and a statistically significant moderate positive correlation between own source income and gross county product ($r=0.422$) are shown in Table 4.5.

Table 4.5: Correlation Matrix

	Gross County Product	Healthcare Budgetary Allocation	National Allocation Share	Own Source Revenue
Gross County Product	1			
Healthcare Budgetary Allocation	.679**	1		
National Allocation Share	.231	.157	1	
Own Source Revenue	.422**	.267	.092	1
	40	40	40	40

** . Correlation is significant at the 0.01 level (2-tailed).

The weak positive associations between National allocation share and gross county product ($r=0.231$), National allocation share and Healthcare budgetary allocation ($r = 0.157$), Own source revenue and Healthcare budgetary allocation ($r = 0.267$) and Own source revenue and National share allocation ($r = 0.092$) are not statistically significant.

4.5 Regression Analysis

The tables 4.6, 4.7, and 4.8 provide the findings of a regression analysis undertaken to ascertain the percentage of gross county product explained by the distribution of health care budgetary funds, private source income, and national budgetary allocation.

Table 4.6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.733 ^a	.537	.498	.41928

a. Predictors: (Constant), Own Source Revenue, National Allocation Share, Healthcare Budgetary Allocation

As presented in Table 4.6 above, 49.8% of variations in gross county product are explained by variations in county health care budgetary allocation, own source revenues and national budgetary allocation. In table 4.7 below, the ANOVA statistics show that the data had a 0.000 level of significance hence this indicates that the data is ideal for making conclusions on the variables.

Table 4.7: ANOVA Analysis

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	7.329	3	2.443	13.896	.000 ^b
	Residual	6.329	36	.176		
	Total	13.658	39			

a. Dependent Variable: Gross County Product

b. Predictors: (Constant), Own Source Revenue, National Allocation Share, Healthcare Budgetary Allocation

A statistically significant positive connection between gross county product and health care budget allocation ($\beta=0.594$, $P< 0.05$) is shown in table 4.8 below, implying that for every unit increase in health care budget allocation, gross county product increases by 0.594 units. According to a statistically significant correlation ($=0.253$, $P< 0.05$) between own source revenues and gross county product, every unit increase in own source income results in a 0.253 unit rise in gross county product.

Table 4.8: Regression Coefficients

Model	Unstandardized		Standardized	t	Sig.
	Coefficients		Coefficients		
	B	Std. Error	Beta		
(Constant)	-18.472	5.838		-3.164	.003
Healthcare Budgetary Allocation	.966	.193	.594	4.997	.000
National Allocation Share	.220	.220	.115	1.000	.324
Own Source Revenue	.236	.110	.253	2.142	.039

a. Dependent Variable: Gross County Product

Table 4.8 above shows that the positive relationship between gross county product and national budgetary allocation is not statistically significant ($\beta=0.115$, $P> 0.05$). The results are thus summarized in the equation:

$$\text{GCP} = -18.472 + 0.594 (\text{Healthcare Budgetary Allocation}) + 0.253 (\text{Own Source Revenue}) + 0.115 (\text{National Budgetary Allocation}) + \varepsilon$$

Where:

GCP – Gross County Product

4.7 Interpretation and Discussion of Findings

Economic development in North Rift Economic Block counties (GCP) was shown to have a statistically significant link with healthcare budgetary allocations. To put it another way, a one-unit increase in healthcare budgetary allocation (GCP) has a 0.594-unit impact on the counties' economic development. According to Lahirushan and Gunasekara (2015), public spending has a vital role in boosting the economy. According to prior studies, these findings are in line with those of this one. Accordingly, Kurt (2015) came to the conclusion that public health spending should be prioritized to boost productivity and the overall demand for economic products and services. Expenditures on healthcare are linked to economic development, according to Bakare and Sanmi (2011). Investments in public healthcare have a long-term favorable impact on the economy, according to Mandiefe and Tieguhong (2015) findings. Furthermore, according to Waruingi (2020), health care spending in Kenya has a similar impact on counties' economic development.

Second, the research discovered that counties' self-generated money (internal appropriations) showed a positive and substantial link with economic growth (GCP) in the North Rift Region Economic Block Counties. According to the statistics, raising internal appropriations (own revenue creation) by a unit increases GCP growth by 0.253 units, demonstrating that the internal appropriations (own income generation) have a positive and large influence on county economic development. Economic growth is strongly linked to local revenue in Nigerian study by Omodero, Ekwe, and Ihendinihu (2018), while Waruingi (2020) discovered a similar relationship between locally produced revenue and county economic growth in Kenya. Even though previous studies revealed a substantial linkage between internal revenue and growth, Ogbeifun and Tokunbo (2019) identified a significant negative connection.

In the North Rift Economic Block Counties, the study found a non-statistically significant positive connection between the national allocation share and economic growth (GCP). A 0.115 unit increase in the national allocation share has been found to promote county economic growth, hence increasing the national allocation share has a favourable impact on county economies. Benos (2009) found that government spending on various economic sectors affects economic development in 14 EU member states, and our findings are in line with that finding. Additionally, Gregoriou and Ghosh (2008) demonstrated that government spending has a considerable favorable effect on economic growth. In Waruingi (2020), the national allocation share had a considerable effect on the gross county product of Kenya's counties.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The results and suggestions are described in this chapter. In addition, this chapter outlines the study's shortcomings and provides proposals for further research in this area.

5.2 Summary of Findings

An investigation of how health budget distribution affects Kenya's autonomous counties' economic growth was a primary goal of this study. As outlined in Wagner's increasing state expenditure theory, the Solow-Swan growth theory, the Theory of budgetary allocation, and the Theory of healthcare costs. In Kenya, researchers conducted a census of the eight counties that make up the North Rift Region Economic Block. Descriptive statistics and panel regression were used to analyse the data obtained between 2016 and 2020 in the SPSS statistical analysis tool.

The average county gross product (CGP) over the five-year period was around Kshs 813 million dollars Kshs, according to a descriptive statistical research. The average allocation of the health care budget was \$1,274,120,500. In addition, the average national budget allocation share was Kshs. 5,784,354,305.4, while the average internal appropriations (own income creation) was Kshs. 267,453,286.45.

This study found a statistically significant link between healthcare spending and the county's GDP, while own source income had a much smaller, statistically significant correlation. National allocation share and gross county product, National allocation share and healthcare budgetary allocation, and Own source revenue and national share allocation were all found to have weak but non-statistically significant positive relationships.

There was a very strong and statistically significant association between healthcare budget allocations and the county's GDP, whereas a modest and statistically significant correlation was identified between personal source income and the county's GDP. National allocation share and gross county product, National allocation share and healthcare budgetary allocation, and Own source revenue and national share allocation were all found to have weak but non-statistically significant positive relationships.

5.3 Conclusions

North Rift Region Economic Block Counties (GCP) have a favourable and strong relationship with healthcare budgetary allocation. According to these findings, healthcare spending had a statistically significant and favourable influence on the economic development of neighbouring counties.

Secondly, the study indicated that the North Rift Regional Economic Block countries' own source income production had a favourable and strong relation to economic development (GCP). According to the study's results, the expansion of the North Rift Region of Kenya's economy is favourably connected with internal appropriations (or the county's own income production).

As a final conclusion, despite the lack of statistical significance, the North Rift Region Economic Block Counties have a favourable correlation with the national budget allocation share (GCP). Depending on the priority assigned to different expenditures, the total economic development of a particular county may be positively influenced by a national allocation, according to research.

5.4 Recommendations

The study's first finding was that healthcare budget allocations had a significant positive effect on economic growth in the counties comprising the North Rift Region Economic Block. The researchers urge that county governments aim to spend more money on healthcare operations in order to enhance economic development in their individual counties. This is because poor healthcare investment is a major constraint on both healthcare improvement and economic development growth in these counties.

Second, the survey's result that internal appropriations (own revenue generation) had a positive and significant effect on the growth in the economy (GCP) of North Rift Region Economic Block counties implies that county governments should introduce innovative policies to boost internal revenue and production in order to supplement the amount allocated to the county by the national government, thereby assisting the respective counties..

Finally, the research indicated that the distribution of Kenya's national budget benefited the country's economic development. The study recommends that the federal government enhance its payments to counties, since local economic development is linked to overall economic growth.

5.5 Study Limitations

The research looked at how counties' economic development is affected by healthcare financial allocation. There were no other county government expenditures included because it was restricted to contributions to the healthcare budget by specific counties. Despite this, the research was confined to the factors that were being tested. Because of the inclusion of national allocation share and internal appropriations as control variables, the research was confined to the variables that were explored.

In addition, this survey was done among all of the North Rift Region Economic Block's county administrations. Therefore, the results are applicable to all of the Region's counties rather than just one. It is also possible that the results cannot be applied to a specific region in Kenya. A regional economic grouping of counties may not be relevant to other countries with administrative counties.

Finally, this analysis relies on secondary data collected between 2016 and 2020. Secondary data, on the other hand, is outdated and does not reflect the current situation or the opinions

of the county administration. The county's people' views on whether increased health care and budgetary allocations aid the county's economic growth are not included in secondary statistics.

5.6 Recommendations for Further Research

An important emphasis of this research was on healthcare budgetary allocations and their connection to economic development in the North Rift Region counties. As a result, important financial allocations made by county governments in the area and Kenya as a whole, such as those for transportation and infrastructure, education, sports, culture, and the arts, as well as for housing and urban development and water and irrigation, were left out of the research. Accordingly, greater research into the impact of other fiscal allocations on the expansion of counties is recommended by the study.

The authors used secondary data on healthcare budget allocations, national allocation share, domestic income, and county gross product to perform their analysis. Administrators, policymakers, and people lose perspective without primary data. Similar research on the impact of healthcare budget allocations on county economic growth should include qualitative input from county administrators, lawmakers, and residents.

All counties in the North Rift Region Economic Block were counted as part of the research. Therefore, since each county has its own healthcare financial allocation, the results were generalized to the whole area and could not be tied specifically to any one county. Researchers recommend a Kenyan county case study to examine the influence of budgetary allocations on economic performance.

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APPENDICES

Appendix I: Data Sheet

Year	Gross County Product	Health Budget Allocation	National Budget Allocation	Own Source revenue	
2016					
2017					
2018					
2019					
2020					