

**HUMAN CAPITAL DEVELOPMENT, OFFICIAL DEVELOPMENT
ASSISTANCE AND SECTORAL ECONOMIC GROWTH IN KENYA**

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AWARD OF THE DEGREE OF MASTER OF ECONOMICS (POLICY AND
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DECLARATION

I declare that this project is my authentic and original work, it has not been presented for purpose of attaining a degree in any other University or any other award.

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I can confirm that this project has been done by the candidate under my supervision as a university supervisor.

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DEDICATION

I dedicate this work to my loving family and close friends for their continued patience, financial and moral support during the period of carrying out this work. May God bless you all!

ACKNOWLEDGEMENTS

I acknowledge and thank the almighty God for the guidance, protection and direction throughout the study period. I appreciate my supervisor, Dr. James Maingi, for his invaluable time and prudent guidance in the formulation of this work. Special thanks to my loving family, close friends and colleagues for the support they provided during the development of this project. Nonetheless, I take full responsibility for any errors and shortcomings that may be in this work.

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ABBREVIATIONS

ADF	Augmented Dickey Fuller
EAC	East Africa Community
GDP	Gross Domestic Product
GDS	Gross Domestic Savings
GFCF	Gross Fixed Capital Formation
GNP	Gross National Product
GOK	Government of Kenya
IMF	International Monetary Fund
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
SDGs	Sustainable Development Goals
SSA	Sub-Saharan Africa

OPERATIONAL DEFINITION OF TERMS

Human Capital Development (HCD) - This is knowledge of information, talent, abilities and capacities controlled by a representative or a gathering of representatives working in an association.

Official Development Assistance (ODA) - This is the resource transfers in form of loans at concessional financial terms and grants from developed countries, bilateral and multilateral institutions to developing countries. It is grouped into three categories: program assistance, technical assistance and project assistance.

Program assistance- A cash transfer to country for the general support to development objectives.

Project assistance- A explicit interest in the beneficiary country, like the construction of a road.

Sectoral Economic Growth- The GDP growth of the respective sectors in real /constant terms. It alludes to the decrease or upsurge in a sector's performance over time.

Technical assistance- An exchange of information either by bringing the targeted persons from the benefactor country or from the beneficiary country to the contributor country for study or by sending specialists from the donor nation to the beneficiary to guide, instruct, and eventually move abilities and innovation.

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ABSTRACT

Kenya's economic performance has varied overtime; however, the individual share of leading sectors in Gross Domestic Product is still trifling. The broad-based growth option is that which incorporates total factor productivity among the main sectors of the economy and enables the economy to gain the desired positive structural change, wellbeing and sustainable economic growth. Upon conducting sectoral review, the Government of Kenya settled on the "Big Four" agenda which is anchored on key sectors that could lead to food security, affordable housing, increased share in Gross Domestic Product of manufacturing sector activities and affordable universal healthcare, in support of an economic growth that would result in alleviation of poverty and increased job opportunities for the youth. The government plans to increase resources to realize actual performance in these sectors under the Big Four Agenda and part of these resources is in form of official development assistance from bilateral and multilateral institutions. Shifting of public resources from administration to other sectors which are more productive significantly influence growth. However, this depicts different implications on the process of structural change. It is only through the shifting public resources towards spending on services and industry that may have the most positive significant effect on the process of structural change. Many studies on official development assistance and human capital development have focused on economic development from a national or cross-country perspective, but a few studies have looked at sectoral economic growth. Thus, this study examined how official development assistance and human capital development interact in Kenya's sectoral economies. This was achieved through three specific objectives; the first was to establish a causal relationship between official development assistance and human capital development in Kenya. The second was to determine the effect of human capital development on sectoral economic growth in Kenya. The third was to establish the effect of official development assistance on sectoral economic growth in Kenya. The study concentrated on agriculture and manufacturing since they were both key sectors under the economic pillar of the Kenya VISION 2030, as they are important drivers of economic development and account for a significant portion of the country's overall employment. Time series data analysis was used to look at these two sectors. The study, which covered the years 1980 through 2020, was completed by assessing each component on an annual basis and collecting secondary data from sources such as national statistical abstracts and economic surveys. As a result, it was found that official development assistance causes human capital development, indicating that the link is unidirectional in its origin. In addition, human capital development had a favorable effect on manufacturing economic growth, while official development assistance had a large and positive effect on both the agriculture and manufacturing sectors' economic growth. The findings had effect to both theory as well as policy in promoting human capital development as well as attract more official development assistance to the country. Based on the findings, the government at national and county government levels ought to acknowledge the significance of human resources by developing a framework that would steer forward the key human capital elements including allocating more funds to enable boosting a combination of associated factors. Moreover, reforms in public finance management such as restructuring, strengthening monitoring and evaluation systems, automation of payroll systems and improvement of audit procedures in public institutions, may renew the confidence of donors. Therefore, an accountability framework by Government may help mitigate obstacles such as high-level corruption and enhance more official development assistance inflows in Kenya.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Historically, economic growth has been a significant topic of interest in developing countries and developed economies. Over the years, it has gained renewed interest sparked by new economic growth theories largely focusing on the core long-term determinants of economic growth which have resulted in quantifiable effect on economic prosperity of nations. African nations, developing countries, continue to face low-pay levels, developing joblessness, high poverty levels and high inflation (Veledinah, 2014). A powerful government is needed to give an administration system, human resources speculation, actual framework, and social attachment essential for monetary development, job creation and reduction of poverty.

Development and growth models show that the principal factors that impact long haul monetary development and improvement are the accessibility of capital and work just as their productiveness (speculation/reserve funds) and mechanical advancement (Veledinah, 2014). This requires increased productive investments, notwithstanding, the little domestic savings funds in developing nations can't meet the necessary investment, and the impractical current record deficiency keeps these economies from bringing in capital products for investment. Economic theory suggests that a desirable deficit runs from increased financing of productive domestic investments such as Human Capital Development (HCD) and infrastructural projects which generate employment and revenues in the long-run. As a counter strategy to an increased and unsustainable deficit, some nations opt to rely on foreign aid also known as Official Development Assistance (ODA) to increase investment resources, finance imports

and foreign exchange. Theoretically, ODA positively contributes to economic growth on any economy.

Mckee and Bells (2013) contends that guide regardless of the source or type ought to be coordinated to regions where it incredibly affects education, public health, trade and on-job training. The significance of ODA in developing countries has been on the increase, particularly in Sub-Sahara Africa. However, we note that over half a century of directing resources to these countries, little development has been registered. A large part of Sub-Saharan Africa has recorded a high degree of unemployment, increased indebtedness, poor economic performance and acute poverty. In addition, it has registered a decreasing trend in per capita income since 1970 despite the high aid inflows.

Human resource development is significant to economic growth and development (Hakooma and Seshamani, 2017). According to the Swedish Agency for Development Evaluation (2007) major inputs are labour and capital, which are traditionally considered in production models, while Gross Domestic Product (GDP) is regarded as the end product in the production process of an economy. Labour intensive countries seem to be among the less efficient countries (Swedish Agency for Development Evaluation, 2007). Relatively capital-intensive countries are, to a large extent, found to use resources more efficiently and to have a more positive efficiency in development.

1.1.1 An Overview of Kenya's Economic Performance

The evolution of the Kenyan economy to become a regional frontier has been avidly analyzed and is of immense interest because of her geopolitical position. Many analysts have projected that the country continues to register significant growth in the coming years bolstered by the macroeconomic fundamentals that have been put in

place, (Maana, Owino and Mutai, 2008). Kenya's development blueprint, Kenya Vision 2030, which spans the years 2008 to 2030, aims to transform the country into an industrialized, middle-income economy with good standards of living for all of its citizens by the end of the decade. The vision is supported by three pillars: the political pillar, the economic pillar, and the social pillar. Specifically, in cases where the economic pillar has set a goal of achieving an average GDP growth rate of 10 percent per year by 2030, (Republic of Kenya, 2007).

The first decade after independence, from 1964 to 1973, was a time of great ambitions and economic success for the country. During this era, the economy had a favorable performance, with real GDP growing at an annual rate of 8.2 percent during the course of the period. In 2005, Daniel and Oliver published a paper on the topic. The second decade (1974-1983) marked the beginning of the end of the period of economic boom. According to Daniel and Oliver (2005), strong external shocks were combined with ineffective monetary management and reckless fiscal policies, resulting in a deterioration of the country's economic performance. During this time span, the average real GDP dropped to 4.3 percent. The consequences of the previous decade's expansionary fiscal policies were most apparent in the third decade (1984-1993). The development of incompetent private industries and state companies depicted a serious competition of economy's scarce resources. This resulted in a decline in exports and an increase in the budget deficits resulting in an average growth of 3.5% during this decade.

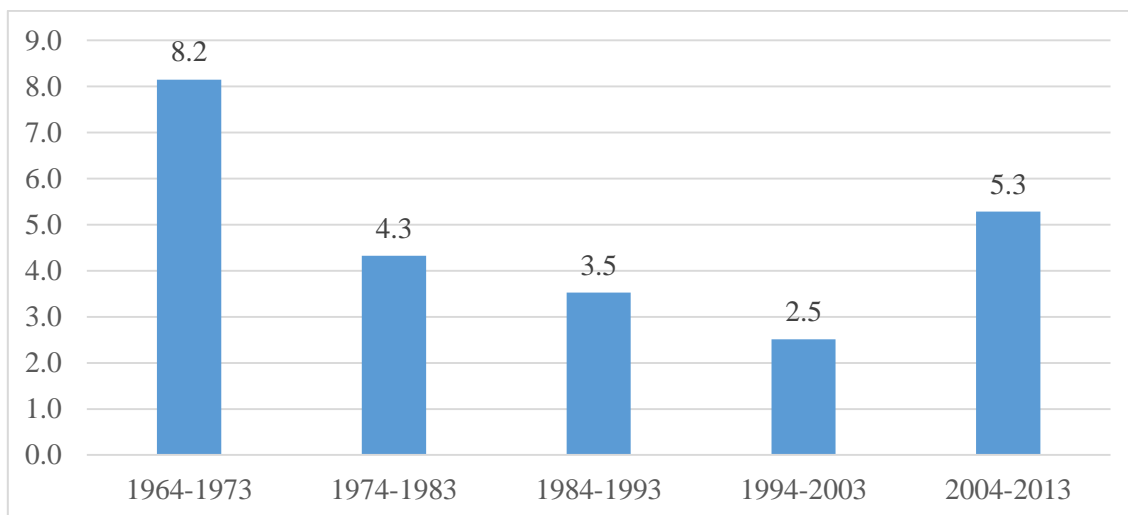


Figure 1.1: Economic growth per decade since independence

Source: Economic Surveys (Various issues)

This descending spiral persisted in the fourth decade (1994 to 2003). A combination of a regime of poor monetary and fiscal policies, internal and external economic shocks and political instability resulted to this poor economic performance (Daniel and Oliver, 2005). The average economic growth declined to a low of 2.5%. The poor economic performance experienced in 2002 was largely due to inadequate credit provisions, obsolete agricultural policies, and foreign trade policies which resulted to poor performance in agricultural productivity. In addition, the import substitution policy together with increasing international oil prices encouraged unnecessary competition in the manufacturing sector.

The economy grew at an average of 5.3% between 2004 and 2013. In 2008, the low growth of 0.2% was attributed to the political turmoil of 2007 and compounded by drought and the global financial crisis (Economic Survey, 2013). However, after the resolve of the crisis, the country exhibited a growth path with a modest improvement of 3.3% in 2009 and the highest growth during the decade at 8.4% in 2010 after the country rebased its GDP (Republic of Kenya, 2014).

The economy has not been able to achieve the 10% economic growth per annum as envisaged in the Kenya Vision 2030. This calls for revamped policies focused on some selected sectors of the economy where more resources could be channeled to stimulate higher economic growth.

1.1.2 A Review of Human Capital Development and Official Development Assistance

Economic theory identifies human capital as the key to the growth and development of economic at microeconomic and macroeconomic levels (Becker, 1964). In addition, the development of a healthy human capital for both market and non-economic activities can result to increased economic growth. (Briscoe & Wilson, 2004). Acknowledgment of the significance of human resources has subsequently made a few governments over the world to fall back on development of the education sector as well through increased educational expenditures. Economists often relate the term human capital to health, education, plus more human abilities which can enhance productivity. Human capital is therefore conceived as developed knowledge, developed skills, required from the society in provisions of labour in the labour market for the production of goods and services (Hakooma and Seshamani, 2017).

The nation's wealth is analytically determined by level of human capital (Harbison, 1971). Across nations, different levels of economic development can be determined by availability of physical capital stock and efficiency of human capital and not by natural resources (Hakooma and Seshamani, 2017). United Nations Development Programme (2008) selected some countries for a study on the performance of both the education and health sectors. The research revealed that most countries registered an extraordinary advancement in health and education, as a result of increased spending in the sectors.

Government spending on health and education services to its citizens proved to be a major indicator towards improving the quality of human capital. According to Isola and Alani, (2012), skilled healthy human resources enhance growth and development of an economy. Health is an essential indicator in economic growth and development and proves to be a major indicator in economic performance both in microeconomic and macroeconomic levels. Bloom and Canning, (2003) propose that an individual's capabilities are determined by health and is closely interlinked to human well-being.

Moreover, Janjua and Kamal, (2011) depict that formal education is the process of impacting skills and knowledge in all generations. The process of gaining education can start with basic literacy to professional level. Mitch, (2005) also debates that an individual's earnings depend greatly on intelligent quotient (IQ), life skills, education, and access to resources. The quantity and quality of outcomes of education relied on the quality of knowledge and skills acquired.

Education is a major fundamental input in achieving sustainable economic growth and development, this can be achieved through human capital investment (Omoniyi, 2013). This standpoint is based on the fact that education not only promotes self-understanding but also improves people's productivity rates, creativity and quality of lives, hence promoting entrepreneurship skills and technological advancement. Similarly, education is regarded as a key instrument for diminishing inequality and acute poverty through enhancement of productivity which is indicated as the key ingredient for a steady economic growth (Khan and Williams, 2006). On the other hand, Nyamwange (2009) observes that for the stabilizing the macroeconomic policies, there is need to high level of human capital by investors is a major determinant of foreign direct investments (FDI) in Kenya. However, there is a shortage of skilled labour in the Kenya (Nyamwange, 2009; Maingi, 2014). Public

social spending in developing countries focused towards improvements of health and literacy levels has increasingly received mass support from developed countries in form of ODA.

Promoters of official development assistance (ODA) advocate for an increase in ODA disbursements to poor countries in order to promote economic growth (Sakyi, 2011). The majority of Sub-Saharan African countries get government assistance in the form of official development assistance (ODA), which helps to enhance and promote their economic growth and wellbeing. This assistance may be provided directly from a donor to a recipient, or it can be provided via multilateral institutions such as the United Nations and the World Bank, which act as international development agencies. There are three types of development aid available, which are categorized as follows: technical assistance, program assistance, and project assistance.

Kenya, like many other countries in Sub-Saharan Africa, has relied on official development assistance (ODA) since its independence (Veledinah, 2014). The massive amount of ODA has been coupled with significant private resource flows (equity venture capital, net inflows from foreign direct investment, remittances received from abroad, and private non-guaranteed long-term debt), as well as various governmental loan programs and grants. Official development aid on a global scale (in millions of US dollars, current prices) is shown in figure 1.2

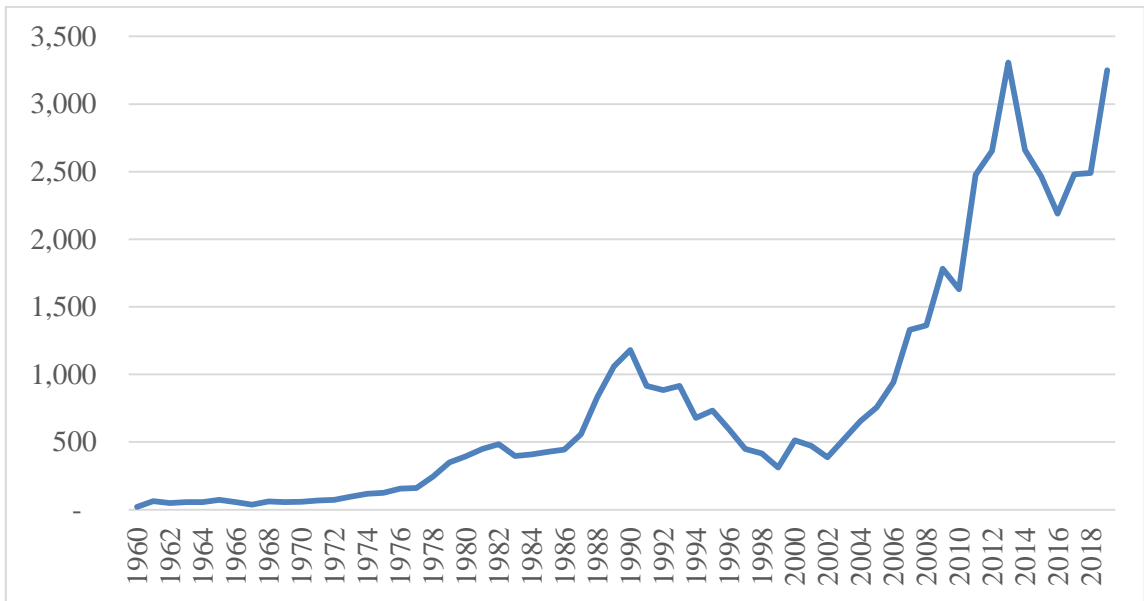


Figure 1.2: Trend of Official Development Assistance (1960-2018)

Source: World Bank

From the trend analysis, it can be observed that ODA inflows have been on the rise since independence up to the year 1990 when the declining trend began and persisted for over a decade. The multilateral and bilateral donor suspended ODA to Kenya in mid 1990s because of government's inability to follow on its commitments to Donors (in regards to the execution of Structural Adjustment Programs-SAPs). In 1993, Kenya set out on a significant monetary changes and progression that saw it acquire trust from givers. This anyway never endured as givers by and by suspended advancement help to Kenya in 1997, when the nation neglected to meet the administration changes ordered by International Monetary Fund (IMF). In 1997, the nation started the foundation of by setting up the Kenya Anti-Corruption Authority with an obligation to improve the transparency of the government.

A closer observation of the trends reveals that for about three subsequent years the situation (low ODA inflow) never improved till the election of new government in 2002. There were reforms in public finance management that renewed the confidence of donors, such as restructuring, automation of payroll systems and improvement of

audit procedures in public institutions. Then after 2002, ODA flows to Kenya recuperated and grew at an increasing rate until the year 2013 when it fell once more as a result of another regime change which was characterized by high perceived corruption rates. Erega et.al, (2012) the critic of ODA as cited in Veledinah (2014) argues that aid breeds corruption as well as weaken governance. The poorer trends could really have been associated with high corruption levels. In 2012, Kenya ranked among the top three utmost corrupt nations in East Africa (Transparency International, 2012).

Regarding the contribution of Net ODA received to the growth of GDP, a positive and steady increase has been witnessed on the growth of GDP contributed by Net ODA received from 1980 to early 1990s, where a steady decline was recorded over almost 10 years until 2000. After the year 2000, the Net ODA received contribution to GDP growth has stagnated with minimal fluctuations up to the year 2020. This unprecedented contribution to GDP is as illustrated below.



Figure 1.3: Trend for Net ODA received
Source: Data from World Bank

1.1.3 Sectoral Economic Growth in Kenya

The Kenyan government's principal strategy in development is covered widely in its 'Vision 2030' national development blue print, with an objective of management of scarce resource, reduction of inequality and accelerating sustainable growth rate. Specifically, goals sets in Vision 2030 is to enable Kenya to become an industrialized economy and reach the self-sustaining economic status by 2030, "ensuring a high quality of life for all its people" (Republic of Kenya, 2007). Both foreign aid and human capital makes a significant impact to growth. However, this is possible only in the nations with high standards in the policy indicators (Gomanee, Girma and Morrissey, 2005). If the existing respective policies are poor, consequently, aid intervention results to ineffectiveness and human capital becomes unproductive. This the trend is explained by recipient countries including Kenya, particularly if they possess poor sectoral policies (for example borrowing policies leading to persistent budget and external deficits undermining growth trajectory), to underutilize, misallocate human capital which diverts aid from principal recipient of financing development hence promoting investment (Burnside and Dollar, 2000).

The Kenyan government spends assets that are prepared through collection of domestic revenue and from outside assets as credits and unfamiliar guide to animate and support growth of economic through her key sectors (Lagat, 2015). Over the last two decades, there has been huge investments in some sectors such as infrastructure, agriculture and forestry as well as provision of key services including education and health, which could somehow be costly whenever left to the private area. According to the Economic Survey (2018) the Kenyan economy experienced subdued growth of 4.8 percent in 2017 mainly resulting from the prolonged electioneering period when there was reduced economic activities.

Table 1.1: Sectoral Real GDP growth rates (2012- 2019)

Sector	2012	2013	2014	2015	2016	2017	2018	2019
Agriculture	2.8	5.4	4.4	5.3	4.7	1.6	6.0	3.6
Construction	11.3	6.1	13.1	13.8	9.9	8.4	6.9	6.4
Education	11.1	6.3	7.8	4.9	5.3	5.2	5.8	5.4
Health	-2.8	7.7	8.1	5.8	4.8	4.3	4.4	5.8
Manufacturing	-0.6	5.6	2.5	3.6	3.1	0.7	4.3	3.2
Mining and Quarrying	19.0	-4.2	14.9	12.3	9.5	4.5	2.7	2.5
Transport and Storage	2.6	1.3	5.5	8.0	6.5	7.2	8.5	7.8
Electricity Supply	13.6	9.8	7.3	11.5	9.5	8.9	10.5	7.9
Accommodation & Restaurant	3.1	-4.6	-16.7	-1.3	13.3	14.3	16.6	10.3
Information and communication	2.6	12.5	14.5	7.4	9.9	11.0	11.3	8.8
Financial & Insurance	6.0	8.2	8.3	9.4	6.9	2.6	5.3	6.6
Public Administration	4.0	2.8	5.6	5.5	5.6	4.7	6.7	8.1
Professional, Admin and support	6.2	6.7	4.1	3.6	5.1	4.6	5.3	6.1
Real Estate	4.0	4.1	5.6	7.2	8.8	6.1	4.1	5.3
Real Economic Growth	4.5	5.4	5.6	5.7	5.9	4.8	6.3	5.4

Source: KNBS

A general declining trend in manufacturing's contribution to GDP was evident from the 1980s to 2020. Between the early 1980s and mid-1980s, the manufacturing contribution to GDP was declining, but after the mid-1980s, that contribution steadily increased up to the early 1990s. Thereafter, the contribution of the manufacturing sector again declined steadily until the year 2000. A sharp decline in the contribution of manufacturing to GDP was realized in early 2000, then after 2010, that contribution sharply rose. The increase was short lived as a drastic decline set in and continued even into the early 2020s as represented in Figure 1.4 below.

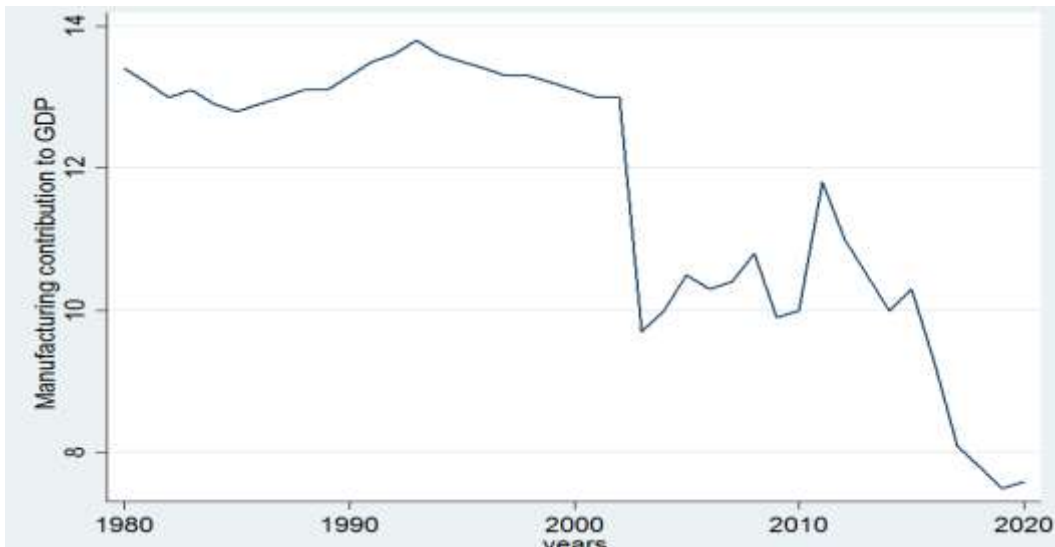


Figure 1.4: Manufacturing's contribution to GDP
Source: Data from KNBS

In contrast to the contribution of agriculture to GDP, between the years 1980 to 2010, there was evidence of a fluctuating and declining rate of contribution to GDP. However, an immediate surge in the contribution of agriculture to the GDP between 2010 and 2020 was conspicuously visible, as illustrated in Figure 1.5 below.

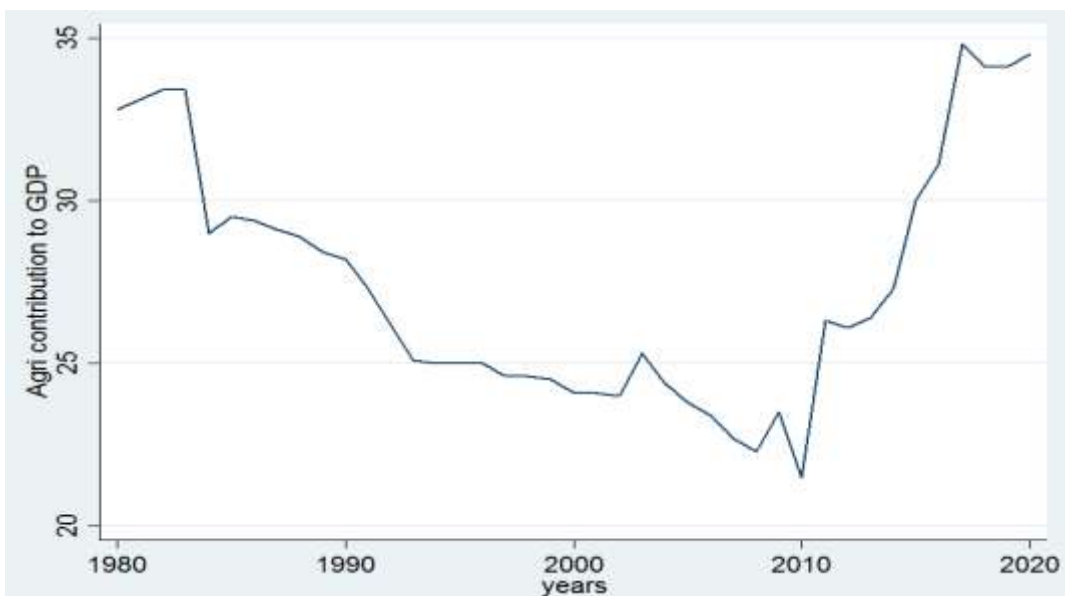


Figure 1.5: Agricultural contribution to GDP
Source: Data from KNBS

In addition, school enrolment rates showed that at first, the percentage steadily declined from 1980 to early 2000. Thereafter, the trends of school enrolment have

been increasing, with the highest percentage of contribution being around 2010 and 2013.

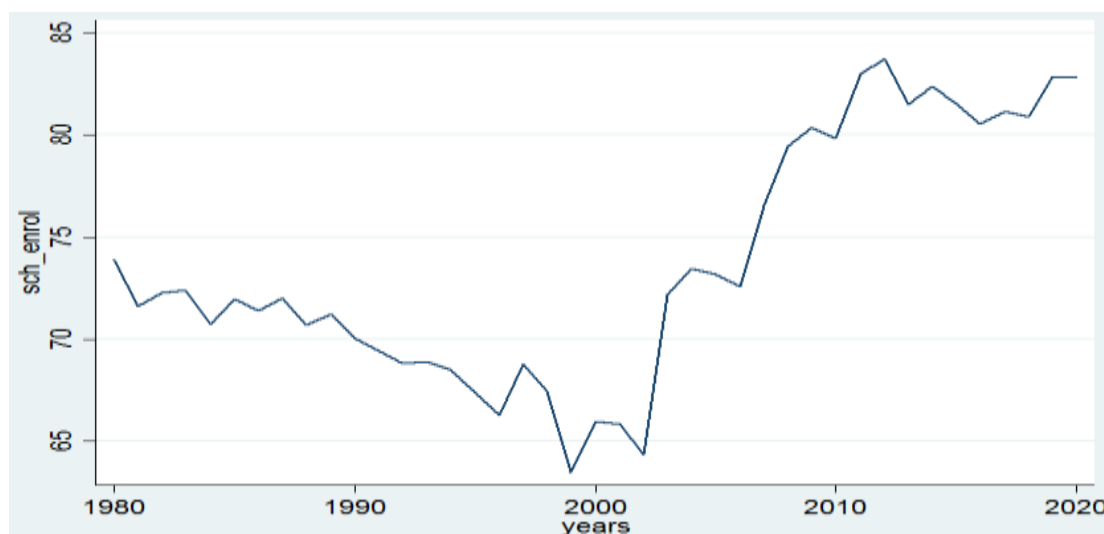


Figure 1.6: School Enrolment contribution to GDP

Source: Data from KNBS

The Government of Kenya (GOK) in 2017 during Jamhuri day that marked 54 years of independence, unveiled the ‘Big Four’ Agenda as a new dimension towards addressing the challenges of slow economic growth and unemployment. The agenda was embedded as part of the Vision 2030 Medium -Term Plan III (2018-2022). According to the Budget Policy Statement (2018), it is focused on two out of four main sectors including Agriculture (enhance food security), Health (universal healthcare cover for all residents), Manufacturing (enhance the share of manufacturing to GDP from 9% to 15% by 2022), Construction (provision of 500,000 affordable houses).

Under manufacturing industry, the government is keen at boosting the four main sub-sectors that is; agro-processing, leather and textiles and blue economy. As a result, the government expected to increase revenue industry from export to Kshs. 50 billion in the next five years; from textile industry revenue to increase from Kshs. 3.5 billion to

Kshs. 2 trillion, as well as creating 500,000 jobs in cotton industry and 100,000 jobs from new clothes by 2022 and in agro-processing, as well as establishment of small and medium enterprises of about 1,000 new enterprises to boost creation of about 200,000 jobs for young people by 2022 (Republic of Kenya, 2018).

Food production is the second pillar, with the government aiming to produce 2.76 million bags of maize, rice and potato by the end of the economic year from 52,000 acres of land, and an additional 70,000 acres of land through public-private partnerships for the production of the listed crops, which also include cotton, aquaculture, and feeds production. Post-harvest losses are expected to drop from 20 percent to 15 percent during the next two years, respectively. In addition, incentives waive on cereal drying equipment, silos, aquaculture feed, fishing among others, with addition of maize production to about 2 million bags. Government also targeted transforming the Strategic Food Reserve (SFR) of about 500,000 bags in 2018, with further establishment of two new stores of seed potato in Molo and Nyandarua with one warehouse of potato in Nyandarua, as well as formations of three fish conservations in Migori as well as rehabilitation of some selected land (Republic of Kenya, 2018).

Health sector is the third pillar which the government is set to review and amend. This was done through amendment of the National Hospital Insurance Fund (NHIF) Act to align laws governing private insurance companies and amend NHIF in order to achieve universal health care which reduces the cost of health cover to be within the reach of every citizen (Republic of Kenya, 2018). However, for this success, great collaboration with private sector is paramount in undertaking the policy and administrative reforms.

Lastly, Housing is pillar in building and construction sector. In developing economies like Kenya housing forms strategic industry. This enables other sectors to be productive towards realizing Vision 2030 in Kenya. In 2016, construction industry registered a growth of 9.2% expansion to 13.9% per registered in 2015. Expansion and development of this sector of housing and road construction created an increase of news jobs from 148.6 thousand in 2015 to 163.0 thousand in 2016 (Economic Survey, 2017). Moreover, development of National Housing Corporation (NHC) and housing was established in three counties that is Nairobi, Kisii, and Kisumu in the year 2016, costing Kshs. 328.7 million, Kshs. 109.5 million and Kshs. 439.7 million respectively (Republic of Kenya, 2018).

Human capital theory postulates that economic benefits of individuals and societies is derived from investment on its population (Sweetland, 1996). In this regard, for years Education has remained a major indicator of human capital investment. However, Becker (1993) and Schultz (1997) have postulated that nutritional expenditure and health are equally significant in human capital investment. Moreover, education has been associated as a major contributor to health and nutritional improvements since education form part of health and nutrition. In modelling of economic growth, school enrolment is the central place in establishment of human capital while significance of health has been an taken as an exogenous variable (Maingi, 2014).

Realizing the set sectoral targets in Kenya as enlisted by the government, it is worth noting that the political environment is key ingredient. On the other hand, resources as well as harmonious labour relations are the bedrock on which the government achieves the big four agenda especially when considering a robust manufacturing sector. As a result, more investment in human capital is needed, which will necessitate a shift in educational policy to place a greater emphasis on industry-led technical and

vocational education and training (TVET), which will result in more human capital being produced to fill newly created positions.

1.2 Statement of the Problem

The economic growth in Kenya over a period has registered fluctuation trends as well as periods of stagnation. The uneven growth rate of an economy is attributed to both external and internal economic shocks (Onyango, 2013). The country has not been able to achieve the 10 percent economic growth per annum as envisaged in Vision 2030. The long-run macroeconomic achievements of Kenyan economy depend mainly on policies that encourage resource shifts from low productivity sectors to high-productivity sectors. For the country to make the necessary transition to double-digit economic growth while also creating jobs, particularly for the youth, the government has pursued targeted increased investments in four sectors, namely, agriculture, health, manufacturing and construction. This is referred to as the "Big Four" Agenda in its Medium-Term Plan III. Agriculture and industry, on the other hand, have benefited from significant infusions of capital owing to their direct contribution to the national economy.

Kenya's unemployment problem is partly due to the mismatch of skills between the labour market requirements and the skills possessed by graduates (Omolo, 2010). It is estimated that there are 800,000 youths entering the labour market on an annual basis, but most of them are not able to secure jobs (Hall, 2017). Further, most private companies are not willing to retrain new employees since it is costly and would adversely affect their profit maximizing goals. ODA can be channelled to specific HCD priorities that enable financing of reskilling, sector-specific training of new employees, enhanced financing of industrial training institutions. Literature has shown the concept of human capital as a combination of factors such as education,

work habits, experience, trustworthiness, intelligence, training, energy, and initiative that can influence the value of a worker's marginal product (Olaniyan and Okemakinde, 2008; Mtey and Sulley, 2013). However, there are hardly any studies that relate human capital to sectoral economic growth.

Kenya has been a recipient of ODA for decades and like other Sub-Saharan countries this has not been sufficient to push the country out of poverty. This is partly because of fungibility of foreign aid, reliance of ODA from the developed countries, and channeling of aid in sectors. It has been argued that this assistance has created a dependency culture in most African countries and it has left them worse off than they were before (Moyo, 2009). However, it is unlikely that Sub-Saharan Countries ceases receiving ODA and therefore governments should scale up policies that enables the effective and efficient use of ODA in priority sectors to spur job creation especially for the youth and sustainable economic growth and development.

As previously stated, available literature (M'Amanja & Morrissey, 2005; Maingi, 2010; Muthui et al., 2013; Ojwang, 2013; Maingi, 2014; Hakooma & Seshamani, 2017) investigates the impact on the entire economy, and as a result, according to Lagat (2015), there have been no studies conducted to determine the relationship between foreign aid and economic growth at the sectoral level. However, Lagat (2015) failed to validate his estimates of the impact of foreign aid on sectoral growth by failing to take into account important diagnostic tests such as unit roots and normality, among other factors. In addition, the study employed an inappropriate estimation technique based on the specification test. Failure to choose the right estimating technique or validating the model renders the estimates spurious and thus unreliable (Woodridge, 2004). Therefore, it is dubious whether ODA makes critical commitment not exclusively to monetary development yet in addition leaving the

topic broadly open for debate particularly on sectoral financial development in Kenya. There is a need for sector based analytical study with appropriate estimation technique as suggested by Veledinah (2014) to enable a clear understanding of the process, in relation to important factors influencing individual sector.

This research seeks to enhance the understanding of the causal relationship between the ODA and HCD. Further, enhancing HCD in specific sectors can lead to enhanced economic growth. As the government invests and spends huge resources from domestic revenues, domestic and external loans, and foreign aid on revitalizing the four main sectors in Kenya under the “Big Four” development agenda which is part of the Medium-Term Plan (MTP) III. Understanding sectoral growth process is not only be significant and central to development economics but also facilitates governments to improve overall growth of the economy (Republic of Kenya, 2017). In this context, the purpose of this research is to investigate the relationship between human capital, official development assistance, and sectoral economic growth in Kenya. The research focuses on two major sectors: agriculture and manufacturing, both of which are emphasized under Kenya's Medium-Term Plan III since they are important drivers of economic development and account for a substantial portion of the country's overall employment.

1.3 Research Questions

- i. What is the causal relationship between human capital development and official development assistance in Kenya?
- ii. What is the effect of human capital development on sectoral economic growth in Kenya?
- iii. What's the effect of official development assistance on sectoral economic growth in Kenya?

1.4 Objectives of the Study

1.4.1 Main objective

The main aim was to establish the effect of human capital development and official development assistance on sectoral economic growth in Kenya.

1.4.2 Specific objectives

The specific objectives of the study included;

- i. To establish the causal relationship between human capital development and official development assistance in Kenya.
- ii. To investigate the effect of human capital development on sectoral economic growth in Kenya.
- iii. To determine the effect of official development assistance on sectoral economic growth in Kenya.

1.5 Significance of the Study

Kenya has reasonable prospects for accelerating economic growth from the productive sectors and which are areas of potential comparative advantage. Economic theories are beneficial in identifying, analyzing and interpreting the determinants of sectoral growth; however, indicating how the process has worked or failed in countries is ultimately an empirical issue. A large part of the empirical literature on ODA and HCD focuses on cross-country growth regressions, at least useful in detecting the factors that appear to be constant important determinants.

This study seeks to provide a comprehensive understanding of HCD, ODA and its influence on economic growth from a sectoral perspective. The findings may also guide policy makers in designing more effective policies with the aim of enhancing sectoral economic growth and better utilization of existing human capital and thus

decrease the overdependence on external aid. Finally, the study will increase the volume of existing literature on HCD, ODA, and economic growth.

1.6 Scope of the Study

The main aim of the study was to establish the effect of HCD and Official Development Assistance on economic growth in Kenya. The study was limited to two sectors, that is, agriculture and manufacturing. The coverage period is between 1980 and 2020. The decision of the examination time frame is educated by the way that Kenya began carrying out SAPs in 1980 to resuscitate the financial development and later the Vision 2030 was formulated, which has set targets that are to be achieved through productive and successful domestic and outside resource usage as well as human capital. In addition, the choice of the two (agricultural and manufacturing) out of four main sectors was informed by the current government priorities (Big Four Agenda) which is part of the Medium-Term Plan III (2018-2022) and the economic pillar of the Kenya VISION 2030.

1.7 Organization of the Study

This research project was divided into five sections, which were arranged as follows: The first chapter had the following sections: the study's background, a description of the issue, research questions that guided the investigation, as well as goals, the importance of the study, and the scope of the study. The theoretical literature examined and the empirical literature evaluated in relation to the research goals, as well as a summary of the literature review, were given in Chapter Two of this report. The third chapter was devoted to research methods, and it included theoretical frameworks. This was followed by the formulation of an empirical model. It was discussed how to do various diagnostic tests, such as before and post estimate testing. The fourth chapter dealt with data analysis and interpretation, while the fifth chapter dealt with summary, discussions, and conclusions.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides a review of both theoretical and empirical literature, and it is split into three major sub-sections for ease of reading and comprehension. The first part examines the theoretical literature on economic development, which is followed by an examination of the empirical research on human capital, foreign assistance, and economic growth in the second half. It ends with a review of the relevant literature.

2.2 Theoretical Literature

Theoretical review presents the speculations that clarify the role of human capital and ODA on financial development. Human capital and ODA are accepted to be significant in taking care of building up economies' issues. Generally, monetary hypothesis underlines on the actual amassing of human capital as a pointer of financial development, however in any event in the short-run, while the exogenous mechanical advancement is supposed to be a vital determinant of development over the long haul. This exogeneity of mechanical progression has confined the insightful limit of the neoclassical model and its experimental check because of its complicated nature of clarification of financial development over the long-haul time frame because of diminishing actual capital returns. As per Mwalima (2003) unfamiliar guide is a huge wellspring of capital arrangement particularly in creating economies where the base is low. Moreover, Maingi, (2014) presents that innovation diffused by overflow into neighborhood creation measure, be embraced by nearby undertakings. Along these lines, we can to recognize HR and ODA as an essential wellspring of outer improvement money in an exertion of LDCs accomplishing financing of Sustainable Development Goals (SDGs).

2.2.1 Human Capital Theory

This theory focused on the significance of education in economic development. The theory emphasizes the significant effects of education on economic and socio-economic development (Michaelowa, 2000). According to Olaniyan and Okemakinde, (2008), formal education highly influences production as well as improves the quality and quantity of the production capacity. Consequently, theories of human capital postulate that a productive population is based on education since it increases efficiency in productivity by increasing the level of economic capacity of human capital. Moreover, expenditure in education is justified by the theory that through education, skills are created which in turn enhances higher levels of productivity amongst the educated population as compared to those with no education in both developing and developed nations (Fagerlind and Saha, 1997).

According to human capital theory, education and skill-building among impoverished communities and families are important components of any successful poverty-reduction or poverty-fighting strategy, and should be prioritized. In both the rural and informal urban economies. In accordance with the idea, there is a direct link between education and paid work in the formal sector, as well as a subsequent upward mobility after individuals get employment in the formal sector (Mtey and Sulle, 2013).

On the other hand, other studies propose that advancement in schooling levels among the labour force are likely to influence the process of employment growth (Bowles, et al., 1997). However, they argue that tendency of perpetuated inequality in society is attributed to education which is considered as a necessary tool for poverty reduction through well-being of the poor through education. Nevertheless, pro-education poverty nexus champions like O'Hare (1996) and Darby (1996), propose that higher

education levels contribute not only to income earnings and productivity but also reduces income inequality. Thus, indicating a significant relationship between skills gained, educational gained, creation of jobs and economic growth.

2.2.2 Harrod – Domar Model

Harrod – Domar Model indicates that a country can achieve its desired growth trajectory through influencing savings to grow investments and thereby increase productivity (Domar, 1946). The Harrod-Domar (HD) model is a neo-Keynesian model that relates economic growth rate to capital stock and stresses the importance of investments in fixed capital such as: machines, factories, as well as investment in human capital, which is considered in this study. It notes that this may be achieved by encouraging savings to support production of more output for less capital, thereby lowering the capital-output ratio, which is the productivity of capital investments.

In this model, an economy's growth rate is a direct function of savings and capital in relation to the output ratio of the economy. The national output growth rate continues to increase if capital stock and labour have a corresponding growth rate to the output (often referred to as "warranted rate of growth"). The model assumes a closed economy, hence the product of output and the savings rate equals saving, which further, equals investment. Investment normally equal to savings at equilibrium. Therefore, the model suggests that countries with high marginal propensity to save enjoys high rates of growth (Romer, 1986). On the contrary, capital output ratio has an inverse relationship with the growth of output implying that countries with high capital output ratio experiences lower GDP level. Therefore, according to the model, economic growth rate has a direct relationship with savings and has an inverse relationship with capital-output ratio. Finally, the Harrod – Domar Model is only in

equilibrium when there is full employment of both capital stock and labour force and this causes erroneous long-term economic predictions.

2.2.3 Solow-Swan Theory of Economic Growth

Robert Solow was the first to argue for it, back in 1956. There are many assumptions in the Solow model that must be satisfied by the Solow–Swan model, which is a neoclassical growth model (Barro and Sala-i-Martin, 2004; Lagat, 2015). It makes a main supposition of continuous returns to scale and absence of private capital inflow, advocating that domestic savings to be the sole financing of domestic investment. The theory claims that development of per-capita outcome is due to technological progress and capital accumulation, such that, as the economy reaches highest state, technological progress may only be the cause of per-capita output growth as an exogenous factor. Sala-i-Martin & Barro (2004) affirms the effect of human capital discovered through its effect on progress of technology, which is ‘exogenous’ in the model. This theory advocates that as technology advancement is achieved, efficiency, quality and quantity of productivity of labour increases rapidly. Thus, technological advancement can be perceived from mechanical sense as evolution of machines and use of computers in relation to enhancing human capital through education and skills development, (Solow, 1956).

Human capital as introduced into the production function explains the experienced economic growth in real terms than the Solow model which explains the simple two-sector (Mankiw, et al., 1992). Similarly, modern economists attempt to explicitly demonstrate how foreign aid can accelerate the growth process in their ‘growth models’. In an endogenous growth model, education is the critical indicator generating progress that is technical advancement in the economy and indicate that

education enhances human capital which improves labour productivity and the differences in overall levels of technology observable in the real-world data. Further, it is evident that income in investment and maintenance of capita stock can be affected by subsistence consumption. The main contribution and productivity of international assistance, according to Lagat (2015), may be seen in the one-time rise in capital stock, which can help a country escape the poverty trap. As a consequence, the inflows of money from abroad leads in a rise in income and capital, which may help an economy, escape the low income and balance of payment traps (Harms and Lutz, 2004).

2.2.4 Endogenous Growth Theory

Paul M. Romer, a financial expert from the United States, was the first to propose this idea (1980). It was discovered that the conventional neo-traditional development model was theoretically unsuitable for investigating the drivers of long-term development since it was developed decades ago. This was done on the basis that the model, at the end of the day, brings the economy to a state of zero for each unit of economic progress. The hypothesis asserted that the only option for an economy to escape from zero per capita development is via technological progress in the form of new ideas. It consequently turned into a need to go past the treatment of mechanical advancement as exogenous and subsequently clarify innovative advancement inside the model of development. The quintessence of the endogenous development hypothesis was to conquer the escape clauses in the neoclassical development hypothesis. This hypothesis further hypothesizes that financial development is principally because of endogenous and not outside powers. It portrays the facts that the labour force that is, physical labour, human capital and knowledge capital must

continuously be provided and these are the main resources that have to be increased if productivity is to increase (Folster and Henrokson, 1997).

The growth theory expected that mechanical change produces capital aggregation and mix of these elements represents wanted development of yield per laborer. It likewise accepted that innovative change emerges generally in view of purposeful activities taken by individuals. Another supposition that was that innovators find groundbreaking thoughts through free admittance to information and every single existing thought. This theory is applicable in this examination in that it centers for the most part around the workforce and innovation and the current investigation centers around human capital and ODA, which address work and capital inflows, are considered variables that influence economic development.

2.3 Empirical Literature

This subsection reviews past studies on drivers of economic growth with a wider consideration on human capital accumulation and official development assistance.

2.3.1 Human Capital Growth and Economic Growth

Self and Grabowski, (2004) carried out a study investigating the connection between the level of education and economic growth in India. Education was classified into three levels: primary, secondary, and tertiary. The research employed the OLS model to check the connection between education level and economic growth. Secondary data from existing reports was used. Findings uncovered that primary education depicted a causal relationship between education level and a stronger level of growth, while secondary education depicted a narrow effect on the growth of income, indicating that income per capita increase was associated with poverty reduction.

Fan, *et al.*, (2005) explored the effect of public investments on poverty eradication and economic growth in Tanzania. The study employed access to infrastructure, human capital, technology, and public investments as indicators. As per the results, it was noted that additional public investments in rural education significantly impacted poverty levels in the rural areas, alleviating around 43 individuals beyond the poverty line over the million shillings expenditure. The study also revealed that education investment leads to a sizable increment in income per capita spent in million shillings. The study indicated that the effects were positively statistically significant in rural areas of Tanzania. The study noted that there should be additional investments in education and that it should be treated as a priority in the country.

Johnson, (2011) used OLS to investigate the relationship between economic development and HCD in Nigeria. Total government spending, GDP (which is a proxy for economic growth), and patterns of enrollment in elementary, secondary, and tertiary education (which is a proxy for human capital) were used in the research. Data collected from secondary sources (1990–2009) was used. From the results, it is evident that HCD strongly influences economic growth. Several recommendations were made. Stakeholders should develop more realistic measures of enhancing human capital capabilities since this is a significant factor influencing economic growth within the country. Also, a proper framework should be formed by institutions to cater to manpower needs for various sectors as well as implement policies that can enhance positive economic growth.

Adawo, (2011), using the OLS model, conducted a study to examine the role education plays in the growth of the economy in Nigeria. The variables of study were primary education, secondary education, and tertiary education. The proxy was

school enrolments at various levels. In addition, health expenditure and physical capital formation were also employed. According to the results of the research, primary school education, health spending, and physical capital creation all had a statistically significant effect on economic growth in Nigeria, which is consistent with previous findings. Tertiary education, on the other hand, as well as secondary education, has had a negative impact on economic development.

According to Nwosa et al. (2011), the causal relationship between investment in human capital and economic development has been established in Nigeria (Figure 1). To determine whether or not there is a causal relationship between the two variables, the researchers used the Pairwise Granger Causality Model and Vector Error Correction (VEC). The research time was 1970 and 2009. The study's findings revealed that there is no causal relationship between HCD and economic growth. However, the lack of these was as a result of low budgetary allocation in the health sector, in the education sector to establish more vocational institutes in order to enhance human capital productivity, which is an indicator of growth and can greatly stimulate economic growth. The study failed to study the role of policy making in relation to employment and remuneration of real labour market value at each level of education.

Ogunrinola and Oluwatobi, (2011) explored the pivotal association between the growth of the economy and government HCD in Nigeria. The research is targeted at finding the relationship between capital expenditures and government recurrent expenditures on health and education, which drive economic growth. Secondary data was employed and OLS was used in modeling, augmenting the Solow model as the model for the study. Real output level was used as the dependent variable in the

model, whereas health and education expenditures, as well as government capital and labour force, gross fixed capital formation were the explanatory variables employed in the study. The research findings indicated an important positive connection between government recurrent expenditure and HCD on the level of real output. On the other hand, capital expenditure depicted a negative relationship with actual outcome. However, the study failed to explain the proper channels of the country's education and health expenditure with the purpose of promoting economic growth, thus posing a gap.

Alani and Isola (2012) examine research to explore the effect of different measures of HCD on economic growth in Nigeria. The research employed secondary data mined from Nigeria's statistical records and annual surveys for 1980 to 2005. The study employed OLS as a growth account model and estimating technique, stipulating the development of GDP as influenced by labour and capital. The study variables were life expectancy and adult literacy rate as proxies of education and health. The study also conducted unit root and serial correlation as diagnostic tests to test autocorrelation and multicollinearity. From the results, it was revealed that despite the fact that little commitment was accorded to health compared to education, both were major indicators influencing economic growth in Nigeria and formed important components of human capital influencing economic growth.

Mtey and Sulle (2013) reviewed various studies conducted on education and poverty relating to Tanzania. Through systematic review of the literature, the study examined the role of education in poverty alleviation. The study frontlines the role of education as an important means of poverty alleviation, thereby substantiating those arguments drawn from appropriate empirical and theoretical literature, which shows a linkage

between poverty reduction and education established from the income levels of households, which should be increased. The study concluded that education is indeed significant and hence an important tool in poverty alleviation and economic growth.

Anaduaka and Eigbiremolen (2014) investigated the effect of HCD on national output. The study embraced the augmented Solow human-capital-growth model with secondary data time-series data for the era between 1999 and 2012. The findings indicated that HCD exhibited a positive significant impact on output level. This means that HCD cannot be overruled in the desire to achieve a sustainable economic growth in Nigeria, since the increase in HCD enhances economic performance. The findings also indicate an inelastic relationship between HCD and output level. Thus, the government and other policymakers should concentrate on adequate educational funding to build and develop human capacity across all levels to enable sustainable development and growth of the economy.

A study in Zambia by Hakoom and Seshamani (2017) explored the effect of HCD on economic growth both in the long run and short-run term, utilizing yearly data from 1970-2013. The study employed the Error Correction Model as well as Johansen's co-integration test. The discoveries from the examination uncovered that the co-integration test showed the presence of a long-since-gone connection between human resources and financial development. The assessed since a long time ago run model uncovers that wellbeing offers a higher portion of genuine GDP per capita, followed by instruction, which increases human resources productivity. These discoveries concur with the endogenous development model which advocates that improvement in HCD as sound and talented workers improves efficiency.

Ali et al. (2018) did a study on human capital, social capacity, and economic development. The analysis used data from Penn World Tables, World Development Indicators (WDI) of the World Bank, and the Fraser Institute's Economic Freedom Dataset. Descriptive statistics and correlation matrices were applied. The findings provided a set of parameters under which human capital was strongly and positively related to economic development. Using data from 132 nations collected over a period of 15 years, empirical findings demonstrated that human capital only contributes positively to per capita GDP development in the context of improved economic opportunities and high-quality legal systems. In reality, economic opportunities strengthened the influence of human capital on economic development: the simpler it was to do business and trade locally or internationally, the larger the effect of human capital on economic growth. The data revealed that inconclusive results in prior empirical research on human capital and development may have been the consequence of omitted variable bias, since these studies lacked variables pertaining to social capacities.

According to Mahmood and Alkahtani (2018), human capital (HC) is a crucial aspect in deciding and accelerating economic development in the contemporary period, as a result of productivity improvements. Obi, Atueyi, and Leonard (2022) examined the effect of human capital development on Nigeria's economic growth between 1981 and 2020. The research used the unit root test to assess the stationarity of the variables, the co-integration method to identify the variables' long-run equilibrium connection, and the Error Correction Model (ECM) to calculate the rate of adjustment. The Ordinary Least Square (OLS) technique was used to analyze the data. In this research, additional tests included the normality test, the stability test, and the serial correlation test. According to the concept, human capital development had a major beneficial

impact on the Nigerian economy. The research findings concluded that government spending on health had a beneficial influence on the economy, but government spending on education had a negative and negligible effect on the economic development of Nigeria. The report recommended that the government make an effort to resolve the agitations of education employees that prompt them to engage in regular strike activities.

2.3.2 Official Development Assistance and Economic Growth

According to Burnside and Dollar (2000), foreign aid has a positive impact on development, with particular attention paid to the interactions between monetary approaches, international assistance, and financial development, as well as to how assistance is distributed by givers. The authors used both Two-Stage Least Squares and Ordinary Least Squares techniques in their research. Secondary panel data were utilized in the research, which included a sample of 56 nations chosen from the world's countries and taken from four-year time periods covering 1970-1973 to 1990-1993. The sample was drawn from the world's countries and taken from 1970-1973 to 1990-1993. Foreign assistance, according to the findings of this research, promotes growth only in agricultural nations that have good financial and trade strategies, as well as money-related strategies developed by strategy designers. Their investigation went even further to determine whether or not reciprocal and multilateral benefactors are in favor of a great approach. The conclusion of their investigation is that there is no critical propensity for the respective contributors to favor a good financial arrangement; however, multilateral donors do provide assistance for a good approach climate.

Morrissey and M'Amanja (2006) conducted an investigation on the econometric effect of foreign aid, foreign investment, and economic performance on Kenya's economic performance. The research made use of time series data as well as secondary data gathered from statistical books throughout the course of the study's time span, which was 1964 to 2002. The study found out that public investment, private investment and imports as a share of GDP significantly affected Kenya's income per capita and foreign aid, showing an adverse consequence on since a long time ago run growth of economic. This examination further settled that private speculation is emphatically impacted by unfamiliar guide anyway adversely affected by government venture and imports.

Mitra (2013) performed a study on the impact of foreign assistance on economic growth in Cambodia, which was published in 2013. Based on a review of historical data collected from the underlying VEC gauges between 1971 and 2009, it was discovered that, if the guide is coordinated toward expansion of the mechanical area, the unfamiliar guide can be significant contributor to economic growth throughout Cambodia, both in the short-term and over a long period of time. Sakyi (2011) utilized an autoregressive disseminated slack model (ARDL) to test for cointegration in assessing the connection between foreign assistance, trade openness, and economic development in Ghana following the country's reunification. This is similar to the approach used by Sakyi (2011). Economic openness and international aid had a significant influence in the growth of Ghana after it gained independence from colonial control, it was found throughout the course of the research.

Additionally, Bells and Mckee (2013) investigated the combined impact of official development assistance and Technical Cooperation Grants (TCG) on GDP per capita

in developing countries. Over a thirty-year period, the research examined a sample of thirty nations from the Sub-Saharan area and found that growth was primarily fueled by official development assistance (ODA), human resources, domestic investment, and global trade. Despite the fact that TCG seems to contribute to development, they found that its effect is statistically insignificant. They also discovered that official development assistance (ODA) and trade-related capital (TCG) had a negative impact on monetary development. The examination additionally investigated the chance of unavoidable losses to help, however their outcomes needed proof of consistent losses to help. It was reasoned that an unfamiliar guide regardless of the source or type ought to be coordinated to regions where its effect are moderately high like public health programs and education, job training and trade.

In Kenya, Veledinah conducted a study on the effect of Official Growth Assistance (OGA) on economic growth (2014). Added to the research was additional information spanning the years 1970 to 2012. 1970 to 2012 was the time span covered by this study. Using the World Development Indicators database, we were able to determine the temporal arrangement for each of the variables (WDI). Following the completion of temporal arrangement property testing, the investigation used the Vector Error Correction Model (VECM) in the investigation. The discoveries from the examination show a since quite a while ago run causality running from ODA, private outside asset streams, net homegrown capital arrangement, and last government use in utilization, expansive cash, exchange transparency, and swelling; to GDP development per capita. While ODA appears to add to monetary development in the short run, anyway over the long haul it was discovered to be irrelevant. Private outer asset streams and exchange receptiveness were set up to be inconsequential. The outcomes likewise recommend that earlier year's GDP development per capita, net homegrown capital

arrangement, and wide cash (as a proportion of monetary profundity) are the significant components that animated financial development over the examination time frame in the short run. The examination inferred that Kenya should zero in on inner elements to instigate HDC than relying upon outer factors particularly in the short run as well as long-run. The findings are supported by Lund, (2010) who suggest that for a country to attract FDI, it must develop some level of economic growth and development. Zhang, (2001) additionally asserts that a significant degree of financial development can be pivotal in pulling in FDI, as it gives assets and a conceivably new framework, which address a good climate for FDI.

Maingi, (2014) carried out a research project looking at the impact of foreign direct investment (FDI) on Kenya's monetary development. An examination of the relationship between foreign direct investment (FDI) and gross domestic product (GDP) is conducted in this research, which uses data spanning 2004 to 2013. The study assessed and presented the data expressively and clearly utilizing the results, which included frequency and pattern analysis, as well as Analysis of Variance (ANOVA) and Correlation analysis to identify connections between the variables. Foreign direct investment (FDI) and gross domestic product (GDP) are examined using graphical pattern analysis, which shows an instantaneous positive connection between the variables under investigation. When the gross domestic product (GDP) and foreign direct investment (FDI) esteems were calculated using Pearson correlation from the inflow information arrangement, the result was an extremely positive correlation coefficient of 0.937 at the 0.01 (2 followed) significance level, demonstrating that there is a significant direct corresponding connection between FDI and monetary development in the countries studied. The researcher conducted an ordinary least squares (OLS) regression analysis; however, he did not conduct tests

for serial correlation, multicollinearity, and heteroscedasticity, among other things, in the data. On the other hand, research conducted in Kenya has shown that foreign direct investment had a good and significant impact on the country's economy, which was both positive and considerable, according to the results of the study.

For the period 1970 – 2012, Kalebe and Sekantsi (2015) performed an empirical study of the relationship between investments, savings, and growth in Lesotho, utilizing Granger causality tests based on ARDL and VECM to establish causation. Savings, according to the results, constituted both short- and long-term capital accumulation, as well as a substantial contribution to economic growth in Lesotho over the course of a lifetime. Investment also supplied real-world data that aided in the advancement of the economy. According to Kinyua (2015), empirical research was carried out in order to examine the effect of long-term public debt on economic growth. Secondary data covering the period 1980–2014 was utilized to examine the data, which was then analyzed using a linear regression model based on the Ordinary Least Squares estimation technique. Budget deficit, gross enrollment rate, public spending, inflation, population growth rate, savings, money supply, and openness were some of the other control factors that were used. Results revealed that public debt had a favorable but negligible relationship with economic growth, according to the findings of the research. A statistically significant relationship was discovered between inflation, openness, and the budget deficit in the study of economic growth.

Lagat, (2015) investigated the impact of government spending, foreign assistance, and sectoral GDP growth on the economy of Kenya. Between 1980 and 2012, a correlational research approach was used in conjunction with secondary panel data gathered from forestry and agricultural annual reports, as well as the health and

education sectors. The study period included the years 1980 to 2012. GDP growth, government development spending, foreign assistance, wage rate growth in the public sector, and government recurrent expenditure were the factors examined in the research. The Generalized Least Squares model with a panel of variables was used in this research. It was found that wages in the public sector have increased, private investments have increased, wage employment in the non-public sector has increased, and that these factors have had a positive effect on the growth of sectoral GDP growth. On the other hand, expenditure on development has been found to have an inverse relationship with GDP growth, according to the study.

With the help of the population (POP) and foreign direct investment (FDI) as study variables, Yiew and Lau (2018) performed research on the effect of foreign direct investment (FDI) on economic growth in 95 developing countries. According to the study's findings, it was apparent that there was a statistically significant relationship between foreign aid and the growth of an economy. A lot of studies have shown support for these conclusions (Wamboye, 2012). In terms of helping to economic growth, foreign aid has shown a positive trend in recent years. The study also shows that POP and FDI are among the most significant contributors to GDP, indicating that GDP is less likely to be dependent on government development aid in the future. Since a result, given their dependence on incoming ODA, it would be essential to improve the legal environment in these countries, as this may have a negative effect on their economic growth.

Refaei and Sameti. (2015) carried research on Official development assistance and economic growth in Iran. Foreign aid and per capita GDP growth were examined using annual data from 1980 to 2012 for a sample of Iranians. The co-integrating

equations were approximated using three time series approaches (CCR, FMOLS, and DOLS). The results demonstrated that foreign aid had a favorable, statistically significant, and considerable impact on the economic growth over the long term. Consequently, foreign aid surpasses domestic endowments and other capital inflows.

Chai, Hao and Yang, (2021) conducted a study on the impacts of constraints created by economic growth targets on sustainable development. The paper established a lot of structural measurement techniques, namely the spatial Durbin model, to evaluate the constraints imposed by economic growth target influences on air pollution. The key results are as follows. First, there is a considerable "U-shaped" correlation between economic growth objectives and air pollution. Second, the spatial Durbin model study indicated that PM2.5 across the provinces of China exhibited considerable positive geographical ripple effects and spatial accumulation characteristics. Third, the immediate, intermediate, and cumulative effects of economic growth target limits on air pollution are statistically significant and form a "U" shape. Ultimately, the limits driven by social growth objectives appear to have a threshold impact on the atmosphere pollution, and their toxic activity rise with human capital and modernization.

2.4 Overview of the Literature Review

On the basis of current theories of economic productivity, human capital has emerged as a significant source of economic productivity (Romer, 1990). Individuals gain human capital as a means of increasing their own productivity (Domar, 1946; Solow, 1956). Furthermore, the notion of human capital has been defined as a mix of characteristics such as education, work habits, experience, trustworthiness, intellect, training, energy, and initiative that may affect the value of a worker's marginal output

(the amount of money they make) (Olaniyan and Okemakinde, 2008; Mtey and Sulley, 2013). There are, on the other hand, few studies that examine the relationship between human capital and sectoral economic development. Except for a few studies, the majority of the evaluated papers did not use a variety of analytical techniques that are essential in research, such as unit root tests, error correction, the granger causality test, or cointegration tests, among others (Amassoma and Nwosa, 2011; Hakoom and Seshamani, 2017). Most countries have a positive and statistically significant relationship between human capital and economic growth, according to literature (Self and Grabowski, 2004; Fan, et al., 2005; Adawo, 2011; Johnson, 2011; Oluwatobi and Ogunrinola, 2011; Isola and Alani, 2012; Eigbiremolen and Anaduaka, 2014), while others have a positive but non-significant relationship (Self and Grabowski, 2004; Fan, et (Ojo and Oshikoya, 1995). Cross-national research has shown that the impact of human capital is not consistent across all countries or groupings of countries.

The literature on the quantifiable evidence of a connection between official development assistance (ODA) and development remains ambiguous. Scholars have discovered remarkable and rebuking precise evidence in their research. A small number of scholars, such as Sakyi, (2011) and Mckee and Bells, (2013), maintain that official development assistance (ODA) has a significant impact on financial development, with a subset of them guaranteeing that ODA will improve financial development in specific macroeconomic approach climates. In instance, Burnside and Dollar (2000) established that the guide stimulates growth only in non-industrialized countries that have strong financial, money-transfer, and exchange systems and institutions in place. M'Amanja and Morrissey (2006), on the other hand, emphasize the negative effect of official development assistance (ODA) on development, while

Veledinah (2014) and Lagat (2015) investigated the immaterial role of ODA in development in Kenya. In 2014, Maingi examined the effect of foreign direct investment (FDI) on economic growth, and in 2015, Lagat examined the effect of foreign aid on sectoral growth. However, both studies failed to validate their estimates because they neglected important diagnostic tests such as unit roots and normality, among other things. Based on the specification test, the latter research used an estimate method that was not suitable for the situation. The failure to choose the appropriate estimation method or to validate the model results in estimates that are spurious and therefore untrustworthy (Woodridge, 2004). However, given Kenya's decentralized form of government, it is uncertain if official development assistance (ODA) makes a significant contribution not just to economic growth but also to the broader discussion on the subject matter. This is particularly true for sectoral economic growth in Kenya.

From the literature, generally several estimation techniques such as OLS, VECM, Two-Stage Least-Squares (2SLS) and Cointegration Analysis were employed. However, most studies in their respective modeling never considered all diagnostic tests recommended. Since time series was largely employed, this study employs econometric modeling with OLS data estimating techniques where either linear or nonlinear models are selected. The study models key pillar sectors in Kenya, that is, education, agriculture, health and manufacturing sectors as outlined in the current government development agenda, the Medium-Term Plan III of Vision 2030.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the approach that was used in attaining the goals set out in the study. The chapter comprises of the theoretical framework, the empirical and model specification, variable definitions and measurement. Lastly, there is the diagnostic tests, data type and source and data analysis.

3.2 Research Design

The purpose of this study is to examine the relationship between human capital development and official development assistance (ODA) in Kenya. In order to address the study questions, quantitative data was collected. Because this is a non-experimental study, the correlation design was used in this investigation. When it came to the factors under consideration for the two major industries, the researchers examined data from the period 1980-2020. The econometric connection was estimated using the OLS estimation method, which was utilized in this research.

3.3 Theoretical Framework

The study adopts Solow-Swan growth theoretical framework. Solow and Swan (1956) set up that there was more to growth of economic that theories progressed by classical economists. The theory clarifies development by connecting efficiency, capital gathering, work and innovative advancement. The theory lays weight on capital gathering and its connected choice of reserve funds as an essential factor for growth of economic. A modified Solow-Swan model by Mankiw, et al., (1992) enables the examination of the effect of HCD and ODA on economic growth in Kenya.

From the Cobb – Douglas production function, it can be observed that the output (Y) depends on two inputs that is capital (K) and labour (L) as presented below;

$$Y = F(K, L) \quad Y = F(K, L) \dots\dots\dots 3.1$$

Following equation 3.1, the production function for period t is stated as:

$$\frac{Y(t)}{Y(t)} = \frac{(K(t))^\alpha (A(t)(L(t)))^{1-\alpha}}{(K(t))^\alpha (A(t)(L(t)))^{1-\alpha}} \quad 0 < \alpha < 1 \dots\dots\dots 3.2$$

Where $\overline{K(t)}$ is the capital at time t and $\overline{L(t)}$ is the labour at time t (capital and labour are inputs) and \overline{A} is technology level. The element α and $1 - \alpha$ denotes the capital share and income of labour respectively. The savings rates, population growth and technological progress are derived externally and are thus considered as exogenous variables (Solow, 1956). However, Solow’s model failed to incorporate human capital (Oluwatobi & Ogunrinola, 2011; Eigbiremolen & Anaduaka, 2014). Instead, the model considered two factor production function with capital and work as determinants of development. It later added innovation, as an exogenously decided factor, to the production function.

The present research used the enhanced Solow growth model of human-capital-growth developed by Mankiw et al. (1992), which is an upgrade on the Solow Swan growth model, to investigate the impact of HCD on sectoral economic performance in Kenya. Considering that human capital is represented as non-homogeneous with labor in the creation process, either within an economy or across various economies due to their differing levels of skills and education under the Solow model, this conclusion is justified (Eigbiremolen & Anaduaka, 2014). When it comes to studying sectoral economic development, this modification makes the model more suitable for the

Kenyan setting by requiring it to be acceptable for the country's context and therefore more applicable. Increases in the quality and quantity of employees' productivity must be accomplished via better education, which in turn increases production, according to the initial premise. Economic growth is stimulated by official development assistance (ODA), according to Veledinah (2014). Since Herfkens (1999) and Mwega (2009) have pointed out, ODA has fluctuated in Kenya owing to ineffectiveness, as donors want their contributions to be spent on visible projects such as the construction and equipping of schools or the construction and equipping of health centers. Based on this observation and trend, ODA is incorporated in the production function as physical capital. From the two-gap model, the relationship between ODA and investment is not only positive but also stronger and thus saving gap in the Kenyan context is shown to be more of a constraint to growth (Mwega, 2004). By splitting capital into two components, the new augmented Solow model was therefore specified as:

$$\bar{k}^* = \left[\frac{s_K^{1-\beta} s_H^\beta}{n+g+\delta} \right]^{1/(1-\alpha-\beta)} \dots\dots\dots 3.3$$

$$\bar{h}^* = \left[\frac{s_K^\alpha s_H^{1-\alpha}}{n+g+\delta} \right]^{1/(1-\alpha-\beta)} \dots\dots\dots 3.4$$

Where: $\bar{s}(k)$ is the proportion of income that is spent in physical capital, whereas $\bar{s}(h)$ is the share of capital devoted to human capital. Also, as reported by Mwega (2009) only a share of ODA is used on investment. Therefore, let a fraction ϕ of ODA be invested by the public sector and the remaining $(1-\phi)$ consumed or wasted, then;

$$\dot{K} = \phi ODA + I_p - \delta Kt \dots\dots\dots 3.5$$

Where ODA is Official Development Assistance

We follow Veledinah, (2014) and express the growth rate of GDP per capita in terms of the rate of capital stock per capita, where long run growth rate is represented by; $1/k$ implying that an increase of one percentage point in ODA per capita should on the higher side improve the long run rate of growth by $(k)/k$ percent, and in this manner; the coefficient of ODA in the regression is one percent (capital per capita). Domestic (gross fixed capital creation) and foreign aid in the form of official development assistance (ODA) are included as physical capital in this research.

By substituting these equations (3.3 and 3.4) in the modified production function and taking logs, Solow-Swan model (equation 3.6) translates in its steady state to the following expression;

$$\ln(y) = \ln(A(0)) + gt + \frac{\alpha}{1-\alpha-\beta} \ln(s_K) + \frac{\beta}{1-\alpha-\beta} \ln(s_H) - \frac{\alpha+\beta}{1-\alpha-\beta} \ln(n + g + \delta) \dots\dots\dots 3.6$$

Following Mankiw et al. (1992), equation 3.6 shows how population growth, and physical and human capital accumulation influence rate of growth per capita. Both physical and human capital have a positive effect on the growth level rate per capita and human resources collection additionally raises the effect of actual capital accumulation on growth rate per capita (Timakova, 2011). The study therefore adopted this framework by adding some other variables as reviewed in the literature such as the savings, gross fixed capital formation and population growth rate to take care of the differences in total factor productivity. This framework is appropriate to this study since it thinks about yield as a component of capital, work and level of innovation which are identified with the factors in the investigation. That is, ODA representing the proportion of physical capital stock and human capital development representing labour force rate as measured via school enrolment rates (Olaniyan & Okemakinde, 2008). However, for this study to establish the effect of these factors

based on the identified framework, the study establishes the estimable model as indicated in the next sub section.

3.4 Model Specification

As demonstrated in the previous sub section and the literature reviewed in this study, Rasmidatta, (2011) maintains that increased rate of saving implies declined consumption that may as well result in more capital investment and eventually an increased economic growth rate. However, this was possible with appropriate human capital as suggested by Olaniyan and Okemakinde (2008). Addison and Tarp, (2015) also allude that population and investment have a strong relationship on economic growth. From equation 3.5, the general linear regression model was represented as follows;

$$\ln GDP_t = \alpha_0 + \sum_2^n \alpha_i \ln X_t + \varepsilon_t \dots\dots\dots 3.7$$

Where; $\ln GDP_t$ represents natural logarithm of sectoral GDP (manufacturing and agricultural sectors) for in time t , $\ln X_t$ is natural logarithm of respective vector of human capital and physical capital, and all covariates, α_0 is the coefficients of other covariates, α_i are the coefficient of respective covariates and ε_t is the error term. The specified non-linear econometric model 3.7 is specified and expressed as follows:

$$\ln GDP_t = \beta_0 + \beta_1(\ln HCD_t) + \beta_2(\ln ODA_t) + \beta_3(\ln SAV_t) + \beta_4(\ln GFCF_t) + \beta_5(\ln POP_t) + \varepsilon_t \dots\dots\dots 3.8$$

Where $\ln GDP_t$ denotes the natural logarithm of sectoral economic growth (manufacturing and agricultural sectors), t = time, **HCD**= human capital development, **ODA**=Official Development Assistance, **SAV**=Savings, **GFCF**= Gross Fixed Capital Formation and **POP**=population growth rate. Also β_0 is the intercept β_c is the steady

catch of the condition while β_1 to β_5 are the coefficient of related free factors though ε_t is the error term used to catch the unnoticed impacts which is accepted to have zero mean and non-sequential connection. However, the study considered the OLS estimation technique to determine the direction, significance and magnitude of HCD and ODA on sectoral economic growth.

We conducted further analysis of whether there was a unidirectional or bidirectional causality between HCD and ODA. In other words, whether HCD significantly caused ODA or vice versa which means causation and prediction between two time series. To determine the same, the study conducted granger causality test.

3.5 Definition and Measurement of Variables

The factors employed in this study were as presented in table 3.1. The choice of the control variables on the other hand was based not only on theoretical but also empirical literature reviewed. Just those variables that scholar discovered to be more significant in driving financial development was thought of. Information accessibility additionally decided the decision of the control factors.

Table 3.1: Variables Definition and Measurement

Variables	Definition	Measurement and Expected sign
Sectoral Economic Growth	Dependent variable and it is the share or the contribution of the respective sectors to the GDP. It alludes to the upsurge in a sector's yield over the period.	It is estimated by utilizing real sectoral GDP. Two sectors, that is manufacturing and agriculture were considered
Human Capital Development (HCD)	This is collection of information, abilities, and capacities controlled by a worker or a gathering of labourer working in an association.	Measured as the average primary and secondary enrolment rates over time.
Official Development Assistance (ODA)	This is the aid provided by foreign countries to complement investment with an expectation of stimulating economic growth.	This is estimated by multiplying the annual disbursements on the loan by the loan's grant element as calculated at the time of the commitment (% of GDP).
Savings (SAV)	This is Gross domestic product less last utilization use. Which is communicated in rate type of GDP. It comprises of investment funds of family area, public area, private corporate area	The savings were measured by obtaining the value of total investments financed from savings.
Gross Fixed Capital Formation (GFCF)	The GFCF refers to net investment in a period. It is a part of the expenditure technique for computing GDP.	This is estimated as the % of GDP
Population Growth Rate (POP)	This is based on the de facto description of population that is taking account of all residents irrespective of legal status, gender and nationality.	It is measured as the annual population growth rate.

3.6 Diagnostic Tests

The study used several empirical tests. They include the multicollinearity test, unit root test, heteroscedasticity, and autocorrelation.

3.6.1 Multicollinearity Test

In research studies, a situation known as multicollinearity may occur when there is a perfect linear connection between the variables. This leads to a bias in the results of the research study. It is possible to have a bias in this situation when at least one set of factors is fully connected to another in terms of size or magnitude, and when the pairs of variables produced via the correlation matrix are also completely linked to one another in terms of size or magnitude. A series of Variance Inflation Factors (VIF) and correlation matrices were generated and evaluated as a result of this process. It is necessary to perform the VIF test in order to determine how much the variance of an estimated coefficient rises as a result of the existence of collinearity in the data set under consideration. When the VIF values are more than 10 and the $1/\text{VIF}$ values are less than 0.10, the presence of multicollinearity has been discovered.

3.6.2 Unit Root Test

For the purpose of investigating or identifying non-stationarity, it was decided to utilize unit root tests. This was done in order to prevent variations in estimates over time induced by unit root, which may lead to incorrect results. It is considered to be stationarily distributed when the mean and variance of a stochastic process stay constant throughout the course of the process's duration. It is possible to observe a stable series when the mean and variance of the series are not affected by changes in the passage of time. Non-stationary series are those in which the mean and variance of the series vary over the course of a time period. A stationary series is utilized in this study because it allows us to examine the behavior of the series at a certain moment in time and then extrapolate the results to other time periods. In this research, the unit-root test was carried out using the dickey Fuller unit-root method, which is explained in more detail below. The test is acceptable when applied to a dataset of this size and

complexity. As soon as it is determined that variables are not fixed, the first step is to use differentiation or effective slacking until the tendency is no longer present.

3.6.3 Heteroscedasticity

Heteroscedasticity is required to determine if there is no fluctuation in the error terms between observations or whether the research variables have a constant variance across data. If one fails to adhere to it, then the model is bound to suffer from spurious regressions. For heteroscedasticity, we utilized the Breusch pagan test.

3.6.4 Autocorrelation

Specifically, the autocorrelation of the random error terms in successive time periods is referred to as "correlation." If autocorrelation is present both before and after estimation, then its biasness will result in incorrect estimates being produced. To determine autocorrelation in our research, we used the Breusch-Godfrey test.

3.7 Data Type and Source

The research spanned the years 1980 to 2020, and all of the variables were based on yearly data. The industrial and agricultural sectors, which are both important, were taken into consideration. This sample would be more than sufficient for the econometric exercise that will be conducted in this research. Some models have a tendency to consume degrees of freedom very rapidly, and as a consequence, the greater the number of data points, the more trustworthy the findings were given. Given the modest number of coefficients to be estimated, the amount of data points evaluated is adequate to provide reliable estimations. When it comes to time series data, the research relied on secondary data sources such as the Kenya National Bureau of Statistics, the National Treasury Annual Reports, Central Bank of Kenya reports, the International Monetary Fund Year Book, and the International Financial Statistics

(IFS). The Kenya National Bureau of Information supplied information on the GDP growth rate, school enrollment rates, and GDP, while the World Bank's Indicators of Official Development Assistance (ODA) offered data on official development assistance (ODA).

3.8 Data Analysis

In particular, the goal of this research was to assess the relationship between human capital development (HCD) and official development assistance (ODA) on Kenyan sectoral economic development. Specifically, it aims to establish a causal link between human capital development and official development assistance in Kenya, and to do so in a scientifically rigorous way. It is our goal to study the connection between human capital development and sectoral economic growth in Kenya and, ultimately, to identify the relationship between official development assistance and sectoral economic growth in Kenya. This was achieved via the use of Granger causality analysis to the causal link between HCD and ODA, as described above. A nonlinear regression model was used to estimate the second and third objectives, which were successfully accomplished.

The study uses OLS data estimation technique to estimate a functional model where sectoral economic growth were treated as the dependent variables while the independent variables of were HCD, ODA, savings, gross fixed capital formation, and population growth rate. The benefit of the OLS data estimation technique is that it includes greater degrees of freedom. The specified model was estimated using statistical programme (STATA).

CHAPTER FOUR

EMPIRICAL FINDINGS

4.1 Introduction

This study was undertaken among selected sectors, focusing on how human capital development and official development assistance influence sectoral economic growth in the Kenyan perspective. There were three specific objectives derived from the main objective. This research embraced correlation design and used information for the period 1980 to 2020, for the variables under study for the two sectors. The study embraced an estimation technique to estimate the econometric relationship.

4.2 Descriptive Statistics

Several measures of central tendency as well as measures of dispersion were employed in this study to illustrate the distribution of the studied variables. As shown in Table 4.1.

Table 4.1: Summary statistics

Variable	Mean	Std. Dev.	Min	Max
Manufacturing sector economic growth (%)	11.69756	1.929053	7.5	13.8
The agricultural sector's economic growth (%)	27.47073	3.848522	21.5	34.8
School enrolment rates (%)	73.69299	6.020772	63.47944	83.70824
Official development assistance (%)	29.43441	15.40222	15.54972	90.39552
Gross domestic savings (%)	11.65415	6.595193	4.30753	24.29736
Gross fixed capital formation (%)	4.528859	9.645911	-20.1736	31.74717
Population growth rate (%)	2.98749	.4951809	2.251879	3.865149
N=41				

Table 4.1 revealed that, on average, the contribution of the manufacturing sector to GDP was on average 11.7 percent, with the minimum being 7.5 percent, while the maximum was 13.8 percent over the entire period. Also, on average, the contribution of the agricultural sector to GDP was on average 27.5 percent, with the minimum

being 21.5 percent, while the maximum was 34.8 percent over the entire period. It is argued that these selected sectors have the largest contribution to the GDP in Kenya over time. On school enrolment, the average enrolment recorded by the finding was 73.7 percent, standard deviation of 6.0, maximum value at 83.7 percent and minimum enrolment percent of 63.5 percent. The percentages show that the administrative systems of the sectors are of high quality to support sectoral growth. This heavy investment in education must have had a positive effect on human capital development, hence the sectoral growth depicted.

On official development assistance, the results established a mean percentage of 29.4, maximum of 90.4 percent and minimum percentage of 15.5. The findings indicate the sectors surveyed recognized the importance of official development assistance towards sectoral growth. If any ODA is well utilized by human capital towards sectoral growth, there will be a positive contribution to the GDP. Gross Domestic savings had an average of 11.7 percent, maximum of 24.3 percent with a minimum of 4.3 percent. On gross fixed capital formations, a mean of 4.5 percent was recorded with a maximum percentage of 31.7 and a minimum of -20.2 percent. Lastly, on population growth rate, the percentage ranges from 3.0 to 3.9, with a maximum percent of 3.9 and a minimum of 2.3 percent.

4.2.1 Correlation Analysis

This is used to determine whether or not there is a linear connection between the two variables under consideration. The association measured is not expected to exceed $|0.7|$ beyond which we suspect the presence of multicollinearity. After analyzing the variables, the outcomes are tabulated in Table 3 below. We found that almost all pairs of the relationships were below the threshold value except for the relationship between GDS and ODA as well as POP and GDS, implying that there was

multicollinearity. The presence of multicollinearity which leads to the spurious estimates. Further, Table 4.2 shows that relationships were both positively and negatively correlated.

Table 4.2: Correlation analysis

Variables	HCD	ODA	GDS	GFCF	POP
HCD	1.0000				
ODA	-0.4559	1.0000			
GDS	-0.4485	0.7544	1.0000		
GFCF	-0.0855	-0.1966	0.0299	1.0000	
POP	-0.5698	0.6400	0.8678	0.0175	1.0000

4.2.2 Unit root test

The unit root test confirms whether variables integrated are of the same order. To test for stationarity or non-stationarity, we used the Augmented Dickey Fuller test. It was discovered that all variables included unit root, which indicated that they were nonstationary at levels since their test statistic (s) was smaller than the crucial value, resulting in failing to reject the null hypothesis that there was no unit root (as shown in table 4.4). As a result, when tested at 95 percent confidence level, the Dummy representing population growth rate was determined to be stationary since its test statistic (6.633) was greater than the critical value (3.000), as shown by the table. In order to address this issue, we performed further initial differences in order to make them stationary.

Table 4.3: Unit Root Test

Variables	At Level with Intercept t-statistic	At First Difference t-statistic	Order of Integration
Manufacturing sector	-0.064 (0.9529)	-6.392 (0.000)	I(1)
Agricultural sector	-0.985 (0.7587)	-6.974 (0.0000)	I(1)
HCD	-0.593 (0.8725)	-6.836 (0.0000)	I(1)
ODA	-1.652 (0.4560)	-6.337 (0.0000)	I(1)
GDS	-1.112 (0.7103)	-6.012 (0.0000)	I(1)
GFCF	-3.731 (0.0037)	-	I(0)
POP	-22.698 (0.0000)	-	I(0)

NB: The critical value at 5% of variables, both at levels and at first difference is between -2.598 and -3.000

The result, as shown in table 4.4, indicates that all variables integrated are of order 1 implying the presence of one unit root except the dummy variables. We therefore conducted the first differences of non-stationary variables, and they became stationary. The model appears as follows;

$$\ln D.GDP_t = \beta_0 + \beta_1(\ln D.HCD_t) + \beta_2(\ln D.ODA_t) + \beta_3(\ln D.GDS_t) + \beta_4(\ln GFCF_t) + \beta_5(\ln POP_t) + \varepsilon_t \quad \dots\dots\dots 4.1$$

D. GDP= fist difference of economic growth (GDP)

D. HCD= fist difference of human capital development

D. ODA= first difference of official development assistance

D. GDS= first difference of gross domestic savings

GFCF= Gross fixed capital formation

POP= Population growth rate

ε_t=Error term

β' s Are the parameters to be estimated

4.2.3 Multicollinearity

As a result of the correlation matrix, we were able to determine which variables should be retained and which should be dropped as a result of collinearity. Following the pre-estimation tests, we conducted a VIF test to determine which variables were causing high collinearity between the pairs of dependent and independent variables.

The VIF results are given in the table below;

Table 4.4: Variance Inflation Factors

DV Independent Variables	Agricultural sector		Manufacturing sector	
	VIF	1/VIF	VIF	1/VIF
D.HCD	1.19	0.840191	1.19	0.840191
D.ODA	1.16	0.858504	1.16	0.858504
D.GDS	1.04	0.964793	1.04	0.964793
GFCF	1.10	0.909240	1.10	0.909240
POP	1.14	0.875051	1.14	0.875051
Mean VIF	1.13		1.13	

Table 4.4 shows that all VIFs and 1/VIFs for both the agricultural and manufacturing sectors were far below 10 and above 0.1, respectively. This implies the absence of Multicollinearity in the models.

4.2.4 Heteroscedasticity

Heteroscedasticity is required to determine if there is no fluctuation in the error terms between observations or whether the research variables have a constant variance across data. For heteroscedasticity, we utilized the Breusch-Pagan test, which was developed by Breusch and Pagan. It can be observed in Table 4.5 below that the significance threshold for the agricultural model is less than 5 percent, indicating that there is no consistent variance in the data. The use of robust standard errors was used to provide a remedy in this situation. The manufacturing sector model, on the other

hand, had a value of 0.9420, indicating that there was no heteroscedasticity in the data.

Table 4.5: Cook-Weisberg Test for Heteroscedasticity

Model	Variables: Fitted values
Agricultural sector model	Variables: Fitted values of the D.Inagric Chi2(1) = 9.03 Prob > Chi2 = 0.0027
Manufacturing sector model	Variables: Fitted values of the D.Inmanuf Chi2(1) = 0.01 Prob > Chi2 = 0.9420

H₀: Constant Variance

4.2.5 Autocorrelation

In statistical terminology, autocorrelation occurs when there is a correlation between the random error terms in the subsequent time periods, which is defined as It is likely that erroneous estimates will be generated if autocorrelation is present both before and after estimation. In this study, the Breusch-Godfrey method was used to test for autocorrelation, which was found to be positive. As shown in Table 4.6, the probability values of 8.4 percent and 27.06 percent, respectively, were greater than the threshold of significance of 5 percent in the research. As a result, the null hypothesis, which says that there is no autocorrelation, cannot be rejected.

Table 4.6: Breusch-Godfrey LM test for Autocorrelation

Model	Lags (p)	Chi2	Degrees of freedom.	Prob > chi2
Agricultural sector model	1	2.987	1	0.0840
Manufacturing sector model	1	1.214	1	0.2706

H₀: No Autocorrelation

4.3 Discussion of Study Results

4.3.1 Causality between Human Capital Development and Official Development Assistance

The first objective of the study explored whether the HCD and ODA variables indeed cause each other. This also implies causation and prediction between two time series.

Table 4.7 shows the causal association.

Table 4.7: Granger causality Wald tests

EQUATION	EXCLUDED	CHI2	DF	PROB > CHI2
HCD	ODA*	6.5798	2	0.037
ODA	HCD	.50679	2	0.776

*The ODA causes HCD

Of respective significance in causing the HCD, it was established that the ODA variable affected the HCD. This is because the equation had a p value of less than 5%, specifically causing HCD. However, the HCD did not cause ODA given the fact that the corresponding p value of 0.776 was more than 0.05 level of significance. Based on this analysis, the study concluded that the two variables exhibited unidirectional causality.

In economic theory, a desirable deficit arises from increased financing of productive domestic investments such as HCD, which generate employment and revenues in the long-run. As a counter strategy to increased and unsustainable deficits, some nations opt to rely on foreign aid also known as Official Development Assistance (ODA) to increase investment resources, finance imports and foreign exchange. The study was focused at investigating the causality between HCD and ODA. From the results, causality was established running from ODA to HCD. The findings were supported by the results of Bells and Mckee (2013) who found that ODA and TCG had an

altogether adverse consequence on development. A similar study by Veledinah (2014) which investigated the effect of ODA on economic development in Kenya, revealed the existence of a causality running from ODA, private outside asset streams, net homegrown capital arrangement, and last government use in utilization, expansive cash, exchange transparency, and swelling to GDP development per capita.

4.3.2 Estimation of sectoral economic growth

Kenya's sectoral economic development is influenced by a number of variables, the most important of which were identified in this research. It was decided to perform many multiple series for pre-testing purposes, with a particular emphasis on whether or not there was a unit present. Because they advised on the proper transformation, the pre-tests performed before the analysis was essential. This resulted in the identification of the appropriate transformation that might lead to stationarity of variables and the connection between them. The model is as follows:

Table 4.8: Findings from the sectoral economic growth model

DV	Agricultural sector			Manufacturing sector		
	(Robust) Coefficients	T	P>t	Coefficients	T	P>t
<i>D.HCD</i>	.0603964	1.56	0.114	.6433117**	3.26	0.012
<i>D.ODA</i>	.0502985***	4.02	0.009	.0201549*	1.95	0.052
<i>D.GDS</i>	.0566358**	2.51	0.045	.024371	0.61	0.550
GFCF	.0015876	0.98	0.656	.09586**	2.06	0.038
POP	.0551802**	1.99	0.048	.0483128	1.42	0.170
Constant	-.9576924	-3.69	0.015	.8289319	2.23	0.026
Linear regression Number of obs = 29 F (5, 23) = 9.25 Prob > F = 0.0318 R-squared = 0.7207 Root MSE = .05321				Number of obs = 29 F (5, 23) = 8.84 Prob > F = 0.0362 R-squared = 0.7425 Adj R-squared = 0.1297 Root MSE = .05191		
<i>Significant at ***1%, **5% and *10% significance levels</i>						
<i>D=first differences</i>						

Source: Author's computation

From the estimated model results above, population growth rate, gross fixed capital formation, gross domestic savings, official development assistance, and human capital development were factors in determining the sectoral growth in Kenya. According to the results of the overall model fitness, it was discovered that the probability values of 0.0318 and 0.0362, both of which were less than 0.05 significant levels, indicating that all of the independent variables together influenced sectoral development in Kenya. In terms of R squared, the values of 0.7207 and 0.7425 indicate that the total proportion of dependent variable explained by independent variables is 72.07 percent and 74.25 percent, respectively. In addition, the values of 27.93 percent and 25.75 percent indicate that the remainder of the variation in the dependent variables is explained by variables that were not considered in the regression or omitted variables.

The following are the models subject to discussion describing significant factors that determine sectoral economic growth in Kenya, generated and expressed as follows;

$$D.Agric = -0.9577 + 0.0503D.ODA + 0.0566D.GDS + 0.0552POP..... 4.2$$

$$D.Manu = 0.8289 + 0.6433D.HCD + 0.0202D.ODA + 0.9586GFCF..... 4.3$$

Further, the study established that ODA, GDS, and population growth were positively related to agricultural sector economic growth. On the other hand, HCD, ODA and GFCF were significant and positively related to manufacturing sector economic growth. On narrowing the scope to objectives two and three, sections 4.3.1 and 4.3.2 below discuss the effects of human capital development and official development assistance on agricultural and manufacturing sector growth in Kenya.

4.3.3 Human Capital Development and Sectoral Economic Growth

The second objective was to determine the effect of HCD on sectoral economic growth in Kenya. According to the OLS model, as shown in Table 4.8, for every unit increase in human capital development, there is a 0.0604 percent increase in agricultural growth. Similarly, for every unit increase in human capital development, there is a corresponding rise in manufacturing growth of 0.6433 percent.

According to the findings of the estimated models in Kenya, it was found that human capital development was a major factor affecting sectoral growth in that country (in the manufacturing sector). According to this, as the number of students enrolled in school grew, more skills were learned, resulting in greater human capital being created. As a result of increasing school enrolment, human capital was developed, which in turn acted as a driving element for the growth of industrial sectors. This study is consistent with a study conducted by Adawo (2011), who defined human capital development as a conscious and continuous process of acquiring and increasing the number of people who possess the necessary knowledge, education, skills, and experience that are critical to a country's economic development. Adawo (2011) defined human capital development as the process of acquiring and increasing the number of people who possess the necessary knowledge, education, skills, and experience that are critical to a country's economic development. The results of research performed in Nigeria by Johnson (2011), which investigated the connection between economic growth and human capital development using ordinal logistic regression, provided further support for the conclusions. From the results, it is evident that human capital development has a substantial effect on economic growth. Further research of a similar kind was carried out in 2014 by Anaduaka and Eigbiremolen, which investigated the connection between human capital development and national

productivity. Firms' ability to create more goods and services is shown to be positively and statistically significant when human capital development is taken into consideration.

4.3.4 Official Development Assistance and Sectoral Economic Growth

The third objective of the study was to establish the effect of ODA on sectoral economic growth. Based on the OLS model as indicated by Table 4.8, for a unit increase in official development assistance, there is a rise in agricultural growth of 0.0503 percent. Likewise, for a unit increase in official development assistance, there is a corresponding increase by 0.0202 percent in manufacturing growth.

From the study results, official development assistance is shown to have a positive influence on the sectoral economic growth in Kenya. Our study revealed that at 5% and 10% significance levels, the increase in official development assistance led to a consequent growth in the agricultural and manufacturing sectors. Thus, when ODA flows to developing nations like Kenya, it stimulates sectoral economic growth significantly.

The findings were in line with the findings of Maingi (2014), who investigated the relationship between FDI and GDP inflow. They revealed that there was a critical direct and corresponding connection between FDI and monetary development in Kenya. They came to the conclusion that foreign direct investment had a beneficial and substantial effect on the Kenyan economy, and that this was confirmed.

In addition, Lagat (2015) investigated the impact of government spending, foreign assistance, and sectoral GDP growth on the economy of Kenya in the year 2015. The findings of the study indicate that wages in the public sector have increased, as have private investments and non-public sector wage employment. They also indicate that

the growth of sectoral GDP has a positive effect on wage employment, whereas expenditure on development has been found to have an inverse relationship with GDP growth.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND POLICY RECOMMENDATIONS

5.1 Introduction

This chapter provides a concise overview of the study's results in connection to the goals, literature review, and the major factors examined in our research. In addition, it draws inferences from the proven connection between HCD, ODA, and sectoral economic development in Kenya, which is detailed in the report. This resulted in the formulation of the required suggestions. To close the gaps found in the study, suggestions for further research topics are collected and analyzed by the researchers.

5.2 Summary of the Study Findings

The purpose of this research was to determine the relationship between human capital development and official development assistance on various sectors of Kenya's economy. The findings indicate that there is a unidirectional causality running from ODA to HCD; it was established that ODA caused HCD. However, HCD did not cause ODA. On the other hand, the estimation revealed that the coefficients of ODA, GDS, and POP significantly affect agricultural economic growth. It was, however, found that the coefficients of the HCD and GFCF were not statistically significant. Furthermore, the coefficients of the HCD, ODA, and GFCF were found to have a statistically significant effect on manufacturing economic growth. However, the coefficients of the GDS and POP did not have any statistical effect on manufacturing economic growth. The effects in both cases were positive.

5.3 Conclusions from the Study Findings

The literature indicates that the uneven growth rate of an economy is attributed to both external and internal economic shocks. The findings concluded that ODA causes HCD. Hence the unidirectional causality. Further, HCD had a positive and significant

effect on manufacturing sector economic growth, whereas ODA had a significant and positive effect on both agricultural and manufacturing sectoral economic growth. The rest of the factors as indicated in the estimated models need to be considered for stabilization purposes of the sectors under study in Kenya.

5.4 Policy Recommendations

Based on the study findings, there was a unidirectional causality running from ODA to HCD. The study suggests that ODA can be channeled to specific HCD priorities that enable financing of reskilling, sector-specific training of new employees, and enhanced financing of industrial training institutions. Hence, a proper framework should be formulated by institutions to cater for manpower needs for various sectors as well as implement policies that can stimulate sufficient ODA, ultimately enhancing positive economic growth.

Governments ought to acknowledge the importance of human resources in development of the education sector, which translates to increased human capital. Therefore, the study suggests the need to have a framework that would steer forward the key human capital elements, including allocating more funds to enable boosting a combination of factors such as education, work habits, experience, trustworthiness, intelligence, training, incentives, and initiative that can influence the value of a worker's marginal product. This would boost the manufacturing sector as well as the national economic growth. This suggestion was made because HCD had a significant effect on manufacturing economic growth.

Thirdly, the study suggests an additional ODA flow to the country to stimulate sectoral economic growth. The findings reveal that ODA boosts and promotes agricultural and manufacturing economic growth and welfare. The addition or

increase of ODA in areas such as technical assistance, program assistance, or project assistance is handy. There is a need for reforms in public finance management that may renew the confidence of donors, such as restructuring, strengthening monitoring and evaluation systems, automation of payroll systems, and improvement of audit procedures in public institutions. Therefore, an accountability framework by the government may mitigate obstacles such as high levels of corruption, increase transparency in utilization of resources and enhance more ODA inflows in Kenya.

Lastly, it would be vital to increase consumption levels of agricultural products among the Kenyan population given the fact that population growth rates lead to increased agricultural economic growth. In addition, further investments in the manufacturing sector are encouraged as they have a significant and positive effect on manufacturing economic growth.

5.5 Areas for Further Research

This study sought to examine the relationship between human capital development and government development assistance on Kenya's sectoral economic growth to better understand the country's economy. The specific objectives included determining the causal relationship between human capital development and official development assistance in Kenya; investigating the effect of human capital development on sectoral economic growth in Kenya; and determining the effect of official development assistance on sectoral economic growth in Kenya. The research looked at two different areas of the economy: agriculture and manufacturing. Therefore, future studies may consider the effect of HCD and ODA on other sectors of the economy. In addition, the study employed the use of the OLS model, there is a need to have further studies assessing the same using the panel data estimation technique.

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APPENDICES

Appendix 1: Vector Autoregression model

Vector autoregression

Sample: 1982 - 2020	Number of obs	=	39
Log likelihood = 93.04723	AIC	=	-4.258832
FPE = .0000486	HQIC	=	-4.105788
Det(Sigma_ml) = .000029	SBIC	=	-3.832278

Equation	Parms	RMSE	R-sq	chi2	P>chi2
lnsch_enrol	5	.027527	0.9020	358.8465	0.0000
lnODA	5	.225608	0.7490	116.3802	0.0000

	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
lnsch_enrol						
lnsch_enrol						
L1.	.7929432	.1505311	5.27	0.000	.4979076	1.087979
L2.	.1300796	.1514344	0.86	0.390	-.1667263	.4268855
lnODA						
L1.	.0071037	.019189	0.37	0.711	-.0305061	.0447135
L2.	-.0336869	.019805	-1.70	0.089	-.0725039	.0051301
_cons	.4223744	.2615435	1.61	0.106	-.0902414	.9349903
lnODA						
lnsch_enrol						
L1.	-.8545545	1.233744	-0.69	0.489	-3.272648	1.563539
L2.	.7216771	1.241147	0.58	0.561	-1.710927	3.154281
lnODA						
L1.	.9170644	.157272	5.83	0.000	.6088169	1.225312
L2.	-.0748916	.1623202	-0.46	0.645	-.3930334	.2432502
_cons	1.084058	2.143595	0.51	0.613	-3.117311	5.285428