INCOME INEQUALITY AND ITS IMPLICATIONS ON HOUSEHOLDS CONSUMPTION, INVESTMENT AND FINANCIAL INCLUSION IN KENYA

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A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF APPLIED ECONOMICS IN THE SCHOOL OF BUSINESS, ECONOMICS AND TOURISM IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF ECONOMICS (FINANCE) OF KENYATTA UNIVERSITY

May, 2024

DECLARATION

This project is my original work and has not been presented for the award of a degree in any other university or for any other award.

…….. ……..……

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I confirm that the project has been submitted for examination with my approval as University Supervisor

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……. ……. ……

Signature Date

DEDICATION

I dedicate this research project to the memory of my late dad, Samuel Ernest Kamande Mburu. Though he inspired me to pursue my master's degree, he did not see my graduation. This is for him.

ACKNOWLEDGEMENT

I express my profound gratitude to the Divine for granting me the strength, wellbeing, and guidance throughout the writing of this proposal. I also extend my deepest appreciation to my mentor, Dr. Isaac Kimunio, whose invaluable advice and encouragement have been instrumental in helping me bring this proposal to completion. Further, I acknowledge my dear mother, Mary Muthoni Kamande, without his full support this work would not have succeeded. She has always been encouraging me to push on and whose good examples have taught me to work hard to achieve my aspirations.

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ABBREVIATIONS AND ACRONYMS

ADF	**:**	Augmented Dickey Fuller
ARDL	**:**	Auto-regressive Distribution Lag
ASALs	**:**	Arid and Semi-Arid Areas
CBK	**:**	Central Bank of Kenya
GNI	**:**	Gross National Income
GOK	**:**	Government of Kenya
HDI	**:**	Human Development Index
KNBS	**:**	Kenya National Bureau of Statistics
KPSS	**:**	Kwiatkowski-Phillips-Schmidt-Shin
KRA	**:**	Kenya Revenue Authority
Kshs	**:**	Kenya Shillings
MDGs	**:**	Millennium Development Goals
NGOs	**:**	Non-Governmental Organizations
PO	**:**	Phillips-Ouliaris
PP	**:**	Phillips-Perron
SDG	**:**	Sustainable Development Goals
SSA	**:**	Sub-Saharan Africa
UNESCO	**:**	United Nations Education, Scientific and Cultural Organizations
UNDP	**:**	United Nation Development Program
USA	**:**	United State of America
VIF	**:**	Variance Inflation Factor

OPERATIONAL DEFINATION OF TERMS

Financial inclusion: This is the ability of household to hold bank accounts and access credit through formal banking system

Gini Index: The measure of the distribution of income across the population of a country or a region.

Household consumption: All expenditures made by households to meet daily needs over a period of time

Household investments: Gross capital formation by the households over a period of time

Income Inequality: This is the disparity in income distribution among members of the society.

ABSTRACT

Across the world, nations face unique challenges in the quest to deal with the problem of income inequalities. Some developing countries have the largest disparities in income distribution. In Kenya, inequality in income is a major challenge. The inequality index is about 0.416, with considerable discrepancies in education, consumption, investment, employment, and agricultural sectors as well as financial accessibility and availability. Inequality in income distribution has facilitated reduction in access of quality education, investment, consumption and financial access by households in the economy. The main focus of this study is to determine the effect of income inequality on household consumption patterns, investments and financial inclusion in Kenya. The study employed; non-experimental research design with time series data for a period 1990-2021 for the variables: household's investment, consumption, government expenditure, wealth endowment, land ownership, inflation rate, population size, domestic credit, level of education and income inequality in the Country. Data analysis was achieved through regression analysis; the Auto-regressive Distribution Lag (ARDL) method was helpful to estimate the parameters in the equation. The study found that income inequality proxy by per-capita income has a negative and significant effect on household's investment, consumption, financial inclusion in Kenya. The study recommended that government should enact policies to ensure even distribution of income to reduce inequality across the country thereby enhancing household's investment, consumption and financial inclusion. This finding is very useful for the national government, sub-national governments, and other researchers as an insight to design long-term solutions to equality in income distribution to households. This is in line with the constitution of Kenya (2010), equality distribution of income for all and also in line with the United Nations sustainable development goals number one and two; no poverty and hunger.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND

Income inequality is a global phenomenon that has led to disparities in consumption level, investment, education access, land ownership, essential utilities, access to health, and even the most socioeconomic necessities worldwide. In China, income inequality has resulted in a decrease in the consumption levels of households represented by a high Gini coefficient of 0.61 (Gan, 2013). However, in 2022 the Gini coefficient was 0.467 Song and Zhou (2022) indicating low inequality, the high Gini coefficient is due to market efficiencies, with developed markets registering a higher coefficient while low markets are associated with lower coefficients. Household consumption pattern is commonly preferred over other measures of income inequality as it captures households' wellbeing (Gasparini, Cruces, Tornarolli & Mejia, 2011). Most developed countries of the world have high income inequality measured with higher Gini coefficients. Some of the developed countries such as the USA with 0.39, Italy with 0.36, and Costa Ricca having the lowest coefficient among the Latin America countries of 0.48 Gini coefficient index meaning low income inequality in these countries (Gasparini *et al.,* 2011).

Income inequality has remained quite high in Africa, with a Gini coefficient of 0.43. In Sub-Saharan Africa, South Africa exhibits the highest disparity inequality of 0.62 (Asongu, 2013), while in East Africa, Tanzania 0.43 registers the highest income inequality level (Kinyondo & Pelizzo, 2018). World Bank reports that the situation has worsen in South Africa in 2023 with the coefficient being 0.63 while Tanzania improved to 0.41 in the same year (World Bank report, 2023). High income inequality is highly associated with reduced cash earnings per person, high unemployment, and poor or lower living standards associated with high

illiteracy and poor health conditions. Tanzania had the highest number of citizens living below the poverty line in the last two decades, approximating around 70.4 percent of the total population due to high income disparity (Kinyondo & Pelizzo, 2018). High income inequality in Tanzania has led to high levels of food poverty, evidenced by over 10 percent of the Tanzanian population being food poor, leading to low wealth creation and high levels of unemployment. Rural areas exhibited high levels of income inequality of 0.33, slightly higher than urban areas with a 0.30 Gini coefficient.

Income inequality, besides creating social issues, has been associated with several economic problems, too (Dabla-Norris *et al*., 2015). High income inequality often results in a decrease in the total demand for goods and services because lower-income households, which constitute the majority of the population, have low purchasing power. This reduced demand can lead to sluggish economic growth and, in severe cases, may result in economic recessions as a result of low productivity by the firms.

High income disparity can also prevent the growth of human capital. Poorer households frequently cannot afford decent education or healthcare services in nations with substantial income disparity, which results in a lower-quality labor force that is less productive. A vicious cycle of poverty and economic stagnation can be created by this lack of productivity, which can also slow down economic growth and worsen income disparity (Dabla-Norris *et al*., 2015). Political instability is also bred by income inequality, which frequently results in social unrest and civil upheaval. People are more prone to protest, strike, or even engage in violent conflict if a sizable percentage of the population perceives that economic expansion does not benefit them. This unpredictability may further deter investment and impede economic growth.

There are a number of solutions that can be used to address the issue of income disparity. First, governments can enact progressive tax structures, in which the wealthy pay higher taxes than the poor. The money made can be invested in social services like social security, healthcare, and education that help people with lower incomes. Second, governments can fund initiatives that help the underprivileged obtain better-paying employment, thereby lowering economic disparity. Thirdly, to make sure that workers are paid a living wage, governments might enact minimum wage laws. Last but not least, encouraging inclusive growth—that is, making sure that the advantages of economic progress are shared equally across society—can aid in reducing income disparity. This can be accomplished by taking steps like advancing worker rights, improving small business access to capital, and enacting land reforms. Even while income disparity is a difficult and widespread problem, it is not insurmountable. Governments, public society, and international organizations can work together to minimize income disparity, which will promote more inclusive and sustainable growth (Dabla-Norris *et al*., 2015).

1.1.1 Income Inequality in Kenya

Income inequality takes several forms in Kenya; these include unequal access to fundamental gender prejudices, income disparity, and social services (Gakuru & Mathenge, 2012). By examining differences in investment, land availability, consumption patterns, and access to social amenities, income inequality in Kenya is evaluated. Over time, Kenya's inequality has increased, with the Gini coefficient growing from 0.42 in 1997 to 0.46 in 2006 to 0.48 in 2015. In urban areas, income inequality is evaluated by the level of consumption and income of urban people but in rural areas where the vice is higher is measured by access to land, education, and social facilities as well as expenditure on basic needs (KNBS, 2020).

Income inequality in Kenya is moderately high compared to other East Africa countries. The situation has deteriorated over time, in which the inequality index increased from 45 per cent in 1997 to 46.5 per cent and 2005, later in 2015, it dropped to 40.8 percent and further dropped to 38.7 percent in 2021 (World Bank report, 2022). Although Kenya performs better than Rwanda and Uganda in terms of the income distribution, Burundi and Tanzania are above Kenya, with the two countries registering 38.6 percent and 40.5 percent, respectively (Gakuru & Mathenge, 2013). According to World Bank (2022), the Gini index for Burundi-0.37, Kenya-0.39, Tanzania-0.41, Uganda-0.43 and Rwanda- 0.44 meaning that Kenya is geared towards the direction of perfect income equality performing better relative to other pears in the region. Ethiopia has the best income distribution with an index of 35.0 percent in Sub-Saharan Africa, and among the lower-middle-income states, Kenya lags behind Bangladesh as well as Egypt, as shown in Figure 1.1.

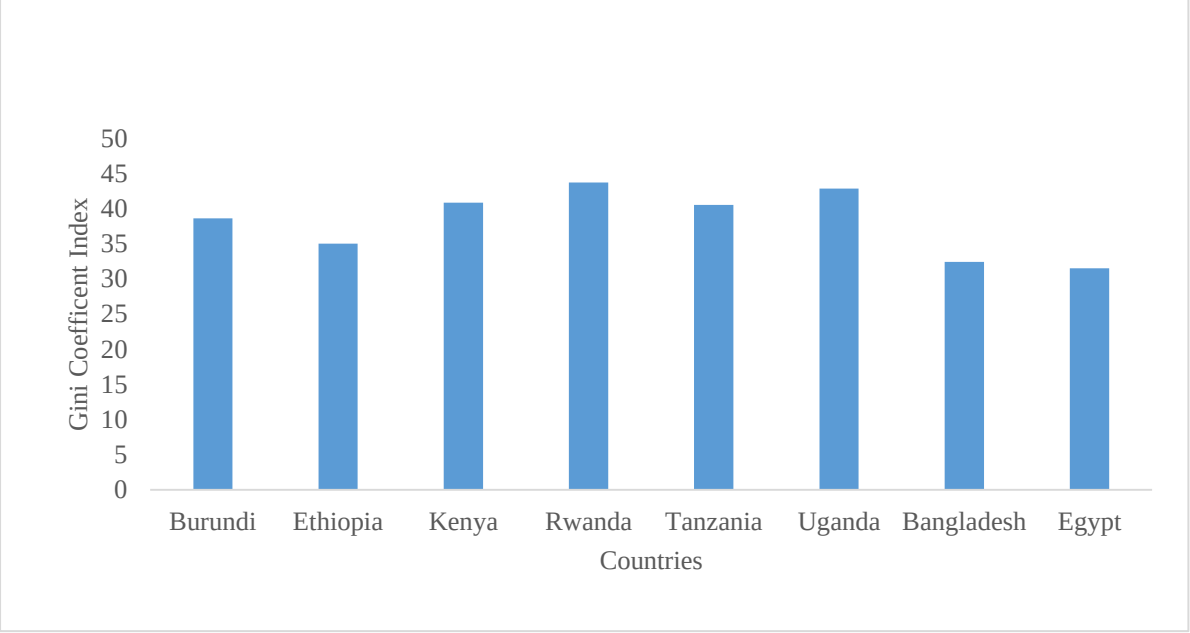

Figure 1.1: Comparison of income inequality among low and middle income countries
Source: KIPPRA data, 2020

Figure 1.1 shows that among the lower and middle-income countries in the region and Middle-East countries, Kenya is ranked top three behind Uganda and Rwanda in income

distribution. However, in the East Africa region, Burundi and Tanzania have the lowest income inequality, but income inequality is higher than the middle-income countries like Egypt and Bangladesh; this means that income inequality varies across regions and countries.

Income inequality has been found to differ by region, race, and gender. According to Kiringai & Kristensen (2016), the northern part of Kenya has the lowest level of income inequality. For instance, in the order of inequality, Turkana- 0.28, Wajir -0.32, Mandera- 0.33 while the coastal region has the highest inequality level with Tana River at 0.62, followed closely by Kilifi 0.60 and Kwale 0.57. The huge income inequality exhibited in coastal areas is due to uneven income distribution by the past regimes coupled with historical injustices such as neglect of the region. Large tracks of land were allocated to nonresidents, with minimal access to social services such as healthcare facilities and schools, resulting to high unemployment in the region (Barford, 2021).

Over the years, income inequality has created two groups in society, low income earners and high income earners, as presented in Figure 1.2. The figure presents analysis of 11 years where red bars represent the top 10 percent of the higher income holders while the blues bars represent the bottom 50 percent of the income holders, indicating a wider discrepancy throughout the study.

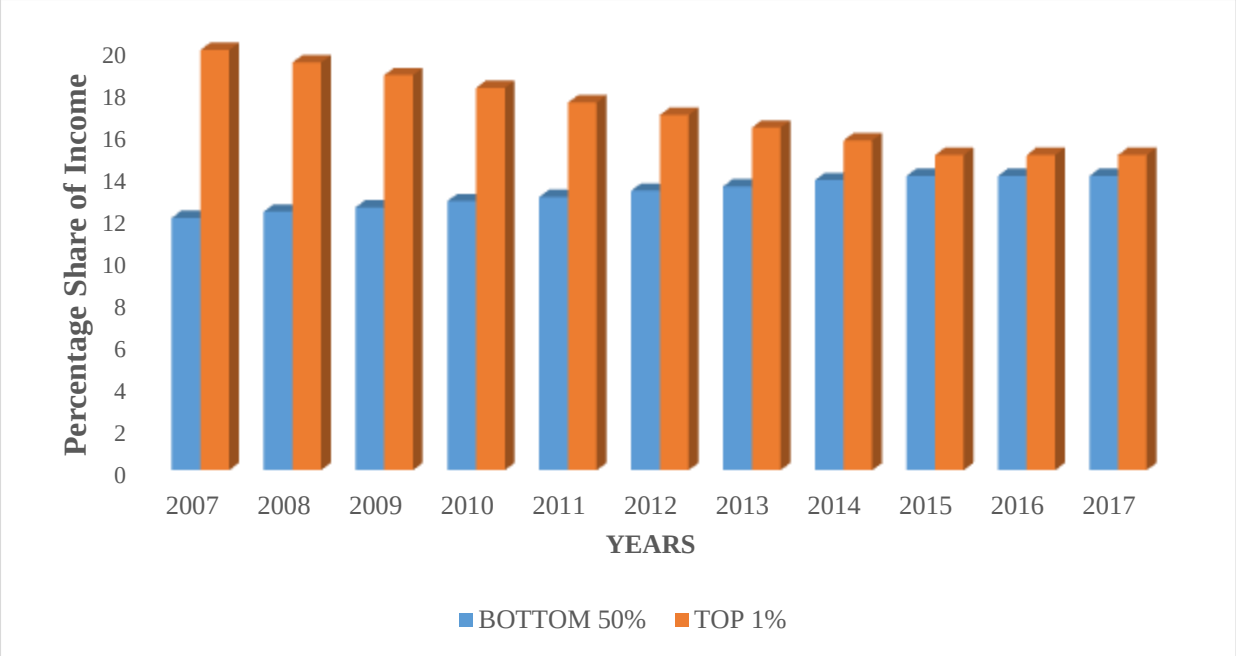

Figure 1. 2: Income inequality in Kenya 2007-2017
Source: KIPPRA Data, 2020

Figure 1.2 shows that the gap between the rich and poor widened for the first seven years, 2007-2013, and then became constant up to 2017. This shows that the income inequality gap in Kenya is decreasing nationally than within regions. The figure also shows that the majority of the Kenyan population has a low income compared with the top 1 percent of high-income earners.

The government's success can be measured by its ability to minimize, if not eradicate, poverty among the citizens and ensure inclusive growth and development for all. In 2007, Kenya's poverty report on the well-being of Kenyans showed that poverty was significantly high, and most urban areas in the country continued to experience a rise in number (KNBS, 2007). The poverty levels rose from 44.8 per cent in 1992 to 45.9 per cent in 2005. In 1994, the national poverty rate declined to 40.3% but rose to 52.3 per cent in 1997. The poverty rate decreased between 1997 and 2005. However, between 2005 and 2012, the poverty rates rose to 47.8 per cent KFSSG (2012) and further dropped to 38.6 % in 2021 (KNBS, 2022).

Despite the inconsistent poverty rate in Kenya, the actual number of poor people within the country has continued to increase due to a consistent increase in income discrepancies. By 2005/06, the country's actual number of poor people was estimated to be close to 17 million. They were unable to meet the cost of purchasing calories necessary for daily consumption representing almost half of the Kenyan population (47%), where the majority of them (85%) were in rural areas (Kiringai & Kristensen, 2016). In 2019, not much has changed despite development projects and policies created to eradicate poverty and minimize income inequality amongst citizens.

Poverty and income inequality have increased due to the poor state of infrastructure across the nation, making service delivery, consumption, investment, and other social amenities access almost cumbersome in most parts of the country. In 2016, the official statistics from the government highlighted that about 1.3 million people were starving, and this number increased to 2.7 million in August of 2017, according to United Nations Children's Fund (UNICEF, 2017).

Most of the population in the country live in the rural areas, which are hardly hit by high income inequality, where poverty rates are 40 percent higher, and per capita expenditure in consumption, investment and financial inclusion is much lower (Barford, 2021). In 2015/16, around 43-44 percent of the population lived in poverty in both rural and urban areas of the country, calling for a strategy to pull the people out of poverty with a focus not to fall back to become impoverished over the years (Kassie, Ndiritu & Stage, 2014).

Inequality in the Kenya remains high. However, there are positive efforts to mitigate its effects, such as access to the market by improving infrastructural facilities and adopting diversification in farm activities, which has enabled the convergence in the difference between the haves and the have-not rural households. The vast inequality has been minimized

through access to credit, access to education past primary level, access to land, which have been used to eliminate poverty among the households (Syagga, 2006).

Many rural and urban regions in the country grapple with significant issues related to water shortage. The persistent occurrence of droughts has reduced water availability, transforming numerous rivers into seasonal waterways and, in some cases, drying them out entirely (Muthoki, 2015). Water scarcity is not just an environmental issue but a socio-economic one that directly impacts income inequality, health, and overall living standards. As such, it should be a priority in the country's development agenda. The government has improved and unimproved water sources for domestic use, with over 70 percent of the households in the country using improved water sources. However, access to potable water has further deteriorated due to the exacerbation of deforestation, which dramatically diminishes the capacity of water catchments. With a rapidly expanding population and the aggravating effects of climate change on water scarcity, the nation's water requirements will continually surpass the availability of freshwater resources (upgraded water sources) (Muthoki, 2015). These compounding issues contribute significantly to the escalation of poverty within the country.

With the emergence of county governments through the promulgation of the Constitution 2010, some national government functions were devolved to the county level to ensure access to services by the public more conveniently and efficiently (Hope, 2014). Despite the inequality issues raised before facing the country, the Kenyan government has put more effort into addressing the problem of income inequality and disparities being experienced. Nonetheless, the disparity in income distribution remains stark in the country, with the top 10 percent of the populace controlling 90 percent of the national income, leaving a mere 10 percent of the income to be shared among the remaining 90 percent of the population. The

living standards indicate income disparities in the country, education level, dependency ratio, and the source of income, which vary significantly among the residents from casual employment to formal employment in Kenya. However, income inequality has been declining over the years as shown in Figure 1.3.

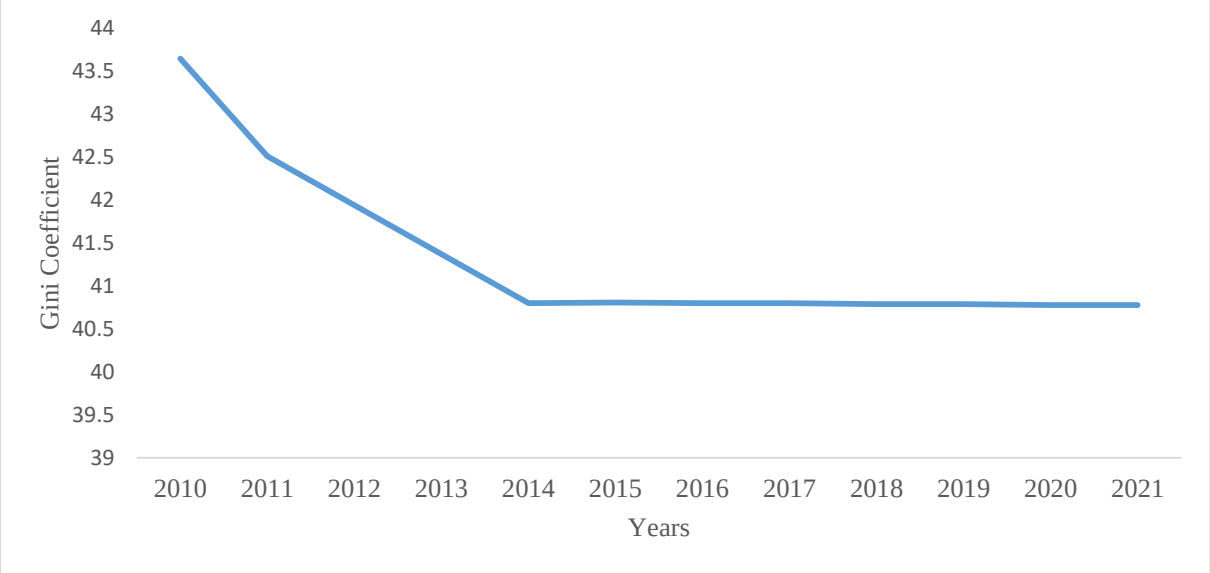

Figure 1.3: Income inequality, 2010-2021
Source: World Development Indicators, 2022

Figure 1.3 shows the trend of income inequality in Kenya over the years, shows that income inequality has been on the decreasing trend, in the year 2010 income inequality was 43.65 and declined steadily to 40.8 in 2014 then income inequality in the country becomes stable up to 2021 at 40.78. This decline in income inequality could be due to increase in financial inclusion, increase in consumption level and decentralization of funds through the devolve unit of government. The constant trend from 2015-2021 is also as a result of increase in income share among the members of the society leading to a decline in the gap between the poor and rich as shown in Figure 1.3. Further, steady increase in economic growth has also resulted to the reduction in income discrepancies leading to increase in the level of investment as well as consumption level in the economy due to even distribution of income.

The reduction in income inequality has also been influenced by various government initiatives that aim to improve living standards and address poverty in Kenya. Key among these is the devolution of government services, which has seen more resources and decision-making power transferred to local government units. This has resulted in an increased focus on local development projects and better-targeted social services, positively impacting income distribution (Omiti *et al*., 2002).

The government's initiatives to increase financial inclusion have also been essential. For instance, the widespread usage of mobile banking services has significantly increased access to financial services, particularly for rural and low-income groups. This has improved investment opportunities and increased savings, further advancing income equality where citizens have access to credit and other financial services offered by the banking sector (Central Bank of Kenya, 2022).

Another significant aspect in the lowering trend of income disparity is the increase in consumption levels. This can be attributed, among other things, to an expanding middle class, easier access to consumer finance, and higher agricultural productivity. Consumption levels naturally rise as more Kenyans acquire the means to afford products and services beyond the bare necessities, helping to create a more equitable distribution of income (Omiti *et al*., 2002).

The trajectory of income inequality stabilization from 2015 to 2021 is a good indicator. It shows that the distribution of money among society's members is becoming more equitable, narrowing the gap between the rich and the poor members of the society. This could be ascribed to a combination of consistent economic growth, more fair income distribution, and effective poverty-reduction efforts.

While these achievements are encouraging, it is crucial to recognize that problems still exist. Despite its achievements, Kenya still has severe income gaps that must be addressed. A continuous emphasis on boosting financial inclusion, improving access to high-quality education and healthcare, and creating more well-paying employment will be crucial to lowering income disparity in the country (UNDP report, 2022).

1.1.2 Income Inequality and household consumption

According to Keynesians, the balance of income distribution leads to an increase in the average consumption of the households. Globally, the role played by the income inequality on household consumption in the USA was related to the credit boom that consequently led to the financial crisis (Rajan, 2012). Marginal propensity to consume from income is greater in the developed countries with an appropriate functioning institutional framework (Slacalek, 2006). Frank *et al.* (2010) brought up a framework that explains that the decrease in savings will increase inequality within the communities in the USA.

Kenya is a developing country in Sub-Saharan Africa. It seeks to achieve industrialization by the year 2030, as enshrined in the vision 2030 (World Bank, 2023). Similarly, the third medium-term plan focuses on inclusive growth to reduce inequality in the country as stated in Sustainable Development Goals (SDGs), particularly goal number 10. Income inequality on household consumption is expected to decline to accomplish the vision. Higher income inequalities in both developed and developing countries lead to higher consumption gaps as the average propensity to consume determined by the level of income reduces over time, thereby affecting the consumption pattern of the households (Cuaresma, Kubala & Petrikova, 2018). The Kenyan government can formulate appropriate policies and measures for fair income distribution thanks to this trend in income inequality, which is going to encourage consumption and guarantee a higher standard of living by 2030 (UNDP, 2010).

According to the Gini index of the country on the distribution of consumption expenditure among the households, zero represents perfect income equality while one represents perfect income inequality (KNBS, 2013). The country egalitarian index indicates a 0.416 score which is much lower as compared to the counterpart countries in East Africa, Uganda score is 0.48 while Tanzania score is 0.43 (KNBS, 2013).

Figure 1.4 shows household consumption as a percentage of GDP in Kenya from 2010 to 2020.

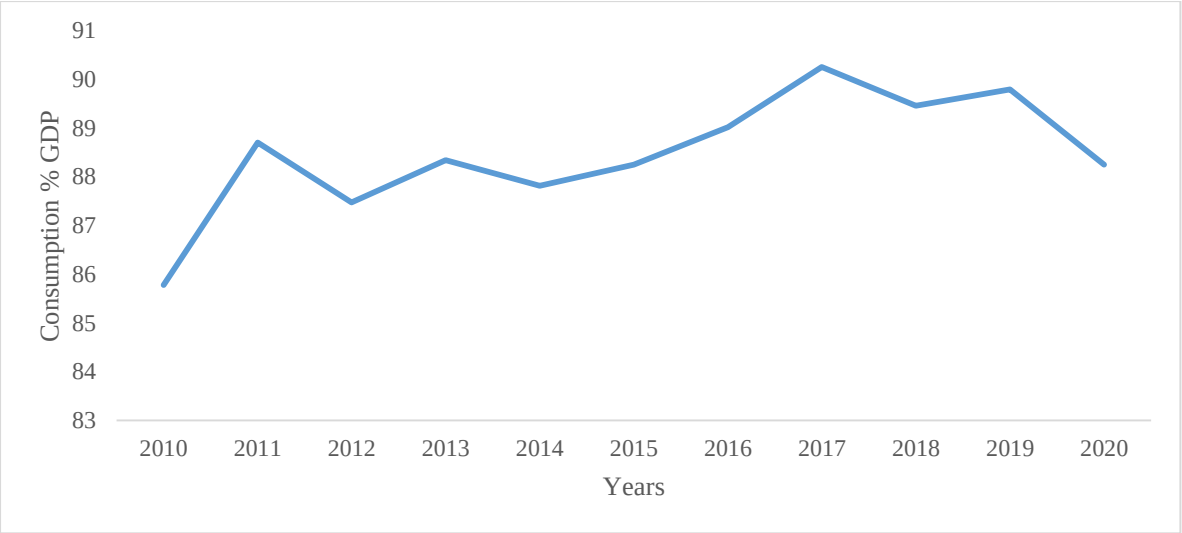

Figure 1. 4: Household consumption as a percentage of GDP
Source: World Bank, 2022

Figure 1.4 shows that consumption pattern in the economy has been on the upward from 2010 at 85.78 percent to 88.24 percent of gross domestic product even though the pattern in not smooth. The rise in consumption is due to upturn in economic growth over the years. However, the sharp increase in consumption from 2010- 2011 was due to increase in economic growth rate of 8 percent in 2010; subsequently the decline was also occasioned by the decline in growth rate to 5.1 percent in 2011 and further to 4.6 percent in 2012. This means that consumption is highly determined by the per capita income of the households.

The trend is also supported by the empirical finding that has shown that consumption mainly depends on income level in the economy, social factors as well as political stability.

1.1.3 Income Inequality and household investment

Financial investment could be a vital mechanism for implementing inequalities; higher-income households have higher chances of conducting financial investments than lower-income households (Huston, 2003). Incomes from the financial investment further increase the gap between the upper and the lower-income households. Generally, reducing income inequality promotes investments because there is reduced inequality in landholdings, leading to the sharing of the land for agricultural production (Barro, 2000).

Inequality manifests itself in the country through land ownership, good housing, better education, and access to proper healthcare. Higher income inequality reduces investment in key essentials of life mentioned above, thereby widening the investment gap in the country. Income inequality has been a significant determinant to investment and development in Kenya, particularly among social class, where the haves are the owners of most investments and can invest in their lives and their families. Income disparities among residents in the country have led to social vices such as robbery with violence, prostitution, and insecurity that has affected the level of investment, thus, a vicious cycle of poverty continues to exist in the country (Kenya National Bureau of statistics, 2019).

Household investment as a percent of GDP over the years has been fairly stable. Figure 1.5 shows the trend from 2010-2020.

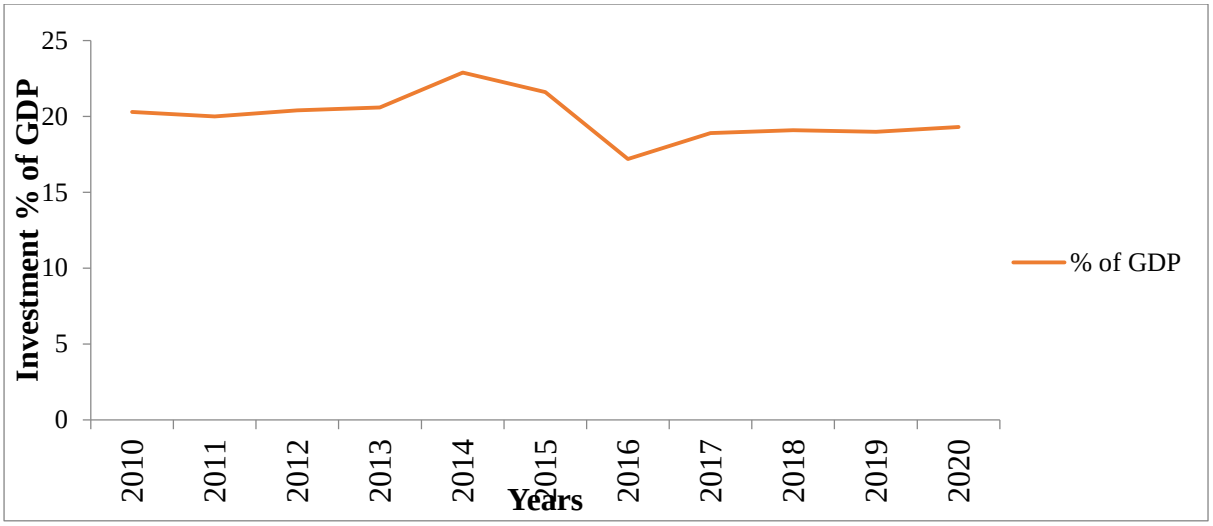

Figure 1.5: Household investment as percent of GDP
Source: KNBS (Economic Survey 2010-2020)

Figure 1.5 shows that investment has a constant trend across the years. The contribution was over 20 percent from 2010-2013, however, in 2014, it increased to 22.9 percent. Thereafter, it dropped to 17.2 percent in 2016 owing to a decline in savings by households, hence the inadequacy of funds to boost investment in the economy. From 2017 onwards, the contributions rose and remained stable at approximately 19 percent to 2020.

This shows that investment is an important driver of growth of the economy of any country hence there must be incentives for households to investment by assuring of higher returns. It boosts productivity, fosters innovation, creates employment opportunities, and enhances the overall quality of life. But for investment to occur, individuals, businesses, and the government must be willing to forego immediate consumption and allocate resources towards productive ventures, a decision that is often driven by the expectation of higher returns in the future (Osei & Kim, 2020).

Households form a significant component of an economy's investment ecosystem. Through savings, households can contribute to the pool of funds available for investment in the economy. If households are incentivized to save more, it can lead to higher levels of investment and, subsequently, to economic growth (Odhiambo, 2022). Providing incentives

for households to invest is an important strategy for promoting economic growth. However, it requires a multi-faceted approach that involves sound fiscal policies, financial literacy programs, innovative financial products, and overall economic stability.

1.1.4 Income inequality and Financial Inclusion

Financial inclusion is measured through bank account ownership, ability of the households to access credit services and savings in formal banking system in any economy. Financial inclusion plays a vital role in minimizing income inequality among the households if not to eliminate the vice in the society (Muema, 2019). Financial non-inclusivity is facilitated by high illiteracy level of the households, improper documentation, inconsistence of income, and absence of collateral to be used as a guarantee to access credit and therefore only a few households who have the above mentioned documents normally have access to financial services, this further widens the income gap among the citizens in the country (Ifediora *et al*., 2022).

Financial inclusion is low particularly in rural areas as compared to urban areas in major parts of the country. IMF (2017), points out that it is very high among the women than men posing further income inequality in both gender. According to CBK report (2022), about 97.59 percent of Kenyans hold an account. Unfortunately, the accounts hold less than 100,000 Kenyan shillings, signifying a high rate of income inequality growth where a larger proportion of the national wealth is held by a few individuals in the society while majority struggle to earn a living (Erlando *et al.*, 2020). Further, about 50 million Kenyans access financial services via *M-pesa* services but only 69 percent of the adult population have active bank accounts across the country. Lack of decent employment opportunities in Kenya that allows citizens to earn adequate income that promotes savings has contributed to income inequality, leaving larger proportion of the population unable to have access to financial

services in the country. Financial inclusion continues to widen in both formal and informal sectors. Figure 1.6 shows access to financial services and products in both formal and informal sector between 2006 and 2019.

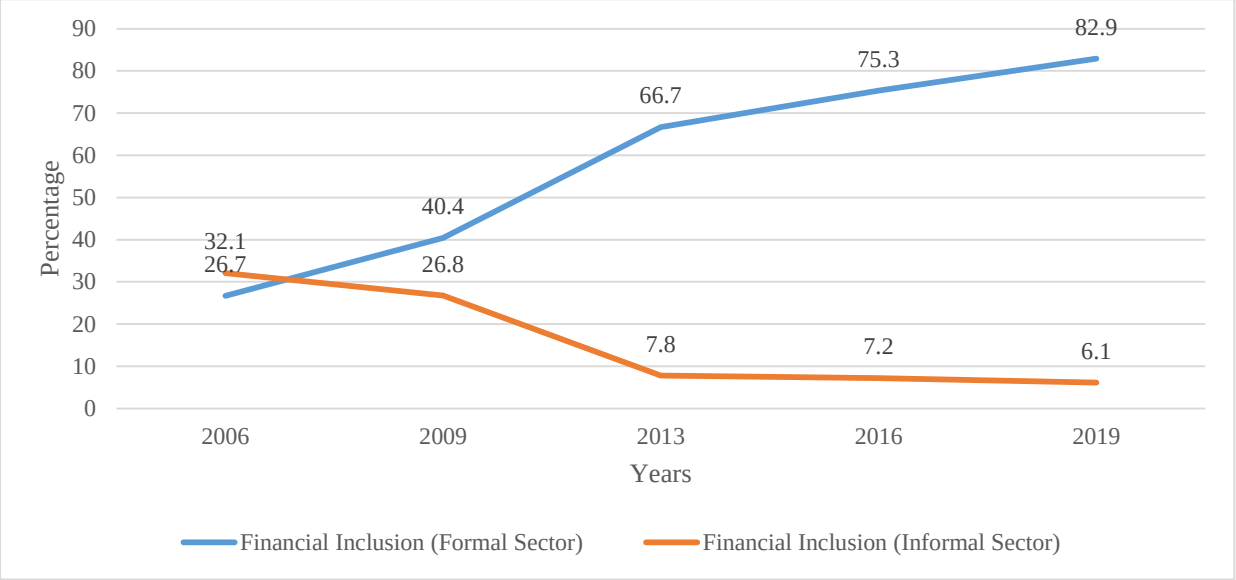

Figure 1. 6: Financial access trends (%)
Source: Central Bank of Kenya, 2022

The formal sector has an upwards trend, financial access improved from 75.3% in 2016 to 82.9% in 2019. On the other hand, financial access in the informal sector is declining, with 6.1% of the population using the services in 2019. Financial services are accessible to 89% of the population. This clearly shows that Kenya has improved its financial access from 26.7% in 2006. Various causes, including technology innovation, progressive regulation, and inclusive financial policies, have contributed to this advancement.

One of the most major contributors to this improvement has been the expansion of mobile money services such as *M-Pesa*, which have transformed Kenya's financial landscape (Demombynes & Thegeya, 2012). People can now use their mobile phones to transfer, receive, and store money, eliminating the need for traditional bank accounts. This has been

especially helpful for persons living in rural areas, where actual banking infrastructure is often scarce.

Government policies and laws have also played an important role in increasing financial inclusion (Demombynes & Thegeya, 2012). The Kenyan government has been supportive of new financial solutions, creating a regulatory environment that promotes industry growth and competition. Furthermore, the Central Bank of Kenya has put in place measures to improve access to finance for small and medium-sized firms (SMEs), recognizing their critical role in economic growth and job creation. These initiatives have included the implementation of credit information exchange and the creation of a loan guarantee plan for SMEs.

The government has also worked to improve Kenyans' financial literacy so that they can make educated judgments regarding financial products and services. While these advances are admirable, difficulties remain. A huge proportion of the population, particularly in remote areas among marginalized groups, continues to lack access to basic financial services. Concerns have also been raised regarding the high cost of borrowing and the risks connected with digital financial services, such as fraud. Going forward, Kenya must continue to address these difficulties, ensure that improvements in financial access benefit all Kenyans, and use financial inclusion as a tool to achieve broader economic and social development goals (Demombynes & Thegeya, 2012).

1.2 Statement of the Problem

Past research conducted by the International Monetary Fund indicates that income disparity, quantified via the Gini coefficient (a measure that reaches 0 when everyone has equal income and 1 when a single individual possesses all the income), can negatively impact economic growth and its long-term viability (Berg *et al.,* 2014). Consumption declines when income

inequality increases (Beck, 2016). This is so because income inequality reduces the consumption share of GDP and also reduces productive investment. Theory and empirical evidence also predict a reduction in poverty and income inequality from increased access to financial services (Beck, 2016)

Around the world, income inequality has led to disparities in consumption level, investment, education access, land, basic utilities, and even the most socioeconomic necessities (Gasparini, Cruces, Tornarolli & Mejia, 2011). Income inequality has remained relatively high in Africa, with a Gini coefficient of 0.43. In Sub-Saharan Africa, South Africa exhibits the highest disparity income inequality of 0.62 Asongu (2013), while in East Africa, Tanzania 0.43 registers the highest income inequality level (Kinyondo & Pelizzo, 2018).

In Kenya, income inequality manifests itself in several ways; unequal access to; investments, consumption, basic social amenities, and gender biases (Gakuru & Mathenge, 2012). Income inequality in Kenya has been rising over the years, with the Gini coefficient of 0.42 in 1997, 0.46 in 2006, and 0.48 in 2015. In rural areas, income inequality is higher and measured in land access, education, and access to social amenities than in urban areas, where it is measured in terms of consumption level and income level of the city dwellers (KNBS, 2020). Over the years, income inequality has created two groups in society: the poor and the rich. In order to minimize income inequality in the country, there is need to enhance financial inclusion so that all citizens irrespective of their gender, race and ethnicity have equal access to finances and able to decide how much to consume and how much to invest for their well-being.

The income inequality index in the country was about 0.485 in 2016 (KNBS, 2020), with huge discrepancies being in education, consumption, investment, employment, and agricultural sectors. The Kenya Economic Report indicates that inequality was high in

consumption and investment in agriculture in the country among households, which deviates much from perfect equal income distribution (KIPPRA, 2020). Despite the emergence of county governments and the efforts and reforms put forward by the government to address the problems of income inequality, standards of living, education level, dependency ratio, investments, consumption, and disparities; the challenges are still vibrant in the country (KIPPRA, 2020). Therefore, there is still unfinished agenda, which should form part of income inequality agenda in the country. Although several interventions have been undertaken to address income inequality in the country, such as expanding employment opportunities, offering education funds to less fortunate in society, and cash transfer to the most vulnerable to ensure they have access to basic needs; the income inequality gap remains high. Various researches have been done on effects of income inequality; for example, Blundell and Pistaferri (2003) studied income volatility and household consumption and its impact on food assistance; Otter (2008) performed a study on the assessment of income inequality on education, and Wang, Pan and Luo (2015) studied the impact of income inequality on individual happiness in China. None of the studies focused on investigating a combination of three variables; income inequality, financial inclusion, and household consumption. Hence, the current study tries to determine the effect of income inequality on households' consumption, investment and financial inclusion in Kenya.

1.3 Research questions

To address the problem of the study, the following research questions were answered;

i) What is the effect of income inequality on household investments in Kenya?

ii) What is the effect of income inequality on household consumption in Kenya?

iii) What is the effect of income inequality on household financial inclusion in Kenya?

1.4 Objectives of the study

The general objective of the study was to determine effect of income inequality on household's investment, consumption and financial inclusivity in Kenya. The study is supported by three objectives that the study achieved as follows:

(i) To evaluate effects of income inequality on household investment in Kenya.

(ii) To determine the effect of income inequality on household consumption in Kenya

(iii) To analyze the effect of income inequality on household financial inclusion in Kenya

1.5 Significance of the study

The conclusions of this study could have far-reaching repercussions, providing major advantages to the following stakeholders:

This research can provide significant insights regarding Kenya's current status of income inequality among households to county and national governments. With this knowledge, they may develop more effective policies and methods for achieving income equality. This could include activities like creating progressive tax systems, improving access to quality education and healthcare, and encouraging employment through skill development programs.

The data provided by this study may potentially be useful to Non-Governmental Organizations (NGOs) and other stakeholders. These organizations are frequently vital in campaigning for income equality and social justice. The study's findings could reinforce their arguments and illustrate the need for policies that promote household income equality. They can also utilize this data to steer their programs and actions, ensuring that they are effectively addressing the challenges at hand.

The study could also benefit businesses and investors by offering a better grasp of Kenya's socioeconomic landscape. They can make better informed selections about their investment

strategy if they comprehend income distribution. Finally, international organizations and development partners could use the findings of this study to better adapt their assistance and initiatives to alleviate economic disparity in Kenya. In short, this research could be a critical tool for guiding policies and strategies targeted at achieving income equality and, as a result, stimulating investment and long-term economic growth in Kenya.

1.6 Scope and limitation

The current study will only focus on Kenyan household consumption, investment, and financial inclusion. The study made use of annual secondary time series data from Kenya spanning the years 1990 to 2022.

The scope of this research was limited to household consumption, investment, and financial inclusion in Kenya. It seeks to investigate the links and dynamics between these variables, shedding light on how they interact and influence one another in the context of the Kenyan economy.

The study used annual secondary time-series data from 1990 through 2022 to conduct this investigation. This long-term data set enabled a full and extensive examination of trends, patterns, and changes across time, providing a thorough picture of the evolution of household consumption, investment, and financial inclusion in Kenya over the last three decades.

1.7 Organization of the study

The project is organized into three major sections. The first chapter includes an introduction, definition of the topic, goal of the study, objectives, research questions, and significance. The second chapter presents a thorough survey of the literature, including theoretical analysis, an examination of empirical findings, and a summary of these investigations. The third chapter

delves into the study's methodology, including an introduction, the research design, the conceptual framework, model specification, variable measurements, data source and type as well as data analysis. Chapter four contains descriptive statistics, unit root test, correlation analysis, pre-estimation and post-estimation test and regression analysis. Chapter five being the last chapter entails summary of the study, conclusion from study findings, policy implications and areas for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter digs into the study's theoretical literature, giving key findings from previous research. It also examines the strengths and flaws of previous studies, as well as the context of their conclusions. This comprehensive analysis and critique of current literature serves as a firm foundation for this study, providing insights into previous knowledge and highlighting gaps that this research seeks to remedy. The chapter finishes with an overview that summarizes the key themes and ideas from the studied literature.

The next parts looked at the theoretical foundation of the subject, previous empirical studies, and a summary of findings and their implications for the current research. This thorough examination will serve as the foundation for the design of our own inquiry, its techniques, and anticipated contributions to the subject.

We can construct a more complete and precise investigation by considering prior studies, their techniques, and their findings. We can avoid prior research's flaws and improve on its methodology to acquire more accurate and relevant results.

In the following parts, we will go over the theoretical review, empirical investigations, and a summary of studies on household consumption, investment, and financial inclusion in Kenya from 1990 to 2021. This lengthy literature analysis will provide the framework for the investigation and provide essential context for our findings' interpretation.

2.2 Theoretical literature

Some theoretical perspectives that formed the basis of this research are discussed here. These ideas served as a solid theoretical foundation for the research, directing the investigation of income inequality and its impacts on household consumption, investment, and financial inclusion in Kenya. By integrating insights from these diverse theories, the study can offer a nuanced and comprehensive understanding of the research topic. The study will be guided by the foregoing theories such as:

2.2.1 Neo-classical theory of income inequality

According to Kurz and Salvadori (2001), the theory of neo-classical distribution asserts that factors of production interact on market demand and supply to determine equilibrium income, output, and income distribution. The theory illustrates how the factor demand incorporates the relationship between marginal-productivity of the particular factor within the output market. Thus, this model of income distribution predicates how income should be divided between labor and capital is established by markets that are competitive at the macro-economic level together with changes in technology and the amount of the capital and the labor force (Boianovsky & Hoover, 2009). The theory believed that payment to the three factors of production (labour, capital, land) equals to total output as illustrated by equation 2.1 showing distribution of income in the economy among the economic agent which the study classified as households.

$Y = wL + rK + tT$ ……..…….. 2.1

Where; Y- income, wL- total income from labour servicers, rK- total income from capital machinery and tT- total rental income.

Incorporating marginal payments to the factors, equation 2.1 transforms to equation 2.2 as shown

$Y = i_K K + i_L L + i_T T$ …… 2.2

Clark (1889, 1891) concurred that equation 2.2 would hold since payment of each factor is its marginal product then this exhaust the entire output in the economy.

Neo-classical theory suggests that income inequality in developing countries, such as East African countries, can be reduced by comprehensive movement towards economic integration. The argument is that there is a need to increase competitiveness in the market to achieve more income. The theory further states that there should be no foreign direct investment or Trade barriers to minimize income inequalities. Despite this view, Adams (2000) noted that a major limitation of this theory is that it assumes free trade between countries, which does not prevail in modern societies. For instance, since the establishment of the East African Community, new members continue to be accommodated, but realizing a free market trade area has been a challenging task.

2.2.2 Classical theory of income distribution

According to Adam Smith, the classical theory of income distribution depicts that the varied earnings from factors of production are the leading causes of income inequalities (Nell, 1992). The proponents of this theory are that; land, capital, and labor do not earn the same amount of returns. Thus, there will likely be economic inequality whenever there is income inequality (Weldon & Gargano, 1988). The fundamental tenet of the classical theory is that producing things and services generates income. Furthermore, the productive factor's value indicates the contribution contributed to the finished product as a whole (Ferguson & Nell, 1972). The weakness of the classical theory is that it assumes that income inequality influences the consumption of individuals. Classical theory concluded that land rates, interest,

and wages are treated equally. Therefore, when there is an unequal distribution of the factors of production, the result is inequality of income distribution within a region or country.

2.2.3 Theory of persistence income

Durlauf (1996) proposed the Persistent Income Inequality Theory, which argues that income disparities are influenced by factors such as education, occupational attainment, and sociological aspects. This theory suggests that the wealthier families are driven to isolate themselves in economically uniform neighborhoods due to the incentives created by these factors. It further contends that the markets for human capital are not complete, with neighborhoods lacking the ability to borrow additional funds to boost tax revenues for education. This situation leads to a state where high-income families are in a better position to invest in human capital compared to their low-income counterparts, perpetuating income inequality through generations. The theory concludes that economically uniform neighborhoods experience positive spillover effects resulting from per capita incomes, while diverse neighborhoods benefit from lower average education costs. These elements lead to intricate patterns of neighborhood formation across generations and dynamics of income (Durlauf, 1996).

2.2.4 John Sloman's theory of income inequality

John Sloman's theory of income inequality was brought forward by Sloman & Garratt (2009). According to the theory, rewards on factors of production depends on market conditions, whereby labor markets work in such a way that wages will never be equal due to various imperfections (Sloman, 2007). Despite the assertions of Sloman (2007) on income inequality, this theory has some weaknesses among them; the inability to inform on how the other factors of production contribute to income inequalities, it focuses only on labor markets

imperfections and how such imperfections influence income inequalities (Sloman, 2018). The theory concluded that income inequalities lead to complexities in labor markets.

2.2.5 Q-theory of Investment

The theory was first put forward by a neo-classical economists led by Brainard and Tobin (1968) and Tobin (1969) to address the problems of neoclassical and accelerators theories which tried to explain how investment need to be done in an economy. The two theories presumed that amount of capital stock need to be adjusted to equal to its desired level, is complete and instantaneous in every period as illustrated in equation 2.1

$K_t^* = K_t$ ……. 2.3

The theory was an advancement of Keynes (1936) who opined that there is no sense in creating of new entities/goods/enterprises at a cost more than purchasing cost of the old one. The theory incorporates neoclassical theory assumptions of investment but restricts the speed of adjustment in capital stock through addition of adjustment cost. The marginal return on investment wholly depends on the amount of capital stock put in the investment opportunity or in the economy which mainly depends on the income level of the households. Households' income depends on the capita income of the individual determined by income distribution in the economy. The theory opined that even distribution of income in the economy ensure equality in income thereby facilitating adequate investment in the economy, however, income inequality in the economy derails or deter investment level in the economy due to low capital stock owned by individual in the economy.

2.3 Empirical Literature Review

Huang and Zhang (2020) used panel data from 30 Chinese provinces covering the years 1985–2013 to investigate the long- and short-term effects of financial inclusion on urban–

rural income inequality. They discovered that while financial inclusion narrows the income inequality gap over time, it worsens it over the near term, this is due to the fact that in rural and urban the speed at which financial network knowledge spreads is low as well as low education level leading to expansion of income inequality in the short-run. Economic growth is achieved through improving financial inclusion among rural and urban households in the long-run. The study adopted various methodologies including mean group estimation, fixed effect of generalized methods of moments and pooled mean group estimation which gives different results in the short-run but in the long-run variables' coefficients, constant term and the error terms from the three models gives similar results. The study variables were urban disposable per capita income, rural disposable per capita income, gross domestic product (GDP), population size, land size, inflation, education level, labour-force, domestic credit and domestic deposits. The data obtained was analyzed using panel granger causality model with vector auto-regression model of first order. The study recommended that robust financial literacy campaign need to be carried in the rural areas and all households should be included in the national plan so that none is left behind in financial access so as to minimize income inequality. The study is relevant to the current study since it shows how financial inclusion contributes to economic growth which later minimizes income inequality which the current study seeks to investigate.

Turegano and Herrero (2018) found that financial inclusion only significantly reduces income inequality when economic growth and the fiscal policy of the particular economy are controlled. The study used panel data covering the years 2004–2012 to assess the impact of financial inclusion on income inequality. Study variables like per capita income, the government's share of GDP spent on consumption, trade openness as measured by external development, and income inequality as measured by the Gini coefficient index were all analyzed using the ordinary least squares model. Further, the study revealed a significant

positive relationship between income inequality and financial inclusion; however, as the size of financial inclusion increases in the economy, a statistical negative relationship was found implying that as financial inclusion grows in the economy income inequality decreases.

Maina (2017) performed a study on the effect of consumption taxes on poverty and income inequality in Kenya, found that the income level of the households greatly influences consumption; therefore, high-income inequality affects households' consumption patterns. Further, the study revealed that consumption taxes are negatively correlated to income inequality and recommended that a lower consumption tax rate be applied to the poor households to increase the consumption level of the poor or low-income households in society. A higher consumption taxes applied to the higher-income individuals to provide essential services to the poor hence minimizing the inequality level in the society at large. The study adopted a diagnostic research design with time-series data for 44 years. The secondary data was obtained from the Kenya National Bureau of Statistics (KNBS), the Kenya Revenue Authority (KRA), and the World Bank. The variables used to analyze the findings were consumption taxes, consumption level, income taxes, trade taxes, education expenditure, and health expenditure, population growth rate as independent variables, and Gini coefficient index and poverty index as dependent variables. Further, the study recommended that income inequality and poverty levels among the households can be minimized through income redistribution via legislation on consumption taxes.

Park and Mercado (2016) conducted a study to examine how financial inclusion helps alleviate poverty and income inequality in developed and developing Asia economies using panel data from 37 economies spanning the years 2004–2012, according to the report, financial inclusion lowers poverty and income inequality in Asian economies by providing more households with access to financial services that boost output and even out

consumption patterns. Further the study revealed that the relationship between financial inclusion and income inequality is weak one at 5 percent level of significant. Similarly, per capita income, rule of law, demographic composition and household size significant and positively correlated to financial inclusion in the economy, however, literacy level and primary school completion rate statistically insignificantly related to financial inclusion. Large population was significantly related to financial inclusion as the higher proportion of the population tends to have a higher access to financial services. The study adopted quantitative research with multivariate regression model to analyze how financial inclusion help reduce poverty and income inequality in developing and developing economies in Asia economy.

Wang, Pan and Luo (2015) carried out a study on the impact of income inequality on individual happiness in China found that a negative relationship between inequality and happiness which is statistically significant. Happiness was found to be decreasing with an increase in income inequality, with appropriate inequality being beneficial to happiness, while excessive inequality weakens the happiness of the individuals. Appropriate income inequality was found to enhance income distribution and mobility among the households, thereby creating more happiness as this also motivates individuals to obtain more wealth. Further, the study opined that income inequality allows individuals to minimize poverty amongst themselves and mass wealth through individuals' efforts rather than through societal efforts. The study adopted qualitative and quantitative research designs with primary and secondary data used to analyze the findings. Happiness was used as a dependent variable, while income inequality, education, and health as independent variables. The study further recommended that income inequality be minimized and kept within manageable bounds rather than eliminating the vice.

Rasella, Aquino, and Barreto (2013) studied the impact of income inequality on life expectancy in a highly unequal developing country found that income inequality is negatively related to life expectancy in Brazilian states. The study also revealed that even after controlling the illiteracy rate and education level of the households, the result was still negative and that health conditions for households in the same inequality brackets were found to be similar. The study adopted a panel data set from 27 states analyzed using a multivariate linear regression model; life expectancy was used as a dependent variable while the Gini index was the independent variable. The study also opined that improvement in conditional cash transfer programs and increase in minimum wage rate has led to a reduction in social inequalities indicated by a decrease in the Gini index across all states in Brazil.

Blank (2011) conducted research exploring methods to alleviate disparities in California, United States of America. The study discovered that matrimony lowers poverty levels and enhances the future opportunities for children from low-income families. The research also noted a reduction in the number of single individuals and single-parent households in low-income brackets, in contrast to an increase in the quantity of married-couple households. This shift promotes a redistribution of income, which in turn lessens income inequality among households. One of the ways to reduce income inequality among the households is through redistribution of resources through anti-poverty programs by the government, designed to increase resources to the poor households. The programs recommended by the study are the tax systems and noncash benefits. Also, those below the poverty line are uplifted through cash assistance programs to the poverty line through food expansion and subsidizing housing rents so that more resources are directed in the provision of services to the poor households. Increasing female labor force participation with increased wage rates also help to reduce inequality among the households, and female married to high-income men leads to redistribution of income.

A study carried out by Suri *et al* (2008) while examining the dynamics of poverty and inequality in Kenya with a specific focus on rural areas. The study adopted income level as a measure of inequality among the households in the rural areas of Kenya. They found a significant decrease in income inequality in rural areas due to the improvement in the equal distribution of agricultural and land resources among rural households. The study, therefore, concluded that reduction of income inequality played a great role in the minimization of poverty levels. This study opined that the richest income levels fell by 20% while the poor rose by 30%. The target households in the study were sourced from Tegemeo Institute (Egerton University), and the data was extracted from the Central Bureau of Statistics.

Otter (2008) performed a study on the assessment of income inequality on education found that income inequality among households brings about education inequality. Still, the inequality varies depending on the level of economic growth generated by income inequality. An increase in education inequality was found to harm growth. In contrast, a decrease in education benefits growth as the changes in inequality was larger than the inequality among the households. The study adopted a descriptive research design with panel data across rural regions. The independent variables were education level, gender of the head of the household and per capita income of the head of the household. The dependent variable, income inequality, was quantified using the Gini coefficient. Additionally, the study concluded that while uneven human capital, or educational attainment, is beneficial for growth, it will only reduce inequality to the extent that the gains are shared evenly among households. A high level of inequality initially with a high level of income would reduce education inequality in the long run due to upward income mobility among the households. The study also recommended that policies that address education inequality be constituted to ensure growth and minimize income inequality in society.

Bhandari (2007) found that increased foreign direct investment reduces income inequality in a country with more salary/wage earners than capital/investment owners in upcoming economies. The study adopted a descriptive research design with panel data across countries under study. The variables used to aid in the analysis were foreign direct investment as a percent of gross domestic product, per capita income of the households, unemployment rate, and domestic investment as a proportion of the gross domestic product, government expenditure, and private sector employment as independent variables and Gini index as a measure of income inequality as the dependent variable. Further findings revealed that the inflow of foreign direct investment reduces income inequality in the economy by increasing return to labor among the transition countries. Foreign direct investment was also found to have a positive effect on wage inequality and employment, thereby reducing the unemployment level in the economy. Conclusively, the study found that foreign direct investment help reduce income inequality among households for both developed and developing countries. However, the study fails to directly show how foreign direct investment is positively related to income inequality through wage inequality.

Blundell and Pistaferri (2003) studied income volatility and household consumption and its impact on food assistance found out that income volatility has a significant effect on consumption among low-income individuals. Consumption levels were found to vary with changing income inequality throughout the study. Effect of income volatility was found to be minimum among the high-income individual than the low and middle-income individuals in the society. The study adopted panel data for fourteen years since it is good to analyze microeconomic research at the household level. The study adopted consumption level, food assistance, household size as independent variables while income volatility as the dependent variable. Further, the study revealed that food assistance did not provide any cover apart from personal savings by the individuals among the middle-income individuals. At the same time,

the low-income households were highly affected by the wider income inequality experienced in the rural households.

2.4 Overview of Literature

In summary, the theoretical literatures reviewed show how income inequality can be minimized by ensuring even distribution of income among the members of the society. Government has taken initiatives by devolving funds and other services to the county government to ensure the same, however, vice still continue to exhibit itself in the country at 46.7 percent. Financial access has also been made easier through *M-Pesa* services and other mobile banking services but just a substantial number having access to financial services leading to widening of accessibility to key services in the economy. The current study will be based on the neo-classical theory of income inequality as the theory shows how inequality is reduced through investment and free trade, which encourages foreign direct investment into the country. The empirical literature review also found that income inequality negatively correlates to households' consumption taxes and significantly influences households' consumption (Blundell & Pistaferri, 2003). Further, the studies revealed that inequality disparity could be minimized through foreign direct investment (Bhandari, 2007) which has been on the increase however, income disparities continues to increase. However, these studies fail to show how low income inequality would improve household consumption and investment level in society, which is the main weakness of the reviewed studies.

The reviewed studies concluded that more research should be carried out to find out the occurrence of high income inequality among households in the 21st century, specifically in rural areas of most nations over the world. Panel data was used to analyze the findings of the studies. Following the findings, recommendations, weaknesses, and conclusion of the past reviewed studies in China, the United States of America, South Africa, and Kenya. Based on

these, the current study will seek to determine the effect of income inequality on the households' consumption, investment and financial inclusion in Kenya.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

The chapter outlines research design study adopts, introduces the theoretical framework, describes the empirical model, and provides various variables definitions and measurement scales. Additionally, it specifies the type of data used and its source, time series tests which stationary test, diagnostic test and correlation test. The chapter also considers data analysis techniques which include estimation model and analysis software.

3.2 Research design

The main aim of the study is to determine the effect of income inequality on households' consumption, investment and financial inclusion in Kenya. The study adopted non-experimental research design using secondary time series data for a period 1990-2022 on study variables in order to explain the effect and the relationship between income inequality and households' consumption, investment and financial inclusion. The study considered the design because the researcher cannot manipulate the data on the study variables. The time series data was collected on study variables such as income inequality, expenditure on consumption, expenditure on investment by households, land ownership or land size owned by households, population size, education level, domestic credit availability and accessibility, inflation rate, number of household with bank account (financial inclusion) and government expenditure on recreational activities in the country.

3.3 Theoretical Framework

The study adopted neo-classical theory of income distribution as put forward by Kurz and Salvadori (2001) to determine the effect of income inequality on households' consumption, investment and financial inclusion in Kenya using the model from equation 2.2

$Y = i_K K + i_L L + i_T T$ …… 3.1

where Y-economic output/income, $i_K K$- marginal payment to capital, $i_L L$- marginal payment to labour and $i_T T$- marginal payment to land. Equation 3.1 states that if factors of production are paid their marginal product which equals to their pay such wage, interest rates and rent then this equals to total income in the economy.

Given utility maximization function of the form

$u = f(x)$ ……..…… 3.2

Where u- utility and x- commodity to be consumed. From the function for the household to consume the commodity, the household need to pay using the earnings from marginal payment to labour obtained in equation 3.1 so that consumption of commodity x depends on the earnings constituting income given by equation 3.3

$c = f(Y)$ …… 3.3

Where c-consumption of commodity x by the households and Y-income earned from the factor payment determined by income distribution among the factors. The equation imply that as the income increases so does the level of consumption in the economy and vice versa. Uneven distribution of income among the factors measured by the income inequality affect the level of consumption by the households, therefore Y equation 3.3 can be substituted by the income inequality measured by Gini index of income inequality given by equation 3.4

$c = f(g)$ ……..…… 3.4

Where g- Gini coefficient index

Similarly, given a production function of Cobb-Douglas form as

$Y = f(L, K)$ …… 3.5

To obtain marginal productivity of income distribution and assuming constant return to scale in the production, then intensive real production function becomes

$y = f(l, k)$ …… 3.6

Where y- ratio of income to labour (Y/L), l-ratio of labour contribution to labour units (L/L) and k-ratio of capital to labour (K/L), implying that expenditures by households depends on the payments to the factor and then income level (y) which represent the level of income distribution in the economy measured by Gini index measured by the proportion of income held by individuals, then equation 3.6 transforms to equation 3.7 showing total income in the economy as a total of factor earnings.

$y = f(w, r, i)$ …… 3.7

Where; y – aggregate income, w- wage income, r- rental income and i-interest income.

Equation 3.7 assumes that all factors are paid equally and all is spent to satisfy their wants then investment by the household is a function of interest rate earn to satisfy their want. Therefore, investment (I) is a function of interest rate (i) given by equation 3.8.

$I = f(i)$ …… 3.8

The level of return from the investment depends on the interest earned by the factor which largely depends on the factor payment from equation 3.1, implying that equation 3.8 can written as shown in equation 3.9.

$i = f(g)$ …… 3.9

3.4 Empirical model Specification

According to Kurz and Salvadori (2001) and Boianovsky and Hoover (2009), income level is determined by the interaction of demand and supply of factors of production in the factor

market. Further, income level is determined by the expenditure level of households' consumption, investment, government expenditure. Other factors that affect consumption by households, drawing from literature, can be included in equation 3.4 so that the model becomes;

$c = f(g, l, govt, pop, infl, educ, pc, w, cr)$…….……..…… 3.10

Similarly, incorporating other factors affecting household investment, equation 3.9 becomes

$i = f(g, l, govt, pop, infl, educ, pc, w, cr)$ ……...……..... 3.11

Further, financial inclusion is also affected by the following factors as shown in equation 3.12

$d = f(g, l, govt, pop, infl, educ, pc, w, cr)$ ……...……..... 3.12

Where; c- household consumption, i is household investment, d-financial inclusion, g- Gini coefficient index, hi- household investment, w- wealth endowment, l- land ownership, pop-population size, $infl$-inflation rate, cr- domestic credit available for loans, $educ$-households' education level, w- wealth endowment, pc- per capita income and $govt$-government expenditure.

The study will therefore estimate the linear equation 3.13 to evaluate the effect of income inequality on household consumption.

$c = \beta_0 + \beta_1 g + \beta_2 pc + \beta_3 w + \beta_4 l + \beta_5 govt + \beta_6 pop + \beta_7 infl + \beta_8 cr + \beta_9 educ$ ….. 3.13

Where β_0-is the constant value measuring the income inequality level in the absence of factors influencing inequality and $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8$ and β_9 are the coefficients of the factors the measures the elasticities of income distribution in the economy.

Similarly, to determine the effect of income inequality on household investment, linear equation 3.14 will be analysed.

$i = \beta_0 + \beta_1 g + \beta_2 pc + \beta_3 w + \beta_4 l + \beta_5 govt + \beta_6 pop + \beta_7 infl + \beta_8 cr + \beta_9 educ$….. 3.14

Further, to analyse the effect of income inequality on financial inclusion, linear equation 3.15 will be estimated.

$$d = \beta_0 + \beta_1 g + \beta_2 pc + \beta_3 w + \beta_4 l + \beta_5 govt + \beta_6 pop + \beta_7 infl + \beta_8 cr + \beta_9 educ \ldots. 3.15$$

Where d-domestic financial inclusion of the households measured by the number of households able to access domestic credit.

3.5 Definitions and Measurements of variables

Table 3.1: Definitions and measurements of Variable

Variables	Definition of the Variables	Measurement
Income Inequality	Is the gap in income distribution between the haves and have not in the society in the country	Annual Gini coefficient index for Kenya
Households' consumption	Expenditures on consumption made by households to meet daily needs over a period of time	Annual monetary value on consumption
Households' investment	Gross monetary and non-monetary savings by the households over a period of time	Annual monetary value of property owned by households in the country
Labour force	Proportion of the population with the ability and willingness to work in the country. Labour is a factor of production	Annual number of people within the age bracket 18-60 years
Government expenditure	Budget allocation by the government in provision of essential services to the households	Annual government expenditure on consumption and

		investment
Financial inclusion	Is the accessibility and availability of financial services to the households	Annual number of people having bank account
Household education level	Percentage of the individuals completing secondary school in any given year	Secondary school completion rate per year
Population size	Number of individuals living and or present in the country over time	Households that receive/ enjoy government provided recreational services
Inflation rate	Annual percentage increase in price level of goods and services	Percentage change in price level
Domestic Credit	Is the financial services provided or made available to households or private business entities by the financial corporations in terms of loans	Annual amount of funds advance by financial corporations to individuals
Per capita income	Proportion of national income to households	Percentage income

3.6 Data Type and Source

The study adopted time-series data that was obtained from Kenya National Bureau of Statistics (KNBS), World Bank or World Development Indicators, Central Bank of Kenya (CBK), and Budget Reports from National Treasury for the period 1990-2022.

3.7 Time Series Tests

These tests were carried out to ensure that spurious results are not obtained. The tests included; stationarity test, co-integration test, diagnostic test, normality test and correlation test.

3.7.1 Stationarity Test

The test was carried out on all the variables using the three unit test techniques such as Kwiatkowski-Philips-Schmidt-Shin (KPSS) test, Phillips-Perron (PP) test and Augmented Dickey Fuller (ADF) test before any analysis was carried out to ensure that both the mean and variance of the time series data are constant to minimize chances of obtaining spurious results. Variables that were non-stationary at level and were differentiated once to ensure they were stationary (Maina, 2015). On the other hand, Phillips-Perron helped correct for any serial correlation among the variables to standard statistics (Kosimbei, Wawire & Kimani, 2010).

3.8 Model Test

The test was carried out using Breusch-Pagan test for heteroscedasticity and Goldfeld-Quandt test for homoscedasticity to ensure that the estimated equation gives consistent results over time (Gujarati, 2008). Durbin Watson test was used to check serial correlation (autocorrelation) in case there are lags in the variables. Further, normality test on the error term was carried out using Jargue-Bera test to identify outlier variables in the data.

3.9 Correlation Test

The test was carried out using Pearson's Correlation Coefficient (r) in order to test for the relationship among the variables. Variables that will be highly correlated were not used in the

same equation. Further Variance Inflation Factor (VIF) test was also used to check multicollinearity among the independent variables so as to ensure that spurious results were not obtained during analysis.

3.10 Data Analysis Process

In order to estimate the equations and meet the study's objectives, the data was analyzed using a multivariate linear regression model with Auto-regressive Distribution Lags (ARDL) in the STATA statistical program. However, because there were no co-integration equations supporting the model's application, the long-term effects of income inequality on household consumption, investment, and the degree of financial inclusion in Kenya were not ascertained using the Vector Error Correction (VEC) model.

The first objective of the study was to evaluate the effect of income inequality on households' consumption in Kenya. To achieve the objective, the study carried out regression on Equation 3.12 where the magnitude and the sign of the coefficients was discussed to determine the relationship and level of effect of income inequality on households' consumption and discuss the statistical significance of the coefficient. The second objective is to determine the effect of income inequality on households' investment, to achieve this objective the study estimated Equation 3.13 to determine the relationship and effect by discussing the statistical significance of the coefficients.

The third objective of the study is to analyse the effect of income inequality on households' financial inclusion. To achieve the objective, the study estimated Equation 3.14 and discusses the statistical significance of the coefficient as well as the relationship between the dependent and independent variables. The achievement of the three objectives of the study led to

achievement of the general objective of the study which is to determine the effect of income inequality on households' consumption, investment, and financial inclusion in Kenya.

CHAPTER FOUR

EMPIRICAL FINDINGS

4.1 Introduction

The chapter presents study analysis and empirical findings.

4.2 Descriptive Statistics

The study employs measures of central tendencies, maximum, minimum, skewness and kurtosis. The results are presented in table 4.1.

Table 4.1: Descriptive Statistics Results

Variable	Obs	Mean	Std. Dev.	Min	Max	Jarque-Bera	Probability
Household Consumption	33	2659907	2976136	124903	10107170	7.295531	0.2605
Household Investment	33	178542.1	153535.9	30160.2	604374.5	11.10571	0.3976
Labourforce	33	20457313	6318843	11349512	31876217	2.213194	0.3307
Government Expenditure	33	483615.9	476728.5	36620	1640545	5.593682	0.0610
Financial Inclusion	33	17822598	24714407	125784	72476201	7.278961	0.2627
Education Level	33	54.4697	18.07613	28.5	91.2	3.061316	0.2164
Inflation rate	33	10.67212	8.913747	1.6	46	81.23178	0.0000
Domestic Credit	33	1528807	1736298	70180	6246348	10.04453	0.0659
wealth	33	670343.3	755598.4	40560	2502314	7.123274	0.8392
Per-capita Income	33	79232.68	78090.75	7121.8	264076.9	6.047638	0.4862

Source: Computations from study data

Table 4.1 presents summary statistics report for a dataset related to economic and social indicators across 33 observations from the year 1990-2022. The measures presented include:

Mean which is the average value of the variable across all observations; standard deviation of the variable, which measures the average distance of each observation from the mean. A higher standard deviation indicates greater variability in the data; however, the data shows low variability indicating no variation in the data collected. Inflation rate has the minimum value of 1.6 percent while the maximum value observed for the variable is 31,876,217; Jarque-Bera which is a test statistic for testing whether the series is normally distributed. A higher value indicates greater deviation from a normal distribution; Probability (p-value) associated with the Jarque-Bera test. A low p-value (typically more than 0.05) indicates that the null hypothesis of normal distribution can be rejected.

The results indicate that household Consumption has a mean of Kshs. 2,659,907 and a large standard deviation of 2,976,136, indicating a wide dispersion in household consumption across the period. The minimum and maximum values are Kshs. 124,903 and Kshs. 10,107,170 respectively, showing a significant range. The Jarque-Bera test statistic is 7.29 with a probability of 0.2605, implies normal distribution.

Household Investment reflects the total amount of resources invested by households. It has an average of Kshs. 178,542.1 million and a standard deviation of 153,535.9, indicating a fair amount of variability. The range is between Kshs.30, 160.20 million and Kshs. 604,374.50 million. The Jarque-Bera test has a value of 11.10 and a probability of 0.3976, suggesting a normal distribution. Labourforce represent the size of the labour force in the country in each year. The mean is 20,457,313 with a standard deviation of 6,318,843, indicating a large variation. The minimum and maximum values are 11,349,512 and 31,876,217 respectively. A P-value of 0.3307 confirms a normal distribution of the data.

Government Expenditure represents the total government spending. The average value is Kshs. 483,615.9 million and a standard deviation of 476,728.5, suggesting a large dispersion. The range is from Kshs. 36,620 million to Kshs. 1,640,545 million. The P-value of 0.061, implies that the distribution is close to normal. Financial Inclusion represents a measure of access to financial services. With a mean of 17,822,598 and a very large standard deviation of 24,714,407, there is a vast difference in financial inclusion across the observations. The minimum and maximum values are 125,784 and 72,476,201 respectively. The P-value of 0.2627, indicates that the distribution is normal. Education Level represents an average measure of educational attainment. It has a mean of 54.47 and a standard deviation of 18.08, showing a moderate variability. The range is from 28.5 to 91.2. The Jarque-Bera test statistic is 3.06 with a probability of 0.216, suggesting that the distribution is not significantly different from a normal distribution.

Inflation Rate represents the rate at which the general level of prices for goods and services is rising. With a mean of 10.67 and a standard deviation of 8.91, it indicates a significant variability in inflation rates. The range is from 1.6 percent to 46 percent. The Jarque-Bera test shows a value of 81.23 and a probability of 0.000, strongly suggesting that the distribution is not normal. Domestic Credit represents the total amount of credit provided by the financial sector. It has an average of Kshs. 1,528,807 and a standard deviation of 1,736,298, indicating a large variability. The range is from Kshs. 70,180 million to Kshs. 6,246,348million. The Jarque-Bera test statistic is 10.04 with a probability of 0.0659, suggesting that the distribution might be significantly different from a normal distribution. Wealth represents a measure of wealth in each observation. It has a mean of Kshs. 670,343.3 million and a standard deviation of 755,598.4, showing a large dispersion. The range is from Kshs. 40,560 million to Kshs. 2,502,314 million. The Jarque-Bera

test has a value of 7.12 with a probability of 0.8392, indicating a normal distribution. Per-capita Income represents the average income per person. It has a mean of 79,232.68 and a standard deviation of 78,090.75, indicating a significant variation from a normal distribution.

4.3 Unit Root Test

Augmented Dickey Fuller (ADF), which is frequently employed with time series data, was used in the test. If a time series' characteristics are independent of the time at which it is seen, it is said to be stationary. This might be a crucial characteristic for some kinds of statistical studies. A unit root suggests that the time series is non-stationary and might have a random trend. Before conducting any analysis or running the risk of obtaining erroneous results, the test was designed to make sure that all of the variables were stationary. Table 4.2 shows the results

Table 4.2: Unit Root Test

Variable	Level	t-Statistics	P-value	Comment
Education Level (I1)	Intercept	-7.0097	0.000	Stationary
	Trend & Intercept	-6.8855	0.000	Stationary
Inflation rate (I1)	Intercept	-6.9887	0.000	Stationary
	Trend & Intercept	-6.9381	0.000	Stationary
Log Household Consumption (I1)	Intercept	-5.4146	0.0001	Stationary
	Trend & Intercept	-5.6749	0.0003	Stationary
Log Domestic Credit (I1)	Intercept	-3.4557	0.0104	Stationary
	Trend & Intercept	--3.441	0.0042	Stationary
Log Financial Inclusion (I1)	Intercept	-4.2633	0.0022	Stationary
	Trend & Intercept	-4.1810	0.0127	Stationary

Log Household Investment (I1)	Intercept	-7.5727	0.000	Stationary
	Trend & Intercept	-7.4457	0.000	Stationary
Log Labour Force (I1)	Intercept	-7.7650	0.000	Stationary
	Trend & Intercept	-6.6645	0.000	Stationary
Log Per-capita Income (I1)	Intercept	-4.7069	0.0010	Stationary
	Trend & Intercept	-4.8799	0.0033	Stationary

Source: Computations from Study Data

An analysis of the unit root was done at the five percent significance level. As a general rule, stationarity is indicated by a P-value of less than 0.05 at the five percent significant level while non-stationarity is indicated by a P-value of larger than 0.05 at the five percent statistical level. The alternative hypothesis states that there is no stationarity among the variables; contrary to the null hypothesis that stationarity among the variables exists. The study conclusion fails to reject the null hypothesis.

Further, the findings indicate that all the variables were stationary at first difference at both intercept and trend and intercept.

4.4 Correlation Analysis Test

The test was carried out using Spearman Moment of correlation to determine the magnitude and direction of relationship among the variables. The study revealed that the coefficients of all the variables were less than or equal to 0.8 and according to the rule of the thumb, a coefficient correlation less than or equals to 0.8 implies that the variable were not highly correlated hence chances of getting spurious results were minimal during analysis.

Additionally, the findings reveal that some variables were negatively correlated while others were positively correlated. Further the results indicate that log financial inclusion was negatively correlated to all study variables as indicated in Table 4.3.

Table 4.3: Correlation Analysis Results

	Inflation rate	Log household Consumption	Log household Investment	Labourforce	Log government Expenditure	Log Financial Inclusion	Log domestic Credit	Log Wealth	Education Level	Log PCI
Inflation rate	1									
Log household Consumption	-0.2707	1								
Log household Investment	0.207	-0.5108	1							
Labourforce	-0.1334	-0.3698	0.4921	1						
Log government Expenditure	-0.1507	0.147	-0.0338	0.1681	1					
Log Financial Inclusion	-0.0859	-0.0057	-0.0031	-0.0175	-0.1327	1				
Log domestic Credit	0.0638	0.1556	0.0345	-0.0535	0.1518	0.0503	1			
Log Wealth	-0.1532	0.3612	0.0348	0.0482	0.2113	0.1186	0.3995	1		
Education Level	-0.2007	-0.1333	-0.138	0.2133	-0.1532	-0.0641	-0.0058	-0.3072	1	
Log PCI	-0.001	0.7032	-0.3937	-0.3071	0.0936	0.0165	0.3141	0.572	-0.1775	1

Source: Computations from study data

4.5 Diagnostic Test

The diagnostic tests conducted by the study are heteroscedasticity test, serial correlation test, normality test, multicollinearity test and stability test.

4.5.1 Heteroscedasticity Test

The test was carried out using autoregressive heteroscedasticity (ARCH) model. Table 4.4 shows the results.

Table 4.4: Heteroscedasticity Test Results

F-Statistics	0.06758	Probability F-Statistics (8,24)	0.7967
Observed R-Squared	0.07192	Probability Chi-Square	0.7886

Source: Computations from study data

The purpose of the test was to determine whether the erroneous term was homoscedastic. At the five percent significance level, the F-statistics value was 0.06758 with a probability of 0.7967, meaning that it is greater than 0.05. Similarly, at the five percent significance level, the likelihood of the Chi-square is 0.7886 larger than 0.05. The null hypothesis is that the error term has no constant variance while the alternative hypothesis is that the error term has a constant variance. The study fails to reject the null hypothesis since the results show that the likelihood of the F-statistic and the Chi-square is greater than 0.05. It also concludes that the error term's variance is constant, indicating the model's dependability.

4.5.1 Serial Correlation

The test was carried out using Breusch-Godfrey technique. The test was necessary to establish the correlation between the independent variables and the error term in the model. The results are presented in table 4.5.

Table 4.5: Serial Correlation LM Test

F-Statistics	2.5179	Probability F-Statistics (2,6)	0.1607
Observed R-Squared	13.233	Probability Chi-Square	0.1333

Source: Computations from study data

The results indicate that the F-statistics value is 2.179 with a probability of 0.1607 and that of Chi-square probability is 0.1333 indicating strong evidence of absence of serial correlation or autocorrelation of the error term. The null hypothesis is that there is absence of serial correlation while the alternative hypothesis is that there is presence of serial correlation of the error term. From the results, the P-value is greater than 0.05 at 5 percent level of significance therefore the study fails to rejects null hypothesis hence concludes that the model was well specified and can be used to analyze the implications of income inequality on households consumption, investment and financial inclusion.

4.5.3 Normality Test

The test was conducted using Histogram-Normality test. The test was significance to establish whether the residual are evenly distributed across all observation. Figure 4.1 shows the results

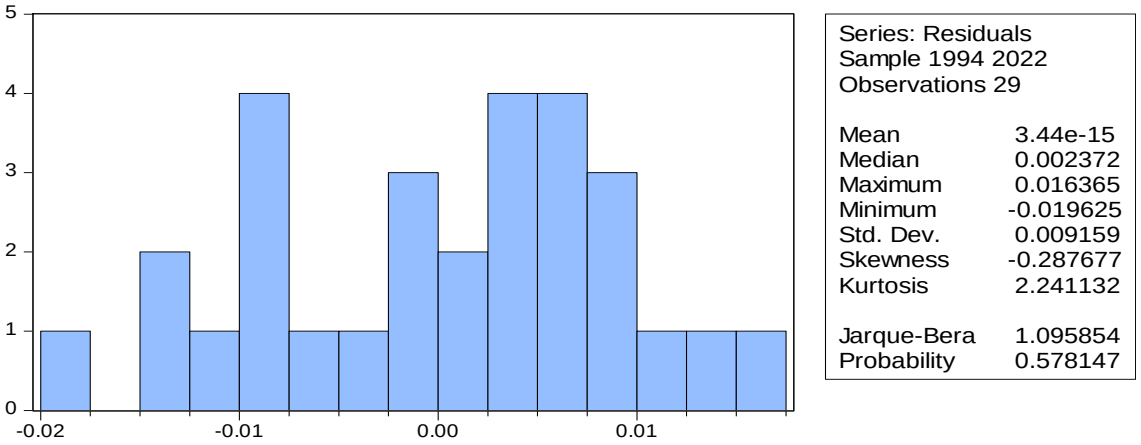

Figure 4.1: Histogram-Normality Test
Source: Computations from study data

Figure 4.1 shows that the value of Jarque-Bera Statistics is 1.0959 has P-value of 0.5781 which is greater than 0.05 at 5 percent level of significance indicating the residuals are evenly distributed across the data set and chances of getting spurious results are minimal during estimation of the coefficients. Further the mean value is 3.44e-15 is close to zero and according to the rule of the thumb a mean value close to zero is a good sign that the mean residuals in the model are well fitted confirming even distribution of residuals in the estimation.

4.5.4 Multicollinearity Test

The test was carried out using Variance Inflation Factor (VIF). The test was necessary to establish the relationship among the independent variables. Table 4.6 shows the results.

Table 4.6: Multicollinearity Test

Variables	**VIF**	**1/VIF**
Log Household Consumption	8.71	0.1148
Log Household Investment	4.37	0.2286
Education Level	4.10	0.2441
Log financial Inclusion	2.89	0.3463

Source: Computations from study data

The results show that all the coefficients are less than 10 and according to the rule of the thumb a coefficient less than or equal 10 indicates absence of multicollinearity while a coefficient more than 10 indicates multicollinearity. Therefore, the study concludes that there is no multicollinearity among the independent variable hence the variables are not highly correlated hence there is minimal chances of getting spurious results from the estimation.

4.5.5 Stability Test

The test was carried out using CUSUM test. It was necessary to determine specificity of the model. Figure 4.2 shows the results

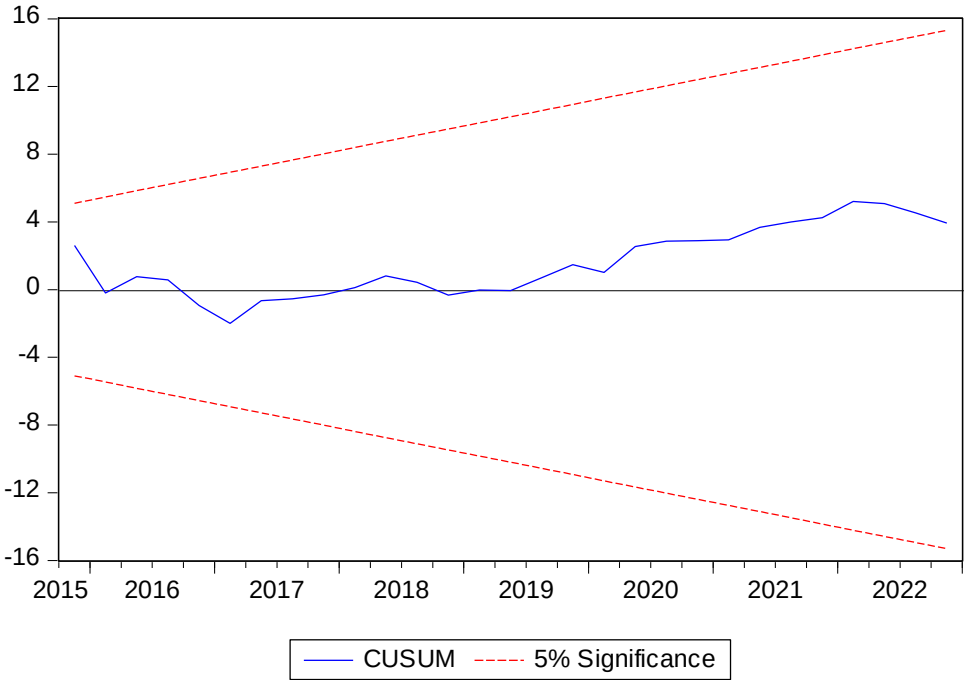

Figure 4.2: CUSUM test
Source: Computations from study data

The results indicate that the coefficients of all independent variables are within the range at 5 percent level of significance bound and have the capability to explain future changes of income inequality implications on household consumption, investment and financial inclusions.

4.5.6 Co-integration Test

The test was carried out using Johansen co-integration test to establish the number of co-integration equations in the model. Table 4.7 shows the results.

Table 4.7: Johansen Co-integration Test

Maximum rank	Parms	LL	Eigenvalue	Trace Statistic	5% critical value
0	30	-58.2021	0.7455	106.88	68.52
1	39	-37.6770	0.6587	65.8327	47.21
2	46	-21.5525	0.4119	33.5837	29.68
3	51	-13.5886	0.2888	17.6558	15.41
4	54	-8.4765	0.2194	7.4315	3.76
5	55	-4.7607			

Source: Computations from study data

The results indicate that all the value of trace statistics are less than critical values at 5 percent level of significance at each rank level. This means that there are no co-integration equations hence the best model to analyze the study findings is Autoregressive Distribution Lags (ARDL) model

4.6 Regression Results

The study sought to determine the effect of income inequality on household's investment, consumption and financial inclusion in Kenya using time series data form 1990-2022. Further the study sought to achieve three objectives. The study has three objectives; objective one is to evaluate the effect of income inequality on household investment in Kenya, second objective is to determine the effect of income inequality on household consumption and lastly to analyze the effect of income inequality on household financial inclusion in Kenya. In order to achieve the objectives, the study carried out ARDL regression analysis for each objective.

4.6.1 Income Inequality and Household Investment

This is the first objective was to evaluate the effect of income inequality on household consumption. To achieve the objective, the study carried out ARDL regression analysis on income inequality on household consumption and presents the results in Table 4.8.

Table 4.8: Effect of income inequality on household investment

Dependent Variable: Log Household Investment				
Variables	**Coefficient**	**Standard Error**	**t**	**P>|t|**
Log household investment	-0.3715	0.2289	-1.62	0.027
Log per-capita income	4.2656	1.3630	3.13	0.020
Log Education level	0.0487	0.0129	3.78	0.009
Log Financial inclusion	0.8609	0.3251	2.65	0.038
Log Labourforce	19.708	11.686	1.69	0.143
Constant term	-0.8530	0.9004	-0.95	0.004
Log Likelihood	14.889	**F (21, 6)**		3.23
Adjusted R-squared	0.8339	**R-Squared**		0.9186
Probability >F-statistics				0.00015

Source: Computations from study data

The results show that the value of adjusted R-squared is 0.8339 implying that 83.39 percent of the changes in household investment is determined by the factors the study considered such as per-capita income, education level, financial inclusion and labourforce amount in Kenya. The probability of F-statistics is 0.00015 less than 0.05 at 5 percent level of significance implying that the model is good and fit for estimating the effect of income inequality on household investment.

The coefficient of log of household investment is negative (-0.3715) and statistically significant implying that at the five percent significance level, the log per-capita income is positive (4.2656) and statistically significant. The study measured inequality using per-capita income, which indicates that when per-capita income rises. This implies that a one percent increase in per capita income results in a 4.27 percent rise in household investment, the finding corroborates with Huang and Zhang (2020) that found an increase in income disparity increases investment capacity in the economy and as investment increases, income inequality among the households decline by a larger margin. Similarly, the study agrees with findings by Maina (2017) and Park & Mercado (2016) reduces income inequality in the economy through redistribution of income facilitates investment by households in the economy hence minimizing income inequality.

Education is a key element of measuring inequality in the economy; the study found that the coefficient is positive (0.0487) and statistically significance meaning that there is a positive weak relationship between education level and household investment that is a change in education by one percent point leads to an increase in household investment by 4.87 percent points. The finding confirms that of Park and Mercado (2016) improvement in literacy level which indicates level of education in an economy leading to an improvement in household investment as education increase knowledge on the existence of investment opportunities as well as equipping households with techniques of making investment decisions leading to increase in investment level in the economy.

Log Financial inclusion was found to have a positive (0.8609) and significant relationship at 5 percent level of significance. This means that an increase in financial inclusion leads to an increase in household investment by 0.8609 percent points. Financial inclusion brings more households into the financial sphere hence improving their capability to engage in financial activities in the economy leading an increase in investment level in the economy. The finding

corroborate Park and Mercado (2016) that financial inclusion is has a positive and significance effect on household investment, further, the finding supports Wang *et al.,* (2015) financial inclusion motivates household to obtain more wealth through investment leading to more accumulation of capital stock.

Lastly, the coefficient of log labourforce is positive (19.71) and insignificance at 5 percent level of significant implying an increase in labour force reduce investment by 19.71 percent points. This is because labourforce is one of the factors that determine investment in the economy. The study agrees with Blank (2011) that found a positive significant relationship between the variables meaning that increasing labourforce participation rate particularly female coupled with increase in wage rate raises investment level in the economy. In the current study the positive insignificant relationship could be due to the fact that expansion of labourforce does not lead to accumulation of capital stock which increases investment but diminishes capital stock through increase in consumption level hence reducing savings which eventually hinder investment from taking in the economy.

4.6.2 Income inequality and Household Consumption

The second objective of this research is to determine the effect of income inequality on household consumption in Kenya. To achieve the objective, the study carried out ARDL regression analysis on income inequality against household consumption and presents the results in Table 4.9.

Table 4.9: Effect of income inequality on household consumption

Dependent Variable: Household Consumption				
Variables	**Coefficients**	**Standard Error**	**t**	**P>|t|**
Log Household Consumption				
L1	-0.2454	0.1518	-1.62	0.127
L2	0.2105	0.0997	2.11	0.050
Log per-capita income	0.7855	0.1050	7.48	0.000
L1	0.3918	0.1403	2.79	0.014
Education level	-0.0014	0.00055	-2.48	0.025
L1	-0.00187	0.000586	-3.19	0.006
Log Labourforce	-0.0158	0.7368	-0.02	0.983
Inflation rate				
L1	-0.00225	0.00122	-1.84	0.043
L2	-0.00191	0.00116	-1.64	0.035
Constant Term	0.01016	0.03167	0.32	0.003
Log Likelihood	70.7467	**F (12, 15)**		11.96
R-Squared	0.9053	**Durbin-Watson**		1.924
Adjusted R-Squared	0.8296	**Probability F-Statistics**		0.000

Source: Computations from study data

The results show that the value of adjusted R-squared is 0.8296, meaning that 82.96 percent of the changes in household consumption is determined by the changes in the variables the study selected. The value of F-statistics with probability of 0.000 indicates that the model is fit and good for the analysis of effect of income inequality on household's consumptions in Kenya. Additionally, the value of Durbin-Watson is 1.924 which is above minimum threshold of 1.8 implying that there is absence of autocorrelation among the independent variables hence chances of getting spurious results is minimal.

The coefficient of the constant term is positive (0.0102) and statistical at 5 percent significant level of, this indicates that without the variables the study considered, levels of consumption will be low at 0.0102 percent points.

The coefficient of log per-capita income is positive and significant in both lags at 5 percent level of significance implying that a decrease in per-capita income which means a reduction in income inequality results to an increase in household consumption by 0.7855 and 0.3918 percentage points. The finding confirms Suri *et al.,* (2008) reduction in income inequality

positively and significantly influences consumption by households in an economy because increase in income distribution as well as other resources such as agricultural land for farming purposes. Similarly, Otter (2008) reduction in income inequality due to increase in per-capita income boost a household consumption significantly.

The coefficient of education level is negative and significant in both lags. Education level was used as a measure of literacy level of the households. The influence of education level on household consumption was found to have a negative weak in both lags, this is because an educated household prefers future consumption to current consumption due to saving incurred currently by the household, and this is for the negative effect of education level on consumption. The finding fails to support Blundell and Pistaferri (2003) that found a positive significant effect of education on household's consumption. They found consumption patter by household vary with the level of education attained by an individual as a result of small family size education household normally have due to late marriage hence the small family size.

Log of labourforce coefficient is negative (-0.0158) and insignificant at 5 percent level of significant meaning an increase in laourforce by one percent household consumption decreases by 0.015 percentage points. The decline in consumption due to the increase in labourforce is due to the fact that labourforce changes have no direct influence on consumption as opined by the study with an insignificant coefficient. On same note, inflation rate negatively and significantly affects household consumption; however, the influence is weak. An increase in inflation rate by one percent results to a decline in household consumption by 0.0023 and 0.0019 percentage points for lag one and two respectively. This is because, inflation rate leads to an increase in prices of commodities in the economy and as prices rises, the demand for commodities decreases leading to a decline in level of

consumption by household. The findings support Rasella *et al,*. (2013) that found out that increase in food inflation negatively and significantly affect household consumption due to a decline in basket of goods demanded by households.

4.6.3 Income inequality and household Financial Inclusion

The third objective of the study is to evaluate the effect of income inequality on household financial inclusion in Kenya. In order to achieve the objective, the study carried out regression analysis and presents the results in Table 4.10.

Table 4.10: Effect of Income inequality on household financial inclusion

Dependent Variable: Financial Inclusion				
Variables	Coefficients	Standard Error	t	P>|t|
Log Financial Inclusion				
L1	0.5713	0.1179	4.85	0.008
L2	0.2996	0.1111	2.69	0.050
Log per-capita income				
L1	3.0586	0.5081	6.02	0.004
L2	-0.0800	0.3206	-0.25	0.815
L3	0.8982	0.0029	2.41	0.074
Inflation Rate				
L1	0.0253	0.0062	4.08	0.015
L2	-0.0142	0.0053	-2.69	0.050
L3	-0.0071	0.0033	-2.15	0.099
L4	-0.0056	0.0029	-1.94	0.125
Log Domestic Credit				
L1	0.2245	0.4117	0.55	0.615
L2	0.9795	0.3608	2.71	0.053
L3	0.2593	0.4701	0.55	0.611
L4	-3.3636	0.5135	-6.55	0.003
Education level				
L1	0.00236	0.0024	0.97	0.039
L2	0.0274	0.0044	6.28	0.003
L3	0.0217	0.0043	5.04	0.007
L4	0.00933	0.0042	2.18	0.005
Constant Term	0.06856	0.1028	0.67	0.045
Log likelihood	62.357	F(23, 4)		24.25
Observations	28	R-Squared		0.8929
Adjusted R-Squared	0.8519	Probability > F		0.0035

Source: Computations from study data

The results show that the value of adjusted R-squared is 0.8929 implying that 89.29 percent of the changes in financial inclusion in Kenya is determined by the rate of financial inclusion

itself, per-capita income, level of inflation, availability of domestic credit and education attainment in the country. Additionally, the constant term value is 0.0685 which is positive and statistically significant at 5 percent significance level implying that in the absence of the factors the study considered, financial inclusion in the country would be low. Further, the value of F-statistics is 24.25 again statistically significant implying that the model is fit and good for the analysis of the effect of income inequality on financial inclusion in Kenya.

The coefficient of financial inclusion was found positive in both period one and two and statistically significant at 5 percent level of significance implying that bring more households on board in the financial sector increases financial inclusivity in the country by about 29.96 percent is a weak influence in the economy. The study also reveals that the coefficient of log per-capita income in the economy is positive in lag one and three but negative in lag two. The coefficient is 3.058 which is positive and statistically significant at 5 percent significant level, implying that an increase in per-capita income by 1 percent point, financial inclusion increases 3.058 percent points. The finding corroborates with Wang *et al,* (2015) that improvement in per-capita income due to economic growth boost inclusion of more households into the financial network of the country. Similarly, the study also agrees with Huang and Zhang (2020) increase in per-capita income increases financial inclusion as more households particularly from the poor rural parts able to live a good life due to capability to acquire goods and services as the press of their phone buttons. However, the finding disagrees with Turegano and Herrero (2018) that found a negative relationship in the long-run which is against economic theory and background.

The coefficient of inflation rate is positive (0.0253) in lag one but negative during other lags implying that changes in inflation rate significantly affect financial inclusion in the short-run however, in the long-run, it is insignificant. This means ones the effect of inflation is realized

in the economy, it long-term effect is negative but insignificant as the negative effects have been realized and the households gotten used to it in future. The finding negates Maina (2017) that found a negative significant effect of inflation rate on financial inclusion in the country.

The coefficient of education level is positive and statistically significant at 5 percent level of significant even the effect is weak. This means that as literacy level increases or as years of schooling increases, financial inclusion also increases, this is because more years of schooling is compensated highly or with higher wage rates hence increasing financial inclusion. This finding confirms Maina's (2017) finding that high literacy acquired through more years of schooling increases the number of households joining the financial sector in the economy.

Domestic credit was found to positively but insignificantly affect financial inclusion in lag one to lag three. However, in lag four the coefficient is negative (-3.3636) and statistically significant at 5 percent level of significance implying that an increase in domestic credit by one percent point reduces financial inclusion by 3.36 percent points this is due to fact that one households with resources to use as security acquire credit hence locking out households without such securities to use to acquire credit hence reducing financial inclusion in the country. The findings is not in tandem with economic theory that states that as access to credit increases more households joins the financial sector hence improving financial inclusivity in the country.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter presents study summary, conclusion of the findings as well as recommendations from study findings

5.2 Summary of the Study

Income inequality has been found to be a major setback in most sectors of the economy. It manifest itself in Kenya in several ways such unequal access to important services such as health, education; income disparities and prejudices. The vice also affects consumption patterns of the households, investment and financial inclusion derailing developments in the economy at all stages of development. Studies have shown that as income inequality increases the level of development in most developing nations reduces significantly. It is also characterize by poverty in all dimensions such as education, health and income level. The growth of income inequality is facilitated by poor infrastructures across the country making delivery of services, consumption, investment as well as other social amenities cumbersome to access. The government has improved and unimproved water sources for domestic use, with over 70 percent of the households in the country using improved water sources. However, access to potable water has further deteriorated due to the exacerbation of deforestation, which dramatically diminishes the capacity of water catchments. With a rapidly expanding population and the aggravating effects of climate change on water scarcity, the nation's water requirements will continually surpass the availability of freshwater resources.

The reduction in income inequality has also been influenced by various government initiatives that aim to improve living standards and address poverty in Kenya. Key among these is the devolution of government services pioneered by the Constitution 2010, which has seen more resources and decision-making power transferred to county governments. This has resulted in an increased focus on local development projects and better-targeted social services, positively impacting income distribution thereby reducing income inequality across the country.

Higher income inequality reduces the amount of investment significantly in key sectors of the economy therefore, becoming a determinant to investment, consumption and financial inclusion in Kenya. Continued increase in income inequality across the country has led to increase in social vices including robbery, prostitution, drug abuse and insecurity thus hindering investment as well as other development programs leading to vicious circle of poverty.

Past studies have shown that income inequality measured by income disparity though Gini coefficient index or per-capita income negative affect economic growth in both short-term and long-term. This is because it reduces household's consumption, investment and financial inclusivity in the country. Over the years, it has led to the creation on two groups in the society; the haves and have-not creating more disparities in the society. In order to reduce income inequality, there is need to enhance financial inclusivity by advancing credit facilities to all irrespective of gender, race, ethnicity, religion and social status of the individual.

The inequality index in 2016 was 0.485 with wider discrepancies in education, investment, consumption and employment with significant manifestation in consumption and investment as reported by Kenya Economic report. This has led the study to determine the effect of income inequality on household's consumption, investment and financial inclusion in Kenya.

The main goal of the study was to determine the impact of income inequality on household's investment, consumption and financial inclusion in Kenya. In order to accomplish the goal, the study was supported by three particular objectives. Objective one was to evaluate the effect of income inequality on household investment in Kenya; second objective was to determine the effect of income inequality on household consumption in Kenya and lastly was to analyze the effect of income inequality on household financial inclusion in Kenya. The study was significant in providing great insights into Kenya's income inequality status household at both level of the government.

The study was supported by four theories which are Neo-classical theory of income inequality, classical theory for income distribution, theory of persistence income, John Sloman's theory of income inequality and Q-theory of investment. The study also reviewed relevant past studies that form the basis for study modelling. The study was anchored on neo-classical theory of income inequality since the theory shows how income is minimized through investment in the economy.

The study adopted non-experimental research design using secondary time series data for period 1990-2022 by adopting Kurz model. The data was obtained from economic surveys, Central bank of Kenya and World Development Indicators. Before analysis, the carried out all pre-estimation and post-estimation tests in order to ensure that results obtained are not spurious.

Further, the study found that there was not co-integration equations hence adopted ARDL estimation technique. The findings have shown that per-capita income which was used as a measure of income inequality positively and significantly affect household's investment. Other factors that affect household's investment revealed by the study are education level which was used a measure for literacy level positively and significantly affect investment

similarly to financial inclusion. Contrary, labourforce has positive insignificant effect on investment by households.

Finding out how income disparity affects household consumption was the second goal. The results demonstrate that household consumption is positively and significantly impacted by income inequality. Inflation rate is another element that significantly influences household consumption; on the other hand, inflation is significantly impacted positively by education level and domestic credit.

Evaluating the impact of income disparity on households' financial inclusion was the third goal of the research. This indicates that household financial inclusion is positively and significantly impacted by income disparity; the education level of the households also demonstrated a similar pattern of results. Conversely, the labor force has a negative, minor effect on households' financial inclusion whereas the inflation rate has a negative, substantial effect.

5.3 Conclusion of the Study

The study was guided by three objectives namely, to evaluate the effect of income inequality on household consumption in Kenya, additionally, to determine the effect of income inequality on household consumption and lastly to analyze the effect of income inequality on household financial inclusion in Kenya.

From the findings, the study has shown income inequality affects household investment, consumption and financial inclusion positively and significantly. Similarly education level of the households was also found to have positive and significant effect on household's investment, consumption and financial inclusion, however, inflation rate in the economy has a negative significant effect on the three parameters.

5.4 Policy Implications

The study has shown that income inequality has a negative and significant effect on household's investment, consumption and financial inclusion. Therefore, the government needs to put measures in the country that lead to a reduction in income inequality thus promoting household's investment, consumption and financial inclusion thereby improving economic growth as a whole. The measures that the government can put in place are design laws that enhance income redistribution in the economy by adopting good taxation system that is fair to all and also adopt or ensure more spending on social amenities to bridge the gap between poor and the rich in the society.

The findings have also indicated that financial inclusion also affect household's investment significantly, therefore the government can constitutes laws that promotes financial inclusivity to all to ensure robust environment for investment by the households since more money has been channeled to the households. Education level was also found to a significant positive effect on household's investment, consumption and financial inclusivity. The government needs to enhance education for all from pre-primary to university level by availing funds to facilitate acquisition of knowledge by serious investment in the development of human capital thus promoting investment, consumption and enhancing financial inclusivity in the economy.

Further the study has shown that inflation rate has a negative significant effect on the three parameters, therefore the government needs to swift act on controlling the vice to promote investment and consumption since high inflation rate is associated with reduction in the purchasing power of money thereby reducing the consumption bundles by the households as well as investment level in the economy at it eats into the return from investment.

5.5 Areas for further studies

The findings have shown that income inequality affects household investment, consumption and financial inclusion negatively. Therefore, there is need to carried out further research to establish the causal relationship among the four variables. Similarly, the current study has employed ARDL model to estimate the effect of income inequality on household's investment, consumption and finical inclusion, further research can be carried out to determine the same effect using Vector Error Correction Model (VECM) to determine both the short-run and long-run effect of income inequality on household investment, consumption and financial inclusion in Kenya.

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