

**INCOME INEQUALITY AMONG HOUSEHOLDS IN KENYA: DOES THE
GENDER OF THE HOUSEHOLD HEAD MATTER?**

By
FLORENCE MUGURE MUIRURI
REG NO. X50/88175/2016

**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF
THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF
MASTER OF ARTS IN ECONOMICS**

2019

DECLARATION

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

Signature:

Date:

Florence Mugure Muiruri

Registration

Number:

X50/88175/2016

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

Signature:

Date:

Dr. Elizabeth Owiti, Ph.D

ACKNOWLEDGEMENT

I would like to thank God for His mercies and for this opportunity that He has blessed me with. May it be a door to greater things.

I would like to express my deep gratitude to Dr. Owiti for her continued support and guidance throughout the process of developing this research work.

I would like to thank Mr James Muiruri and Mrs Loise Muiruri for their support and encouragement throughout my study.

Last but not least, I would also like to extend my thanks to Ruth Muiruri, Lionel Oduol, and Flavia della Rosa for their continued support and encouragement.

ACRONYMS AND ABBREVIATIONS

GDP	Gross Domestic Product
IMF	International Monetary Fund
KNBS	Kenya National Bureau of Statistics
ODI	Overseas Development Institute
SDG	Sustainable development goals
UN	United Nations
UNDP	United Nations Development Programme

ABSTRACT

Income inequality has been on the rise and its reduction has been made a key goal for governments and international development agencies across the World. A key contributor to income inequality is gender inequality which has a direct relationship to income inequality; that is, an increase in gender inequality leads to an increase in income inequality. Gender inequality has also been found to have negative effects on economic growth and due to its collective negative effects, its reduction is also a key goal globally. In Africa, both gender and income inequality are high and in addition to this, the poverty level is also high. Understanding the dynamics of income inequality and the gender is important since approximately 50 percent of households in Africa are headed by a woman and gender gaps do not work in their favour.

To determine the level of income inequality in Kenya and to determine whether the gender of the household head has an influence on it, this study uses the Gini Coefficient and Shapley-Sharrock Decomposition for estimation. The findings show that the inequality among Kenyan household is low at 39 percent; gender has a positive but small contribution to income inequality; and education level of the household head, location of a household and household size have high contributions to income inequality in Kenya at 14 percent, 12 percent and 7 percent respectively; and income inequality is more pronounced in households living in the urban areas households and in favour of male headed households. This then calls upon welfare policy makers and implementers to ensure that policies that encourage lower contribution of gender to inequality are maintained and that policies that encourage rural development with the aim of reducing rural urban migration are put in place. In addition there is need for equitable investment and distribution in education. All these welfare policies will aim at the reduction of income inequality among Kenyan households.

TABLE OF CONTENTS

DECLARATION	ii
ACKNOWLEDGEMENT	iii
ACRONYMS AND ABBREVIATIONS	iv
ABSTRACT	v
CHAPTER ONE: INTRODUCTION	1
1.1 Background of the Study	1
1.1.1 An overview of income inequality.....	1
1.1.2 Economic growth and income inequality and the economic cost of income inequality.....	3
1.1.3 Human capital and income inequality.....	5
1.1.4 Income inequality statistics globally and in Kenya	7
1.2 Statement of the Problem.....	8
1.2 Research Questions	10
1.3 Objectives of the Study	10
1.4 Justification of the Study	10
1.5 Limitation of the study	11
CHAPTER TWO: LITERATURE REVIEW	12
2.1 Introduction.....	12
2.2 Theoretical Review	12
2.2.1 Modernization theory.....	12
2.2.2 Dependency Theory	13
2.2.3 World Systems Approach	14
2.2.3 The Fourth Industrial Revolution.....	14
2.2.4 Kuznets' Inverted U-Shape.....	15
2.2.5 Income distribution by John Stuart Mills.....	16
2.3 Empirical Review.....	17
2.3.1 Determinants of income inequality	17
2.3.1.1 Economic development and income inequality	17
2.3.1.2 Macroeconomic factors and income inequality	19
2.3.1.3 Political factors and income inequality.....	19
2.3.1.4 Socioeconomic and sociodemographic factors and income inequality	20

2.3.2 Income inequality and gender inequality	22
2.3.4 Intrahousehold income inequality	24
2.4 The role of the government in income inequality and inclusive growth	24
2.5 Summary of the literature review	27
CHAPTER THREE: METHODOLOGY	28
3.1 Introduction.....	28
3.2 Description of the data	28
3.3 Inequality Measures	28
3.4 Overview of methods used in similar studies	30
3.5 Model Specification: Gini Index.....	31
3.6 Model Specification: Shapley-Shorrocks's Decomposition	32
3.6.1 The Variables	32
3.6.2 Function	32
3.7 Data Analysis	34
3.7.1 Data analysis steps	34
3.8 Limitation of the data.....	35
CHAPTER FOUR: RESULTS AND FINDINGS.....	36
4.1 Introduction.....	36
4.2 Descriptive statistics	36
4.3 Inequality Among Kenyans	37
4.4 Contribution of socioeconomic and sociodemographic factors to income inequality.....	39
4.5 Inequality within and between subgroups.....	40
4.6 Differences in Income Inequality by Gender, education, location and household size.....	44
CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS.....	47
5.1 Introduction.....	47
5.2 Summary of Findings.....	47
5.3 Recommendations	48
5.4 Area of further Studies	48
REFERENCES.....	49
.....	

LIST OF TABLES

Table 1: Descriptive statistics	36
Table 2: Gini Index	37
Table 3: Consumption share	38
Table 4: Contribution of various sources of consumption expenditure to inequality..	38
Table 5: Contribution of each factor to Income Inequality.....	39
Table 6: Within and between group inequality: Gender	40
Table 7: Within and between group inequality: Age	41
Table 8: Within and between group inequality: Education	41
Table 9: Within and between group inequality: Marital Status	42
Table 10: Within and between group inequality: Employment Status	42
Table 11: Within and between group inequality: Household Size	43
Table 12: Within and between group inequality: Location	44
Table 13: Differences in Income Inequality by Gender, Location and Education	45

LIST OF FIGURES

Figure 1: Lorenz Curve 29

Figure 2: Lorenz Curve representing household in Kenya 37

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

This chapter provides an overview of income inequality, outlines how economic growth and income inequality interact, the current statistics on income inequality globally and for Kenya, and the objectives of the study.

1.1.1 An overview of income inequality

Income inequality has existed for a long time and has been studied since the era of the classical economists (Jensen, 2001). Income inequality is the inequitable distribution of income within a society; this could be individuals or households within a country or it could be income inequality between countries (Lucky & Sam, 2018). High income inequality implies that the majority of the income in the economy is with the rich, while the poor hold a small amount of the income, and a low income inequality means that income is distributed relatively equally or close to equal in the economy. Equal distribution of income allows those with low income in the society to have higher incomes and hence reducing overall poverty levels within the economy (Lucky & Sam, 2018).

Globally, income inequality has been rising since the 1980s (Klasen, 2016) and current estimates show that 10 percent of the richest people earn 40 percent of the income and the poorest 10 percent earn only between two and seven percent (UNDP, 2019). Such inequality tends to lead to social tension over the years (Klasen, 2016) and has negative effects on economic growth, people's education opportunities, future earnings, health outcomes and overall happiness which also contribute to poor economic growth (Jencks, 2002; McAdams, 2010; Gonzales et al., 2015; IMF, 2017).

Economists have urged that in order to promote economic growth through the reduction of income inequality and the reduction of poverty, welfare policies aiming at reducing the inequality gap and the level of poverty are necessary (Lucky & Sam, 2018). This has led to governments and international development agencies seeking to implement inequality reduction policies such as free education, launching social protection programmes such as cash transfers and advocating and seeking to implement free

universal health care. In addition to this, the reduction of inequalities is the 10th sustainable development goal (SDG) and all countries are required to put in place policies that will ensure its achievement by 2030 (UNDP, 2019).

In addition to the reduction of gender inequality is also a key agenda for governments and international development agencies. Gender inequality has been found to lead to an increase in income inequality (Klasen & Lamanna, 2009; Gonzales et al. 2015) and both have been found to contribute negatively to economic growth (Ukhova, 2015; Kaya & Senesen, 2010; Ali, 2016). Hence the reduction of gender inequality will lead to lower income inequality and will promote economic growth.

Gender inequality can be seen in the labour market, education and in governance and in most cases it is in favour of the men. Economically, women tend to make less than men even when they have the same level of qualifications and experience, have a lower school attendance and participate less in the labour market since they tend to take on household caregiver roles whose economic value is not considered. In addition, their role in care also reduces the opportunities they have to progress in school and in the labour market. This then increases the likelihood of women earning less and in turn their households having a higher chance of being poor (Jacobsen, 2011; UNDP, 2019).

The United Nations Development Programme (UNDP) estimates that women earn 33 cents less than men for every dollar and that there is still gender inequality in primary school education in one-third of developing countries (UNDP, 2019). In Kenya, more girls than boys are attending primary school, however, KNBS (2017) reports that the number of girls attending secondary and tertiary education institutions is lower than that of boys. These gender inequalities directly translate to the high poverty levels among women with “122 women aged 25 to 34 living in extreme poverty for every 100 men of the same age group” (UN, 2015).

Gender inequality with respect to education and in the labour market have been found to contribute to the differences in the growth rates among countries hence their reduction is necessary and would lead to countries experience higher economic growth (Klasen & Lamanna, 2009; Gonzales et al. 2015).

1.1.2 Economic growth and income inequality and the economic cost of income inequality

Income inequality and economic development/growth have a bi-directional relationship, that is, they both affect each other (Sharpe, 2003). When Income inequality is plotted on a graph against economic growth, it is found to exhibit an inverted U shape over time; this is known as the Kuznets Curve. The Kuznets curve indicates that as the economy expands, there is a rise in income inequality and as the economy slows down, the income inequality reduces (Kuznets, 1955).

When the economy grows rapidly the investment opportunities increase for those that already have capital (physical or human). This increase in opportunities attract cheap rural labour to the urban areas and this keeps the wages of the working class low. This disparity of income between capitalist and workers results to an increase in inequality (Kuznets, 1955; Sharpe, 2003).

Kuznets (1955) argues that as the economy continues to grow processes related to industrialization such as democracy and welfare within the state occur. Once this happens, the plus side of economic growth start to move down and start benefiting the workers since their income per capita increases leading to lower inequality. In addition, as the economy grows there is more taxable income which can be redistributed to the poor in the economy hence reducing the income inequality. However, this is a political choice which might not occur and hence income inequality might persist (Sharpe, 2003).

When looking at how income inequality affects economic growth, it is found to have both positive and negative effects. High income inequality is an incentive and provides a reward to entrepreneurs who are then encouraged to invest more hence increasing economic growth (Sharpe, 2003).

On the other hand, if income inequality continues to increases, it becomes detrimental to economic growth since it leads to unequal societies which are economically inefficient (Kuznets, 1955; McAdams, 2010; IMF, 2017). The various negative effects on income inequality are discussed below.

Firstly, income inequality negatively influences the opportunities available to the poor to be able to achieve their full potential (Sharpe, 2003). It affects the ability of the poor to access quality education (in some cases lack of access to any form of education) which then affects their career prospects and future earning, it inhibits their access to health care, financial services such as credit and negatively affects the overall happiness of people (Jencks, 2002; McAdams, 2010; Gonzales et al., 2015; IMF, 2017). These disadvantages that face one/certain groups are known as inequality of opportunities and they impair a group of people and leads them deeper into poverty since they are then unable to provide education and good health care to their children who then end up in poverty and unable to provide these opportunities to their children as well and the cycle of poverty and inequality of opportunity continues leading to intergeneration disadvantages. This can viewed as the first economic cost of income inequality since it affects the quality of the labour within the economy.

In addition, opportunities are not equality distributed between the two genders and this leads to gender inequality in 1) education where more male children than female are educated; 2) in the job market where more men than women are hired, paid more and promoted more frequently than women even when they have the same qualifications; and 4) in financial access where men have more access to credit than women and in access to capital for business where women are still at a disadvantage. Gender equity is associated with higher economic growth and low income inequality and these gender gaps worsen inequality of opportunities leading to higher income inequality (Gonzalez et al.,2015).

Secondly, income inequality also influences the level of domestic and foreign investment a country receives. This mainly occurs due to the indirect relationship between crime and corruption within a country and the level of investment (McAdams, 2010). To illustrate this further, we look at what happens in an economy when there is an increase in crime and in corruption and then how they affect investments.

An increase in inequality makes the poor become poorer and gives them a higher incentive to engage in unlawful activities to be able to afford basic needs. In some countries, the incentive to engage in crime is so high that the threat of prison losses it's power of deterrence since the situation within the prison is better than that outside the

prison and this contributes further to the increase in crime within a country (McAdams, 2010).

While the increase in crimes such as theft, robbery and murder are associated with the poor, corruption crimes are associated with the rich. This can mostly be seen with respect to court rulings where the rich can easily get their way since they can easily afford to offer bribes and justice will not be served (McAdams, 2010). In Kenya, this can also be seen in the allocation of government tenders where instead of following the right procurement procedures government officials and their acquaintances tend to benefit from them due to corruption. Furthermore, high levels of corruption have also been associated with political and social problems which further worsen economic growth (McAdams, 2010).

The increase in crime, corruption and the political and social problems associated with corruption directly lead to lack of confidence by both domestic and foreign investors and this derails economic growth and the cycle continues (McAdams, 2010).

In addition, income inequality negatively affects policy making. There is a higher likelihood for poor people in countries with high inequality to vote for policies that lead to better redistribution of income than in those with low income inequality. These policies may lead to higher taxes which may derail economic growth since higher taxes discourage working, saving and investments (Sharpe, 2003).

It is then clear that the disadvantages of income inequality outweigh the benefits both for the economy in general and for individuals. Economists urged that the reduction of income inequality is necessary to ensure that there is a reduction in poverty and to encourage economic growth (Jencks, 2002; McAdams, 2010; Gonzales et al., 2015; IMF, 2017).

1.1.3 Human capital and income inequality

Human capital is the economic value of an individual which is accumulated from knowledge, education, on job trainings, and skills acquired that contribute to their productivity (Becker, 1975). The higher human capital one has, the higher their productivity, the higher their economic value and the higher wages they attract. This

then means that those with lower human capital will in turn have lower wages and this difference is known as human capital inequality and it contributes negatively to income inequality and derails economic growth (Castelló & Doménech, 2002; Viaene & Zilcha, 2009).

A key finding when looking at the relationship between income inequality and human capital is that differences in education access, education investment and the involvement of parents directly lead to human capital inequality among children which then affects their future productivity and the economic growth (Viaene & Zilcha, 2009). A key recommendation from Castelló & Doménech (2002) was that while governments enact policies that promote growth, they should not only take into consideration the level of investment in education but also the distribution of education hence increasing access to education and reducing human capital inequality.

In addition, the world is at the brink of the fourth industrial revolution which will affect the dynamics of human capital and with it the distribution of income. Schwab (2015) has pointed out that this industrial revolution has the potential to yield greater income inequality since it will disrupt the labour market. Changes in the labour market such as displacement of low skilled labour by robotics powered by machine learning and artificial intelligence is predicted to be among the main outcomes of the fourth revolution and has already started to take place leading to mass layoffs within the economy. This will affect the returns to labour and the returns to capital mainly benefiting the capitalist and in turn increasing the gap between them and the workers.

Furthermore, the largest beneficiaries will be the owners and providers of human and physical capital such as owners of technology companies, shareholder and investors. This will further contribute to a wider gap between the poor and the rich since a very small percentage of people will control majority of the wealth. This gap has already started to widen as at 2019 where the number of billionaires due to technology was reported to have increased. UBS and PWC (2019) reports that between 2013 and 2018 the number of billionaires has grown to 2,101 and their wealth increased by 35 percent. However, there was a drop in billionaire wealth by 4.3 percent in 2018 but this did not affect the wealth of technology billionaire such as Bill Gates (Microsoft), Elon Mask (Tesla), Jeff Bezos (Amazon) and Mark Zuckerberg (Facebook) among others, which

grew by 3.2 percent to rising to USD 1.3 trillion. This worsens the income inequality since a small group of individuals ends up controlling more income than the rest of the population and has a possibility of getting worse as technological developments continue and new ways of creating wealth come up.

In addition, in the last few years, the demand for people with a high skill set has increased and the demand for those with less education and lower skills has declined, especially in the technology sector. This difference in human capital and in the labour market will further affect and increase the level of income inequality since it will lead to more layoffs and higher unemployment rate.

1.1.4 Income inequality statistics globally and in Kenya

The Gini index is the most common measure of inequality; it has a low of 0 and a high of 100 and is a percentage of the Gini coefficient (ranges from 0 to 1). Income inequality is also measured through the use of Theil index and the log-variance (Bourguignon & Morrison, 2002), however, this study uses the Gini Index. There are five categories of income inequality based on the Gini index: very high inequality which has a Gini index greater than 60 percent, high inequality 53 to 59.9 percent, medium 45 to 52.9 percent, low inequality 40 to 44.9 percent and very low inequality values less than 40 percent (UNDP, 2017).

The current estimate of global inequality is at 70 percent, and this falls under very high inequality (UNDP, 2019). In Africa, inequality has been found to also be very high with 10 of the 19 countries globally with the very high income inequality originating from Sub-Saharan Africa placing Africa as a very unequal region (UNDP, 2017). The World Bank estimates that the highest Gini index in the African region is South Africa with 63.40 percent and the lowest is Algeria with 27.60 percent.

Kenya's income inequality trend has been found to follow the inverted U shape theory by Kuznets (Bahmani et al., 2008). The latest estimate for Kenya's income inequality was in 2016 and was reported to be a Gini index of 48.5 percent categorising it as a country with medium inequality this is the second highest Gini index reported in Kenya since 1992 when Kenya had a Gini index of 57.5 percent; the lowest recorded Gini index for Kenya was 40 percent in 2015 (World Bank Data Portal, 2019).

In Kenya, the World Bank estimates that the gap between the poor and those that are rich is among the top in Africa; according to KNBS (2013), approximately 11,000 people in Kenya control 60 percent of Kenya's national wealth. This shows a large disparity between the poor and the rich in Kenya taking into consideration that Kenya's total population is close to 50 million. The counties with the highest income inequality within Kenya are Tana River (62 percent), Kilifi (60 percent) and Kwale (56 percent) and those with the lowest are West Pokot (32 percent), Narok (32 percent) and Turkana (28 percent).

1.2 Statement of the Problem

Income inequality has been found to be detrimental to economic growth, to have negative effects on children's educational opportunities, future earnings, life expectancy, security and overall happiness of people (Jencks, 2002; McAdams, 2010; Gonzales et al., 2015; IMF, 2017). Due to these negative effects, countries are aiming at ensuring that sound policies are implemented so as to reduce income inequality and to achieve SGD number 10, reducing inequalities.

Kenya in the last few decades has implemented policies that are key in achieving the reduction of income inequality and poverty within Kenya mainly through provision of some form of compensation to citizens who are at a disadvantage. These policies are in line with Article 43 of the Kenyan Constitution: Economic and Social rights; they include free primary education, cash transfers to vulnerable people, social protection activities, constituency development funds, rural electrification and devolution of the country into 47 counties so as to ensure there is equity in resource distribution. In addition, in 2018, Kenya launched the pilot for universal health care which aims at reducing the hardship of seeking medical care for Kenyans. However, (not taking into consideration the universal health care pilot) there is still a substantial gap between those that are wealth and those that are poor (KNBS 2018) and hence there is a need to investigate what other factors could be playing a role in income inequality within Kenya for example gender.

With the onset of the fourth industrial revolution and the likelihood of income inequality increasing, countries like Kenya that are keen on technological

advancements have a higher likelihood of experiencing higher income inequality in the new industrial phase. In addition, there is a scant number of studies that look at determinants of income inequality in Kenya. Those conducted with respect to income inequality have mainly investigated the dynamics of income inequality and economic growth, poverty or income inequality and poverty as the main objective (Kabubo-Mariara et.al, 2012; Arndt et.al, 2016). Hence there is a key knowledge gap that needs to be filled specifically with respect to gender since gender inequality has been found to contribute to more unequal distribution of income and to derail economic growth (Klasen & Lamanna, 2009; Gonzales et al. 2015; Ali, 2016.) and, has been reported to be on the rise in Sub-Saharan (UNDP, 2017). Therefore, it is necessary to understand the key determinants of income inequality and to test various hypothesis on how they affect Kenya's inequality and provide solutions on how to mitigate their effects.

Furthermore, the few studies that have had a component of determinants of income inequality and in particular gender within Kenya have used older datasets. For example Kabubo-Mariara et.al, 2012 did have gender as one of the variables and it was found to have a positive but low contribution using Kenya Integrated Household Survey data from 2005/2006. It is therefore important to go into the determinants of income inequality with the incorporation of recent dataset since it will provide a more recent status on the relationship and it could also shed light on the impact of policy changes such as free primary school education, if any.

It is important to have this knowledge and specifically the effects with respect to gender since the findings have the potential to influence welfare policies that would affect the distribution of income within Kenya. Policies that advocate for equal distribution of income and empower women lead to stronger communities and economic growth since empowered women participate more in the labour market, make higher incomes, and provide better education and health care to their children which builds stronger human capital for the future labour market and with this higher economic growth (World Bank, 2017).

Furthermore, gender inclusion is a key part of Kenya's economic growth and to achieve Vision 2030 and knowledge on this relationship will be vital in planning. Specifically, if the gender of the household head does have a significant contribution the income

inequality in Kenya, then welfare policies need to be crafted in such a way that they guarantee gender equity and with it, the reduction of income inequality among Kenyans.

1.2 Research Questions

1. What is the inequality level between and within female and male headed household in Kenya?
2. What is the contribution of the gender of the household decision maker to income inequality?
3. What other socioeconomic and sociodemographic factors contribute to the income inequality in Kenya?

1.3 Objectives of the Study

1. To determine the inequality level between and within female and male households in Kenya.
2. To determine the association between the gender and income inequality.
3. To determine the relationship between socioeconomic and sociodemographic factors and inequality.

1.4 Justification of the Study

High degrees of income inequality have been linked to poverty and low standards of living (Celestin & Clovis, 2012; Lucky & Sam, 2018). Poverty reduction is a key agenda for many governments, including Kenya, and international development agencies and in the 2030 sustainable development goals (SDG) its eradication is the first goal.

The current poverty estimates show that globally people living on less than \$1.92 per day, are approximately 804 million (10 percent), 26 percent live on less than \$3.20 and 46 percent on less than \$5.50 (Chen et al., 2018). Of those that fall under the international poverty line, Africa accounts for close to half at approximately 43 percent, this seems to be in line with the high inequality in Africa reported by UNDP (2017). When compared to 1990, the number of people in poverty in Africa has declined from

56 to 43 percent, however, the population expansion in Africa is rapid and as a result, the number of poor people has not decreased (Beegle et al, 2016).

In Kenya, approximately 36 percentage of the people are living below the international line to show poverty level (KNBS, 2013), income inequality has been found to fluctuate between medium and high inequality over time (Arndt et al., 2016; World Bank Data Portal, 2019) and the income gap in Kenya is among the largest. For Kenya to achieve vision 2030, to transform Kenya into an industrialized country and to provide its citizens with high-quality life (Kenya, 2018), policy changes that influence various economic phenomena such as inequality are necessary. The information to guide these policy changes is vital and will require testing of various hypothesis in order to trace determinants of inequality in Kenya.

This study is a push in the direction of provision of this information that will enable policy makers to formulate or amend welfare and income distribution policies in Kenya as it strives to achieve sustainable economic growth at 10 percent per year (Kenya, 2018) and in the reduction of poverty in Kenya. In addition, this study will also contribute to the silo of information on other sociodemographic and socioeconomic determinants have on income inequality and this knowledge is also key for policymakers.

1.5 Limitation of the study

This study looks into the socioeconomic and sociodemographic factors and how they affect income inequality. It does not look into the effects of factors such as economic development, macroeconomic factors and political factors on inequality. Hence there is a need for research on how these factors affect income inequality over time in Kenya.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter gives a profile of the theories that are related to income inequality. It provides empirical evidence on factors that affect income inequality, provides information on the income and gender inequality relationship and information on the role of government.

2.2 Theoretical Review

Economic theory on income inequality explains it through inequalities between countries (global inequalities) and inequalities within countries. There are three theories that elaborate global inequalities, these are the modernization theory, the dependency and world systems approaches. Inequality within countries can be explained through the work of John Stuart Mill on income distribution and Simon Kuznets' work: the dynamics of income inequality and economic growth. This paper also the fourth industrial revolution which has been predicted to lead to income inequality within countries and between countries.

2.2.1 Modernization theory

The theory of modernization, which was introduced by Walt Whitman Rostow, argues that inequality among countries arises due to the differences in development between the countries. According to Rostow (1959) development of countries follows five stages and at a given time, countries can be classified to be at one of the five stages of growth. The growth stages are as follows: the first stage, traditional stage, where agriculture is the dominant economic activity and there is minimal trade within the economy. Economies at this stage have a high dependency on agriculture with up 75 percent of the economy participating in agricultural related activities.

Second is the pre-conditions to take off where economies are gradually embracing modern science and with this the economy evolves and grows. At this stage mechanization of agriculture begins and the output is traded hence an increase in trade activities. The take-off stage where economies are using modern industrial techniques and technology in manufacturing and industrialization begins to occur. At this stage,

the role of agriculture reduces and manufacturing and other technology driven sectors begin to grow. With this development, political and social institutions are developed.

Fourthly, the drive to maturity stage where there is extensive use of technology, the economy is growing and standards of living are increasing since there is an increase in output and with it an increase in per capita income. Lastly, the age of high consumption where there is increase in output and in consumption expenditure. This stage is also characterized by an increase in welfare, security and public measures and the workers have a more leisure opportunities (Rostow, 1959).

At a given time, different countries fall under different growth stages, and Rostow argues that economies that are technologically backwards, that is economies in the initial stages of growth, tend to be poorer as compared to those that are technologically advanced, those in final stages of growth, and these differences led to the inequality between countries (Rostow, 1959).

2.2.2 Dependency Theory

The dependency theory was developed by Andre Gunder Frank and it argues that global inequality arises from the difference in the position of countries in the global economy and that developed countries tend to keep underdeveloped countries dependent on them. The dependency of underdeveloped countries occurs through the dominance of international trade by developed countries and the reliance on western aid that underdeveloped countries develop (Frank, 1966).

The dominance of international trade occurs through strict restrictions that limit underdeveloped countries to grow their trade and manufacturing sector and also the acquisition of cheap labour and resources from underdeveloped countries by developed countries which in turn produce expensive final goods that are sold back to underdeveloped countries at a much higher price. This limits the growth of underdeveloped countries and hence a cycle of inequality between these two categories of countries continues and splits them into rich countries and poor countries (Frank, 1966).

2.2.3 World Systems Approach

The World systems approach by Immanuel Wallerstein argues that the mechanism of the world's system is the cause of the inequality among countries. The level of inequality in one country is not independent of the inequality in another country and that they influence each other. The World System is divided into two, the core and the peripheral where the core are the wealth societies which exploit the peripheral who are poor and the weak and the peripheral countries are predisposed to structural constraints that keep them poor and weak, this limits their growth. This theory also argues that the capitalist both in the developed and underdeveloped countries exploit the workers and leads to inequality and that in the long run, capitalism would be detrimental to majority of the global population (Wallerstein, 1976).

2.2.3 The Fourth Industrial Revolution

This revolution is characterized by digital technological changes that will lead to the infusion of the physical, digital and biological worlds. It will bring about changes and a shift in power, wealth and knowledge through the use of machine learning, artificial intelligence, biotechnology, and blockchain. It is predicated to change the way people live, work and interact (Schwab, 2015).

The first three industrial revolutions have all compounded into the development of the fourth revolution. The first industrial revolution, which occurred in 1760, was due to the invention of the steam engine which enabled the economy to shift from farming to manufacturing and lead to the use of coal as the main source of energy and the development of trains as the main means of transport. The second industrial revolution began in the early 1900s with the invention of the combustion engine and this lead to rapid industrialization which saw the manufacturing industry move from coal to oil and electricity and this brought forth the era of mass production. The third industrial revolution occurred in after 1960 and was as a result of information technology. Information technology led to automation which reduced cost and increases production. The revolution is characterized by the use of computers to generate products through three dimensional printing which will reduce the cost of production by reducing the high initial cost of capital and will also increase the quality of commodities and the use of machine learning and artificial intelligence to change the way people work, live and interact. The speed at which the fourth industrial revolution is occurring is faster than

all other revolutions and will lead to industrial disruptions in all countries and all sectors. (Xu et al., 2018)

The fourth revolution is predicted to lower production cost, increase the quality of goods, improve quality of health care, increase connectivity, repair environmental damages since production will employ green machines and change the way organizations and governments work. However, on the other it is also predicted to increase income inequality since in an era driven by digital technology those who can create new ideas and innovate will be more valuable and high paying jobs will require people with higher human capital hence higher skillsets and low skilled and low wage jobs will be replaced with computers and further automation through the use of machine learning and artificial intelligence (Schwab 2015; Xu et al., 2018. In addition, governments may be unable to regulate the new technologies so as to capture their benefits and redistribute income from technology and this might lead to shift in power and lead to new security challenges such as cybercrime and cyberwars. Income inequality will further be increased by the divide that the fourth revolution will cause between countries that are technologically advanced and those that are not (Schwab, 2015).

Schwab (2015) is concerned that the understanding of the changes that are to come by governments is low and there is need to rethink economic, social and political systems within the economy. In addition, he advocates for the redesign of policies to ensure that there is equality and empower women.

Governments will also have to rethink their role in the economy and adapt to the fact that citizens will have more information at their fingertips and will have a new way to voice their opinions and to organize themselves. This has already began to happen with the use of twitter to organize protests and websites such as change.org to advocate for policy change and raise various petitions.

2.2.4 Kuznets' Inverted U-Shape

In modern economics, Kuznets (1955) addresses the issue of inequality by looking into the long term changes in income inequality. Kuznets argues that income inequality usually tends to go up in the initial stages of growth due to the increase in

industrialization and then as capital accumulation continues and capitalism grows the income per capita increases and the inequality reduces. In this regard, inequality takes an inverted U shape over time. According to this theory, growth and inequality have a direct and positive relationship during the first phases of growth and during the later phases, this relationship becomes negative.

There has been a criticism of the applicability of the Kuznets theory in the current era with the view that it no longer holds and there has been a call for new models (Kanbur & Stiglitz, 2015).

2.2.5 Income distribution by John Stuart Mills

Mill defined the times of his era as a time of extreme poverty and consequent misery for the working class and this originated from the distribution of income that was not equal. To identify the causes of these inequalities, Mill looked into the distribution of wealth and income among the three social classes: the classes are workers, capitalist and landlords (Mill, 1965).

Mills states that wealth distribution and income depended on the laws and the customs that a society has. In African societies, Mill's views on how customs affect behaviour and distribution of wealth and income in a capitalist world can be clearly seen through the differences in education and employment between males and females and inheritance rights that favour men. With respect to education, female children are asked to stay home and some are married off at a young age while their male counterparts are encouraged to go to school. Such customs and traditions have changed in the last few decades, however, it is not completely eradicated and there is still gender inequality in primary school education (UNDP, 2019).

In addition, Mill argued that state institutions, education and business corporations have a major role in structuring of income. This argument can be seen today in the differences in the income earned by graduates from Ivy League schools and those that are not, and in business corporations, this can be seen by the difference in incomes earned by employees from big multinationals and big technology firms which tends to be higher than that of their counterparts. Mill recommends that institutional and educational reforms were necessary so as to eradicate poverty and to reduce the high-income

inequality among the workers and that the state should provide national education for all children regardless of any differences in gender or social class.

The recommendations on education and the labour force tie in very well with this study. Mill argues that by having equality in education and having all children get an education, in particular, female children, there would be a breed of future workers that would form producer and consumption cooperative. This would then enable male and female workers to collectively accumulate capital and in the long run, reduce the level on inequality caused by the low wages paid to the workers while the capitalist and landlord benefit from high profits and rents respectively. Mill saw a future that had an equal distribution of wealth and income, and workers that were better off and that had the benefit of leisure.

This study seeks to investigate whether the gender has an effect on income inequality and hence it will follow Mill's argument on income distribution and inequality. In particular, the argument that there is a positive effect on distribution when socioeconomic factors e.g. education and sociodemographic factors such as gender are taken into account when creating policies. This is further supported by the predication that income inequality will increase during the fourth industrial revolution, high skilled labour will be in demand and the recommendation that the inclusion of women is necessary.

2.3 Empirical Review

This section shall discuss the academic work conducted on determinants on income inequality and gender inequality and how the two interact.

2.3.1 Determinants of income inequality

The determinants are discussed below under the following thematic areas: economic development, socioeconomic factors, sociodemographic factors, political factors, and macroeconomic factors.

2.3.1.1 Economic development and income inequality

Economic growth is a short-run determinant of income inequality (Bourguignon & Morrison, 2002). Income inequality seems to exhibit cyclical behaviour; increasing

with high economic growth and decreasing during with low economic growth. This is in line with Kuznets' argument that inequality over time takes the shape of the inverted U. The evolution of inequality between 1820 and 1992, according to an empirical study conducted on 33 countries of the world, shows that indeed economic growth does influence the income inequality level by increasing it as it expands and reducing it as it contracts (Bourguignon & Morrison, 2002).

In the period of 1820 and 1950, when industrialization was taking place and the economy was expanding, the inequality at the time increased and the Gini Index was reported to have increased by 30 percent during this period. However, there was a lag between the period of 1910 and 1940 when World War I and II occurred but once they were over and the world began to "rebuild", the inequality began to increase. This increase in income inequality lasted till 1950. The economy then started to level up and dropped a bit between the period of 1950 to 1992 and then began to expand again and with this the inequality reduced then started to increase again, thus exhibiting a cyclical behaviour (Bourguignon & Morrison, 2002).

A similar inequality and growth relationship was observed in Bangladesh between the period on 1995 to 2005 (Khan, 2006) and in China between the period of 1980 and 2011. In China, this relationship has lasted for three decades and has been attributed to reforms in 1978 that led to acceleration of growth in China and in turn the increase in inequality (Xie & Zhou, 2014). In Kenya, the Gini index has been found to fluctuate over time, increasing as the economy expands and decreasing as the economy contracts, hence, complying to the Kuznet inverted U shape theory (Bahmani et al., 2008).

Technological progress has been found to affect the level of income inequality (Jaumotte et al. 2008). With the introduction of the internet in 1980, growth in the technology sector was seen as and is a driver of economic growth and a source of employment (Pepper and Garrity, 2015). The global inequality after the introduction of the internet from the 1980s to 2008 was falling steadily from 72 percent to 70 percent and this drop was attributed to the gain in income around the world. However, in-country inequalities were found to be increasing (Lakner and Milanovic, 2015). Pepper and Garrity (2015) call this the ICT and income inequality paradox, where economic growth globally increases, the inequality between countries decreases, however, the

within-country inequality increase. In addition, Schwab, (2015) predicts that income inequality will be a challenge in the fourth industrial revolution.

2.3.1.2 Macroeconomic factors and income inequality

The key factors such as growth, inflation, unemployment and terms of trade have been found to influence income inequality. Kuznets (1955) found that as the economy grew, income inequality increased. This theory has been proved in various countries such as Kenya (Bahmani et al., 2008), China (Xie & Zhou, 2014) and in Bangladesh (Khan, 2006).

In a study conducted on 33 Asian countries, poor terms of trade, terrible rates of unemployment and high inflation were found to directly lead to a bigger gap among the poor and the rich, hence increasing the income inequality within the countries (Deyshappriya, 2017). In addition, this study also provided evidence that growth in the economy leads to an increase in income inequality at the initial stages of growth.

2.3.1.3 Political factors and income inequality

Policies enacted also influence the level of inequality; in particular fiscal policies that influence taxation and government spending. Education is a key player in the reduction of inequality and an increase in expenditure on education by the government means that the poor are able to attend school and this increases their human capital and in turn their future earnings and this will reduce inequality and poverty overtime (Busayo & Olufunmilayo, 2013; Xie & Zhou, 2014). This type of policies are dependant of the political players at the time and hence the how political factors influence income inequality.

In addition, fiscal policies that affect taxation also affect the distribution of income. Countries with high income inequality have been found to have a higher likelihood of poor people voting for policies that lead to better redistribution of income than in those with low income inequality. These policies are likely to lead to higher taxes which derail economic growth since higher taxes discourage working, saving and investments (Sharpe, 2003). Furthermore, an increase in direct taxes for those that have very high incomes with the aim of reducing the gap between those that are poor and those that are

rich while also providing more government revenue which can be used to further lower the income inequality through the provision on welfare services for all (Ali, 2016).

In China, Xie & Zhou (2014), argues that government policies have had a direct effect on the increase in the level of China's income inequality, in particular, the 1978 government policies implemented with the aim of fostering economic growth. This policies lead to the growth, however, they also led to the increase of income inequality in China.

Certain policies that could be used to alleviate the income inequality between genders are also influenced by political factors (Busayo & Olufunmilayo, 2013). This can clearly be seen by the ongoing politics around the two-thirds gender rule in Kenya. Additionally, the IMF (2017) has also been advocating for fiscal policies that ensure that gender budgeting is incorporated in the government plans and this will enable countries to reduce the gender inequality within the countries. The fiscal policies suggested should be targeted at increasing making education, childcare and healthcare more accessible.

2.3.1.4 Socioeconomic and sociodemographic factors and income inequality

Analysis of time series data from 16 countries found that education level is key when it comes to income inequality (Busayo & Olufunmilayo, 2013). In China, education level has been found to have an influence on income inequality within the economy (Xie & Zhou, 2014). Females have been found to be at a disadvantage since they tend to have a lower level of education compared men. This directly affects their potential to get employment and also has a negative effect on their average income (Majeed and Malick, 2015). In Kenya, the number women employed majority of the sectors are fewer than men (KNBS, 2017).

In addition, women have been found to earn less than their male counterparts even when they have the same level of education. This directly contributes to the likelihood of poorer female-headed households and a larger inequality between these two groups (Barros et al., 1997). Furthermore, a majority of the females that are households heads tend to be of an older generation, this predisposes them to lower earnings hence fueling the differences in the inequality level between gender (Panda, 1997).

Inequality can also be influenced by demographic factors such as the age and the gender of the family head. The gender has been found to be a contributing factor to the income inequality levels with the between-group Gini index being as high as 58 percent (Kaya & Senesen, 2010). This also corresponds to the findings that females are poorer as compared to male-heads (Buvinic & Gupta, 1997; Moghadam, 1998; Klasen & Lamanna, 2009).

Additionally, women as compared to men have less time, this is because they also act as the home carers and have to deal with house chores such as caring for the children, and this limits the time they have to dedicate to employment. This then contributes to the financial restrictions that face female-headed households and in turn widen the inequality gap (Buvinic and Gupta, 1997). The direct relationship between labour market participation of women and the reduction of income inequality has seen recommendations on having policies that increase female participation made (Ali, 2016).

However, there are cases where the gender has no significant influence on the differences in income inequality. In a study conducted in Cameroon, Celestin & Clovis (2012) found that inequality by gender of the head was very small at 1 percent. However, the inequality within the male-headed household was found to be very high at 39 percent, while the inequality within female-headed households was 8 percent. The highest contributor to the general inequality within the population was expenditure on leisure and the lowest was expenditure on food.

Another factor that contributes to poverty and inequality is the geographical location of a household. The inequality level in urban areas has been found to be higher as compared to that in the rural areas (Celestin & Clovis, 2012). This has been attributed to the migration from rural to semi-urban and urban areas that increases the number of poor people in the urban areas, hence increasing the inequality since the poor are more than the few rich people that hold majority of the wealth.

However, when we look at poverty levels, households in rural areas have been found to have more poverty than those in the urban areas and studies show that living in these

areas increased the likelihood of a household being poor (Panda, 1997; Majeed and Malick, 2015). In addition, households where the members are from marginalized groups or marginalized areas have also been found to have a higher level of poverty (Xie & Zhou, 2014).

Other sociodemographic determinants of inequality have been found to be the race and ethnicity of people in particular within the United States (Xie & Zhou, 2014).

2.3.2 Income inequality and gender inequality

Gender inequality specifically in the labour market through wages and employment have been found to contribute to more inequality between households (Ukhova, 2015). In addition, a direct dynamic between gender and income inequality has been established with majority of the studies showing that females are more disadvantaged as compared to males (Kaya & Senesen, 2010; Ali, 2016).

Gender inequality refers to the gaps that are there between men and women in areas such as health, education, economically and in governance (World Economic Forum, 2014). The primary determinants of these gender inequalities have been found to be gender stereotypes and structural factors. Gender stereotypes refer to the cultural and social constructs which stipulate the roles, behaviours and attitudes that females and males should have and this dictates how the society treats different individuals and also trickles down to the wages earned and the jobs available to the different genders (Cordell, 2018).

Structural factors refer to the systems of control within the society, this mainly refers to government and religious institutions. In some parts on the world, such as the Middle East and Africa, religion and customs are key determinants of the high gender inequality. This has led to females within these regions being disadvantaged when it comes to accessing education and also employment. Advocacy for gender equity in government, the labour force and in education is on the rise since they are key accelerators to achieving gender equality (Cordell, 2018).

In addition, the vulnerability of women has been explained through the concept of feminization of poverty introduced and outlined by Moghadam (1998). This concept

outlines three main reasons as to why females are prone to vulnerability are: 1) The high growth in the number of dependants in households headed by women; 2) inequalities within the households e.g. boys getting a chance to attend school while girls don't and; 3) market transitions and economic policies that do not favour women.

The economic vulnerability of females as compared to males has been researched extensively and a key resource is a systematic review conducted in 1997 that found that 38 out of 61 papers concluded that household-units headed by women were more vulnerable as opposed to those headed by males (Buvinic and Gupta, 1997). Furthermore, these have been found to be more disadvantaged when it comes to welfare and social services access and in addition, they tend to spend less on high-quality items, specifically food, milk and other dairy products (Panda, 1997). This shows the cycle that income inequality and gender inequality play; that is, gender inequality leads to inequality in wages and wealth accumulation which in turn lead to income inequality which leads females and female headed households into poverty.

The World Bank estimates that 43 percent of households in Africa are headed by a woman and 48 percent are male-headed and that poverty in Sub-Saharan Africa is predominantly in the households where the head is a woman (Beegle et al, 2016). The close to 50 percent division between households headed by a man and households headed by a woman implies that the welfare in the latter has an effect on the overall inequality level. In Turkey, Kaya & Senesen (2010), provided evidence to support this and showed that there is inequality between gender (Gini index of 53 percent) and this inequality had a 19 percent contribution to the overall income inequality.

Improvements in ensuring equality have been seen in education, labour force and governance in the last 20 years (UNDP, 2019). In education, more girls are attending primary school globally (UNDP, 2019) and in Africa, 35 more girls are now enrolled in secondary education per 100 boys as compared to the early 1980s (IMF, 2017). In addition, recommendations have been made to have policies that increase the number of women that are working (Ali, 2016) and over time the ratio of males to females in the labour force has been reducing (IMF, 2017). There is also an increase in the number of women in the government with countries such as Liberia, Germany, and Zimbabwe electing women as the heads of state and Kenya trying to implement the proposed two-

thirds gender rule in parliament. All these play a role in the reduction of gender inequality which in turn will reduce income inequality.

2.3.4 Intrahousehold income inequality

Intrahousehold inequality also contributes to economic inequality, mainly gender and age differences within the household (De Vreyer & Lambert, 2017). This involves males being favoured and having access to more opportunities as compared to females within the same households and this leads to an increase in gender inequality which further fuels income inequality. Intrahousehold inequality through gender bias has been seen in some countries such as China, and some communities, have son preference, that is, preferring male children to female children (Ukhova, 2015). These biases and inequalities within households further contribute to the disadvantage that females and female headed households face.

Countries with high poverty levels have been reported to also have high intrahousehold inequality and the cycle between income inequality and poverty continues (De Vreyer & Lambert, 2017).

Another determinant of intrahousehold inequality is the household structure. Polygamous households and households with many members tend to have higher intrahousehold inequality as compared to those with fewer members (De Vreyer & Lambert, 2017).

These intrahousehold inequalities compound and contribute to higher levels of national inequality.

2.4 The role of the government in income inequality and inclusive growth

Inclusive growth is the concept that the benefits of growth should be distributed within the economy fairly and should create more opportunities for all and not just a few (OECD, 2019). Inclusive growth will allow economies to grow without facing the detrimental effects of inequality. For this to be achieved, the role of government when it comes to ensuring inclusive growth and the reduction of income inequality is key.

Schwab (2015) advises that governments need to rethink their roles within the economy as the new era of the fourth industrial revolution begins especially since so far the benefits of economic growth are unequally distributed and these new era is predicated to lead to high income inequality. There is then need for the government to get involved and ensure that policies that advocate and ensure that there is inclusive growth and that there is better, if not equal, distribution of income are enacted.

The policies needed to ensure inclusive growth and equality need to work across the board and influence various sectors and activities and not only focus on supplementing income for the poor. Key areas for policy improvement have been found to be in education and labour markets, health, and taxation (Keeley, 2015).

In education, Keeley (2015) advocates for governments to enact education policies that tackle the needs of people from the time they join school (early childhood development) till they achieve some form of tertiary education such as a University Degree. This is because, the economic and social background of a child has been found to affect their performance in school and in favour of the rich. However, there are exceptions to this and children from poor backgrounds have been found to excel in school and this number could be higher if the government tried to reduce the impact of social and economic background in education for example by the provision of free quality education.

There are key ideas when it comes to government policies on education. First, it should aim at fairness and ensuring that one's background or circumstances such as gender, ethnicity and family economic status, does not affect their outcome in education or their inclusion in education. Secondly, education systems that are provided need to be of quality standards and should meet the needs that students have by ensuring that individual capacity is meet. Thirdly, subsidized tertiary education programmes or subsidized financial aid for students is also a policy recommendation that governments should explore so as to increase participation in tertiary education. These factors will ensure that there is inclusive growth, equal education and labour market opportunity and hence a reduction in inequality (Keeley, 2015).

In the labour markets, governments need to ensure the people are equipped to thrive in the economy as the fourth industrial revolution comes. In the last decade, there has been

a significant gap in incomes of high and low skilled workers. Many jobs that can be automated have been automated through the use of machine learning and artificial intelligence and with this technological leap, massive layoffs have occurred (Schwab, 2015; Keeley, 2015). This is predicted to worsen as technology continues to advance. To achieve a society where people are able to adapt to these changes, Keeley (2015) advises that the process of developing relevant skills for the labour market needs to start at the early stages of education and continues throughout ones education. The policy approaches for this include high-quality training that equips students with both hard and soft skills to ensure that they can leave the classroom and join the workforce. In addition to this, tax breaks for businesses and individuals taking part in training would work as incentives for people to invest in training (Keeley, 2015).

To further encourage the use of skills, government policies should work to encourage entrepreneurship and innovation within the economy. This will ensure that people with skills can solve problems while also providing employment for new graduates. Policies that encourage entrepreneurship could include tax breaks and or provision of start-up capital (Keeley, 2015).

Taxation with respect to income inequality involves the redistribution of income and wealth across the society. A key way that taxation helps with income inequality is through the provision of transfers. Once taxes are collected, the government uses these taxes to provide cash transfers to those that are vulnerable such as the old within the community and in some developed countries welfare programmes that provide unemployment benefits are funded from taxes. In addition to this, certain groups of people are exempted from tax such as people with disabilities. Transfers and exceptions allow smoothing of people's incomes across their lives, assisting people to cope with disadvantages and limiting the impact of poverty. Some countries such as Norway and Sweden have high taxes however, they in turn use these taxes to fund free quality healthcare and free quality education including tertiary education which reduces the inequality of opportunity among the citizens and in turn reduces income inequality (Keeley, 2015).

Inequality is on the rise globally and is expected to continue rising, however, governments can take measure to ensure that the effects of inequality are not as

detrimental as they could be. For these to be achieved, it is clear that the policies need to be wholesome and to cover various sectors from education to health to fiscal policies that affect the level of taxation in a country. The effects of these policy changes will not be immediate, however, their gradual benefits will lead to inclusive growth and a gradual decrease in the gap between the rich and the poor in the society.

2.5 Summary of the literature review

Income inequality is a concept that has existed since the foundations of Economics were placed till today and will probably still exist in the future. The determinants of income inequality seem to change depending on the region and the economic activities of the time. Periods of growth seem to have the highest levels of income inequality, while those of slow growth seem to cause less inequality. With the world headed to the fourth industrial revolution, which is expected to be a period of high income inequality, there is a need for policies that will hinder or minimize the negative effects that are expected.

Different socioeconomic factors and sociodemographic factors such as education, the income earned, gender and geographic location of residence have also been found to have a direct influence on the income inequality between households. An interesting finding has been, in cases where a female and a male have the same level of education, the likelihood of them having different levels of income, in favour of the male, is very high. In addition to these interhousehold differences, intrahousehold inequalities have also been found to contribute to the income inequality between households and in favour of men. All these factors then play a role in increasing the probability of households run by women being more vulnerable.

Policies have been put in place to mitigate gender inequality and with it income inequality, however, the inequality still persists and there is a need to adjust these policies or create new ones that advocate for equity. The role of government moving forward is vital and will play a big part in the distribution of income within the economy and in the reduction of inequality.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

This chapter describes the data, methods used in similar studies, the models used and the variables in the models. This study was investigating whether the gender affects the income inequality, to determine the income inequality level within Kenya and within and between households headed by different genders, and to determine what other socioeconomic and sociodemographic factors have an influence on the income inequality. The models used to achieve these objectives were the Gini Index and the Shapley-Shorrocks Decomposition method and they are discussed below.

3.2 Description of the data

The data used is from Kenya Bureau of Statistics, specifically the Kenya integrated household budget 2015/2016 survey which had a national sample of 24,000 households from Kenya who were selected from 5,360 clusters. This is secondary data. The survey collected data on household characteristics, household income and credit, household transfers, education, housing conditions, general health characteristics, nutrition, shocks to household welfare, information communication technology, domestic tourism, and access to justice (KNBS, 2018).

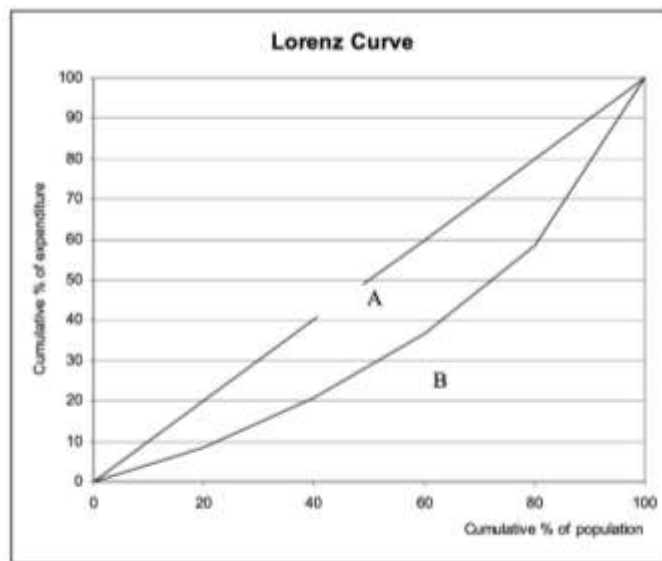
3.3 Inequality Measures

Gini Coefficient

The Gini coefficient is the most popular indicator used when it comes to measuring inequality. It ranges from 0 to 1 with 0 showing a level of complete equality and 1 a level of complete inequality. It originates from the Lorenz curve which compares the share of income and the disaggregated share of population.

The Gini coefficient is calculated as $A/(A+B)$. A and B are areas within the graph as represented in Figure 1 below. (World Bank, 2005; Kumi et al., 2013, Nolintha & Yee, 2016)

Figure 1: Lorenz Curve



Source: World Bank (2005)

Generalized Entropy measures

These are two main measures: the Theil index and the mean log deviation measure. Among these two, the Theil index is used more often when it comes to measuring inequality. The generalized entropy measures range from zero to infinity. “The lower the value the more sensitive to disparity at the lower part of the distribution while the higher the value the more sensitive to change that affects the upper part of the distribution” (Nolintha & Yee, 2016).

Atkinson's inequality measures

Atkinson's is a welfare based measure which is presented as a percentage of total income a society would fore-go in order to have a more equal share of income among the members. It is dependent on the degree to which a society is averse to income inequality. A higher Atkinson's value implies that the society is averse to inequality and willing to take a smaller income in order to avoid inequality. This index can also provide the implications of alternative policies (UN, 2015; Nolintha & Yee, 2016).

Decile dispersion ratio

This is a ratio that calculates the mean income of a percentage of the richest within a population and the average income of a certain percentage of the poorest within the population. To calculate the value, the average income of the top ten percent is divided

by the average income of the bottom ten percent. The value can be computed for any percentile such as 5 percent, 10 percent, 20 percent and so on. For example, if the top 10 percent make Ksh 50,000 and the bottom 10 percent make Ksh 1,000, then the dispersion ratio is equal to 50 hence, the rich make 50 times the amount the poor make (Kumi et al., 2013).

The Gini coefficient is used in this study since the measure of income inequality since it is a widely used measure of welfare and will allow decomposition to investigate marginal contributions of factors.

3.4 Overview of methods used in similar studies

The methodology used by studies that look into income inequality take various routes and use different indices to measure income inequality. Kaya & Senesen (2010) uses the Gini index to determine the inequality between different sub-groups and within those sub-groups and Dagum's Gini Decomposition method; Bahmani et al.(2008) uses the Gini coefficient and the log-linear model for decomposition; Bourguignon & Morrisson (2002) uses the Gini Coefficient, the Theil index and Mean logarithmic model and used a self-modified version of the Blinder–Oaxaca decomposition; and Celestin & Clovis (2012) used the Gini index and the Shapley-Shorrocks Decomposition.

This study emulates Kaya & Senesen (2010) for the calculation the Gini coefficients that will show the inequality within and between groups and the Celestin & Clovis (2012) to investigate the extent to which the gender of the household head and other demographic factors, divided into various sub-groups, contribute to income inequality.

Consumption expenditure data is used as a proxy for income since it has been found to be smoother over time and does not vary as much as income data does (World Bank, 2016; KNBS, 2018). In addition, it reflects a household's power to meet its basic needs in times of low income through access to the credit market or through their savings which might otherwise be missed if using income hence a better indicator of standards of living (World Bank, 2016). It has also been established as an international best practise and is also used by KNBS and the World bank as proxy for income when working with welfare measures.

3.5 Model Specification: Gini Index

The Gini coefficient within Kenya will be calculated using the following formula:

$$G = \frac{\sum_{i=1}^n \sum_{r=1}^n |y_i - y_r|}{2n^2 \mu}$$

Where:

- G = Gini Coefficient
- P = Population of households from Kenya sampled
- n = number of households in P ; r and $i = 1, 2, \dots, n$
- y = household income for household i or r in the sample which has a population (P) of size n .
- μ = mean monthly income for the household in the sample

The within sub-group (P_j) Gini coefficient will be given by:

$$G_{jj} = \frac{\sum_{i=1}^{n_j} \sum_{r=1}^{n_j} |y_i - y_r|}{2n_j^2 \mu_j}$$

Where:

- G_{jj} = Gini Coefficient for the sub-group
- n_j = number of households in P_j ; r and $i = 1, 2, \dots, n$
- y = household income for household i or r that belong to sub-group P_j .
- μ_j = mean income for the household that belong to sub-group P_j .

The between sub-group Gini coefficient will be given by:

$$G_{jh} = \frac{\sum_{i=1}^{n_j} \sum_{r=1}^{n_h} |y_{ji} - y_{hr}|}{n_j n_h (\mu_j + \mu_h)}$$

Where:

- G_{jh} = Gini Coefficient that shows the between-group inequality
- n_j = number of households within sub-group P_j ; r and $i = 1, 2, \dots, n$
- n_h = number of households within sub-group P_h ; r and $i = 1, 2, \dots, n$
- y = household income for household i or r that belong to sub-group P_j .

- u_j = mean income for the household that belong to sub-group P_j .
- u_h = mean income for the household that belong to sub-group P_h .

3.6 Model Specification: Shapley-Shorrocks's Decomposition

3.6.1 The Variables

- Dependent variable
 - Income inequality
- Independent variables/contributing factors (related to the household head or the household itself)
 - Gender
 - Age
 - Marital Status
 - Education level
 - Employment status
 - Location of household (Urban or Rural)
 - Household size

3.6.2 Function

$I = f(\text{gender, age, marital status, education level, employment status, household size location of the household})$

$$I = f(C_i) = f(C_1, C_2, C_3, C_4, C_5)$$

Where:

- C = Contribution factor
- i = One of the following:
 - Gender, age, marital status, education level, employment status, location of the household, household size

The rule of Shapley-Shorrocks's decomposition is given by:

$$C_i^s(N, V) = \sum_{s=0}^{n-1} \sum_{S \subseteq N/i} ((n-s-1)! s! / n!) [\Delta_i V[S]]$$

Where:

- C_i^s = The marginal impact of contributing factor i to the income inequality
- N = The total number of contributing factors
- n = The number of selected contributing factors in N
- V = A subset of N with the selected contributing factors
- s = The number of contributing factors in V

To determine the contribution of factor i to the inequality, we divide the shapely rule in equation 2 by the total inequality I .

$$\phi_i = \frac{C_i^s(N, V)}{I}$$

Where ϕ_i = The relative contribution of factor i to the inequality

The method detailed above shall be used to determine to what extent the independent variables affect the income inequality, the dependent variable, among household.

3.7 Data Analysis

The data analysis tool used is STATA. The following STATA commands were used:

- Conindex: Used to calculate the income inequality among Kenyan households (Gini Index).
- Pshare: To give the percentile shares of income distribution in Kenya.
- Descogini: Used to calculate contribution of each consumption source to income inequality.
- Ineqrbd: Used to calculate the contribution of socioeconomic and sociodemographic factors to income inequality.
- Ginidesc: Used to calculate the within and between group inequalities of the sub-groups.

3.7.1 Data analysis steps

Step 1: Determining the level of income inequality between and within groups and sub-groups by calculating the Gini index of the following:

1. The Gini index for Kenya
2. The Gini index by gender of the household head
3. The Gini index by various locations (Urban or Rural).
4. The Gini index of households with respect to the education level divided into: no education, primary, secondary education and tertiary education
5. The Gini index of households with respect to marital status divided into the following sub-groups: single, married, divorced/separated and widowed
6. The Gini index of households with respect to the employment status divided into the following sub-groups: Employed or not employed

Step 2: Determining the contribution of the various socioeconomic and sociodemographic factors to the level of income inequality using the Shapley-Shorrocks Decomposition method

Sociodemographic contributing factors

- Gender
- Age
- Location of household (Urban or Rural)
- Marital Status

Socioeconomic contributing factors

- Education
- Employment

3.8 Limitation of the data

The data used is from one time period and one country hence not looking into the changes over time (Kuznets' hypothesis) and looking into the inequality between economies (modernization theory, dependency theory and world-systems approach) is not possible. This provides an opportunity for further research using this and other datasets necessary.

CHAPTER FOUR: RESULTS AND FINDINGS

4.1 Introduction

This section outlines the results and findings from the data analysis.

4.2 Descriptive statistics

The dataset consisted of 21,773 households. After data management and dropping those with missing data, the sample reduced to 21,743 households. Of these, 34 percent were households where the head is a woman and 66 percent where the head is male. The mean age of the household heads is 46 years; majority of the household heads (43%) have attained primary education; the main economic activity is farming (52%) and 71 percent of the household heads are married.

Table 1: Descriptive statistics

Variable		Number	Percentage
Gender	Female	7,383	34%
	Male	14,360	66%
Age	Under 21	316	1%
	21 to 30	4,284	20%
	31 to 40	5,706	26%
	41 to 50	4,335	20%
	51 to 60	3,270	15%
	Older than 60	3,832	18%
Education	No education	4,475	21%
	Primary	9,413	43%
	Secondary	5,156	24%
	Higher	2,699	12%
Marital status	Married	15,356	71%
	Never Married	1,860	9%
	Formerly Married	4,527	21%
Employment status	Farmer	9,029	52%
	Employed	6,649	31%
	Unemployed	2,090	10%
	Business	3,975	18%
Household Size	1 to 3	9,094	42%
	4 to 7	10,294	47%
	More than 7	2,355	11%
Location	Rural	13,072	60%

4.3 Inequality Among Kenyans

The goal of this paper was to look into the dynamics between income inequality and the gender of the household head. The other goal of this paper was to investigate the dynamics between inequality and other socioeconomic and sociodemographic factors among household in Kenya.

The income inequality among Kenyan households was found to be low (below 40%) with a Gini index of 39 percent, see Figure 2 for the Lorenz Curve.

Figure 2:- Lorenz Curve representing household in Kenya

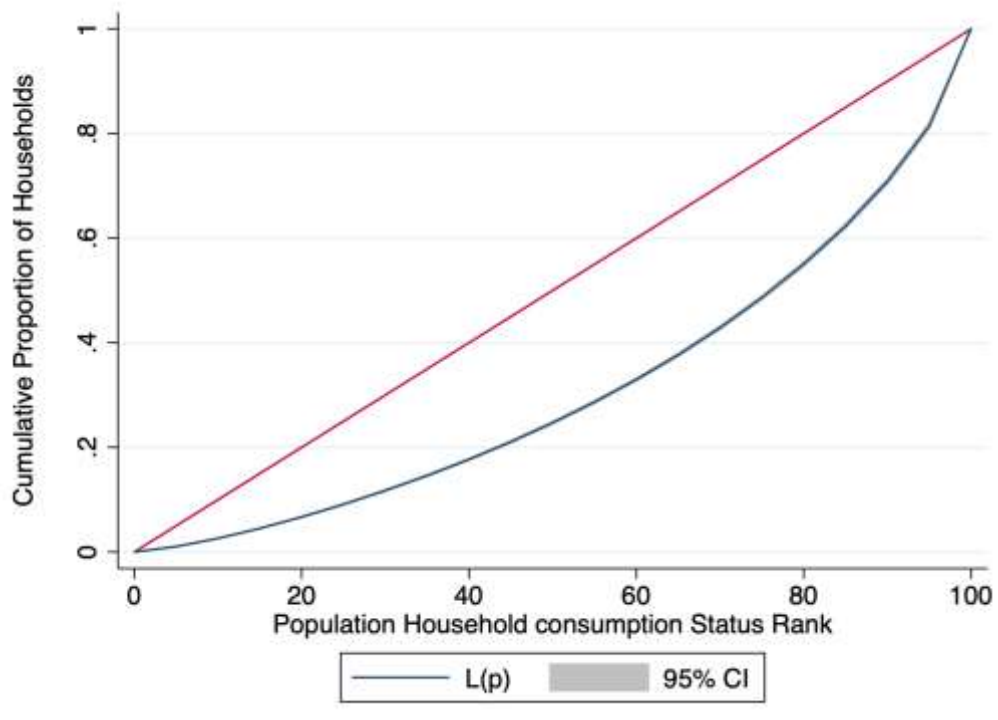


Table 2: Gini Index

Index	No. of observations	Index value	Robust std. error	p-value
Gini	21,743	0.39	0.012	0.0000

This study used consumption as a proxy for income and the consumption shares shows that the bottom 10 percent only consume 3 percent of goods in market while the 10

percent consume up to 30 percent of the goods and services in the market. This indicates that the gap in income distribution among the rich and the poor in Kenya is quite high. Table 3 below outlines the consumption share of the sample.

Table 3: Consumption share

Percentile of the population	Share
0-10	3%
10-20	4%
20-30	5%
30-40	6%
40-50	7%
50-60	8%
60-70	10%
70-80	12%
80-90	16%
90-100	30%

The contribution of different expenditure sources to inequality shows that food, energy and education expenditure have the least contribution to inequality and a have negative effect on inequality. This indicates that they contribute to the reduction of inequality. Both rent expenditure and expenditure on non-food items (nfis) had the highest contribution to income inequality indicating that expenditure on rent and nfis contributes to the increasing income inequality, see Table 4.

Table 4: Contribution of various sources of consumption expenditure to inequality

Consumption Source	Contribution
Food	-0.075
Energy	-0.004
Rent	0.04
Education	-0.001
Non-Food Items	0.041

4.4 Contribution of socioeconomic and sociodemographic factors to income inequality

The key factors selected were based on household characteristics (location and household size) and characteristics of the head of the home (gender, age, education, employment and marital status).

Both household characteristics were among the highest contributors to income inequality with household size contributing 12 percent and location having a contribution of 7 percent. The level of education was found to have the highest contribution at 14 percent.

The household head's gender was found to have a low contribution at 0.032 percent, showing that the gender does matter but with little contribution. Marital status was found to have a negative contribution at -0.11 percent implying that it contributes to reducing inequality. See table 5 below.

Table 5: Contribution of each factor to Income Inequality

Variable	Contribution (%)
Gender	0.032
Education	14.20
Employment	0.46
Location	7.15
Age	0.76
Marital status	-0.11
Household size	12.41
Residual	64.0612
Total	100

4.5 Inequality within and between subgroups

As indicated earlier, the selected sub groups were based on gender, education attainment, employment status, marital status, location of household and household size. Results on sub-group comparison have been presented below.

Comparison by Gender

A comparison by gender was conducted. The findings show that there is a higher degree of income inequality among households headed by a man. However, the difference between households headed by both genders is small. The test statistics fails to reject the null hypothesis. This indicates that there is no significant difference in the value of the indices by gender.

Table 6: Within and between group inequality: Gender

Gender	No of observations	Index Value	Robust error	std.	p-value
Male	14,360	0.40	0.0148		0.0000
Female	7,383	0.39	0.0105		0.0000
Test for stat. significant differences with Ho: diff=0 (assuming equal variances)					
F-stat	p-value				
0.00983694	0.9210				
Test for stat. significant differences with Ho: diff=0 (large sample assumed)					
Diff	Standard error	z-stat	p-value		
-0.00185459	0.0181674	-0.10	0.9187		

Comparison by Age

A comparison based on the age was conducted and the findings show that there is a higher degree of income inequality among households with a head that is under the age of 21 and in households where the head is between the age of 31 and 40. The point estimates show that even though the degree of income inequality is greatest among households that fall in these two categories, the difference between these categories and other age categories is small. The category with the smallest within group inequality is households where the head is older than 60 years. The test statistic fails to reject the null

hypothesis: the index is the same across the categories. This indicates that there is no significant difference due to age.

Table 7: Within and between group inequality: Age

Age	No of observations	Index Value	Robust error	std. p-value
Under 21	316	0.39	0.0347	0.0000
21 to 30	4,284	0.38	0.0142	0.0000
31 to 40	5,706	0.39	0.0196	0.0000
41 to 50	4,335	0.37	0.00915	0.0000
51 to 60	3,270	0.38	0.0218	0.0000
Greater than 60	3,832	0.36	0.0193	0.0000

Test for stat. significant differences with Ho: diff=0 (assuming equal variances)	
F-stat	p-value
1.3021	0.2597

Comparison by Education

A comparison based on the education level was conducted and the findings show that there is a higher degree of income inequality among households where the head has some form of tertiary education. The test statistic rejects the null hypothesis that the index is the same across the categories hence indicating the existence of a significant difference due to the level of education.

Table 8: Within and between group inequality: Education

Education Level	No of observations	Index Value	Robust error	std. p-value
No Education	4,475	0.35	0.00814	0.0000
Primary	9,413	0.32	0.00635	0.0000
Secondary	5,156	0.34	0.00867	0.0000
Tertiary	4,335	0.37	0.00915	0.0000

Test for stat. significant differences with Ho: diff=0 (assuming equal variances)	
F-stat	p-value
8.515	0.000

Comparison by Marital Status

A comparison based on the marital status was conducted and the findings show that there is a higher degree of income inequality among households that the head has never been married. The point estimates show that even though the degree of income inequality is greatest among households that the head has never been married, the difference between these households and households where the head is married or is formerly married small. The test statistic fails to reject the null hypothesis that the index is the same across the categories. This indicates that there is no significant difference based on the marital status.

Table 9: Within and between group inequality: Marital Status

Marital Status	No of observations	Index Value	Robust error	std. p-value
Never Married	1,860	0.40	0.0158	0.0000
Married	15,356	0.38	0.0144	0.0000
Formerly Married	4,527	0.37	0.0120	0.0000

Test for stat. significant differences with Ho: diff=0 (assuming equal variances)	
F-stat	p-value
1.239	0.2895

Comparison by Employment

A comparison based on the employment status was conducted and the findings show that there is a higher degree of income inequality among households where the household head is unemployed. The point estimates show that the difference between household where the head is employed, a farmer or a business person is small with household where the head is a farmer having the smallest degree of income inequality. The test statistic rejects the null hypothesis stating that the index is homogenous across the categories and this indicates that there is a significant difference when it comes to households based on the employment status.

Table 10: Within and between group inequality: Employment Status

Employment Status	No of observations	Index Value	Robust error	std. p-value
-------------------	--------------------	-------------	--------------	--------------

Employed	4,475	0.38	0.0138	0.0000
Business Person	9,413	0.38	0.00936	0.0000
Farmer	9,029	0.33	0.0163	0.0000
Unemployed	2,090	0.48	0.0468	0.0000

Test for stat. significant differences with Ho: diff=0 (assuming equal variances)

F-stat	p-value
28.23	0.000

Comparison by Household Size

A comparison based on the household size was conducted and the findings show that there is a higher degree of income inequality among households that have one to three members. However, the difference between these households and households with four to seven members is small. Households with more than seven members have the smallest degree of income inequality. The test statistic rejects the null hypothesis that the index is the same across the categories. This indicates that there is a significant difference when it comes to households based on the household size.

Table 11: Within and between group inequality: Household Size

Household Size	No of observations	Index Value	Robust error	std. p-value
1 to 3	9,094	0.37	0.0104	0.0000
4 to 7	10,294	0.36	0.0174	0.0000
More than 7	2,355	0.32	0.0172	0.0000

Test for stat. significant differences with Ho: diff=0 (assuming equal variances)

F-stat	p-value
7.209	0.0007

Comparison by Location

A comparison based on the location of households was conducted and the findings show that income inequality is more pronounced in households living in the urban areas. The test statistic rejects the null hypothesis that the index is the same across the categories indicating that there is a significant difference when it comes to households in the rural areas and in the urban areas.

Table 12: Within and between group inequality: Location

Location	No of observations	Index Value	Robust error	std. p-value
Rural	13,072	0.33	0.0051	0.0000
Urban	8,671	0.37	0.016	0.0000

Test for stat. significant differences with Ho: diff=0 (assuming equal variances)	
F-stat	p-value
60.62	0.0000

Test for stat. significant differences with Ho: diff=0 (large sample assumed)			
Diff	Standard error	z-stat	p-value
0.0431	0.01679	2.56	0.0104

4.6 Differences in Income Inequality by Gender, education, location and household size

Location of a household, household size and the education level were found to have the highest contribution to income inequality and the highest between group inequalities. To look into these differences further, comparison based on gender, household location, household size and education level was conducted.

The results show that households where the head has no form of education were found to have higher income inequality as compared to those where the head has some form of education irrespective of the gender or the location of the household. However, a higher degree of income inequality was found among households where the household is rural and the household head has no education irrespective of the gender and income seems to be more equally distributed among household living in urban areas where the head has a higher level of education irrespective of gender.

With respect to household size, households where the household head is female, the household is urban and has more than 7 members were found to have a higher degree of income inequality at 30 percent. Male headed households with similar characteristics were also found to have a high degree of inequality as well.

Male headed household with one to three household members and in the urban area were found to have the least income inequality (8%) while female head headed household with one to three households members and in urban areas were found to have a slightly higher level of income inequality (9%). This implies that income inequality favours male headed households in urban areas with fewer household members.

Table 13: Differences in Income Inequality by Gender, Location and Education

Factors	Number of Observations	Gini Index	Robust std. error	p-value
Male, rural, no education	1,583	31	0.0033	0.000
Male, rural, primary	4,212	27	0.0063	0.000
Male, rural, secondary	1,834	23	0.0061	0.000
Male, rural, higher	751	16	0.0029	0.000
Male, urban, no education	475	27	0.0071	0.000
Male, urban, primary	2,214	18	0.0019	0.000
Male, urban, secondary	2,024	12	0.0194	0.000
Male, urban, higher	1,267	4	0.0016	0.000
Female, rural, no education	1,842	31	0.0028	0.000
Female, rural, primary	1,980	26	0.0007	0.000
Female, rural, secondary	635	20	0.0021	0.000
Female, rural, higher	235	13	0.0048	0.000
Female, urban, no education	575	27	0.0020	0.000
Female, urban, primary	1,007	21	0.0019	0.000
Female, urban, secondary	663	20	0.1011	0.000
Female, urban, higher	446	4	0.0062	0.000
Male, rural, 1 to 3 members	2,463	20	0.0015	0.000
Male, rural, 4 to 7 members	4,577	26	0.0003	0.000
Male, rural, more than 7 member	1,340	28	0.0029	0.000
Male, urban, 1 to 3 members	2,959	8	0.0020	0.000
Male, urban, 4 to 7 members	2,548	14	0.0018	0.000
Male, urban, more than 7 member	473	24	0.0020	0.000
Female, rural, 1 to 3 members	2,077	21	0.0011	0.000
Female, rural, 4 to 7 members	2,225	27	0.0009	0.000
Female, rural, more than 7 member	390	30	0.0047	0.000
Female, urban, 1 to 3 members	1,595	9	0.0026	0.000

Female, urban, 4 to 7 members	944	22	0.0018	0.000
Female, urban, more than 7 member	152	25	0.0049	0.000

The low contribution of the gender to inequality and the low between group income inequality by gender implies that the gender is a contributor to income inequality, however, it is a small contributor as compared to other factors such as the education level, size of the household and the location of the household that were found to have much higher between groups inequality and higher contributions to income inequality.

The contribution of education is also highlighted by the finding that both female and males with no education tend to have a higher degree of income inequality and the no education sub-groups tend to have the highest Gini index signifying that there is high unequal distribution on income within these groups.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

A vital part of policy making to address inequality is understanding how certain circumstances can be disadvantages or advantages to one group over another. Gender inequality has been a key contributor to income and wealth disparity and hence the numerous policies that have been implemented globally and in Kenya with the aim of reducing gender inequality and eventually eradicating it.

5.2 Summary of Findings

The main objectives of this study were to look into the income inequality among Kenyan household and the differences between households headed by different genders. The income inequality among Kenyan households was found to be low (less than 40%) with a Gini index of 39 percent, however, the disparity between the rich and the poor was found to be very high with the top 10 percent consuming up to 30 percent of the goods and services in the economy. Kenya requires welfare policies that ensure that the inequality and the gap between those that are rich and those that are poor reduces especially due to the current economic lull, high unemployment rate among Kenyans and the expected high income inequality that will come with the fourth industrial revolution.

The findings show that there is not significant difference when it comes to the income inequality between households headed by women and men. Gender was also found to have a positive but low contribution to the level of income inequality. This could be an indication that the drivers Kenya has put in place over time such as advocacy for female education, free primary education, the increase of women in the formal labour market, and policies that seek to increase women participation at work and in government have had a positive impact. However, to prove this, further research is necessary. In addition, there is still need for improvement in gender advocacy since gender biases do have some contribution to income inequality and there is still a high gender wage gap in Kenya. Furthermore, females in both locations and no matter the level of education were found to have a higher degree of income inequality when compared to men under similar categories.

The highest sources of interhousehold household inequality were found to be the household head's education level (14%), the size of the household (12%) and the household location (7%). These factors were also found to be significant when looking into the differences in income inequality within and between sub-groups. This signifies that there is inequality in distribution of resources within the economy and also within households.

5.3 Recommendations

These findings provide a basis to show the effects of socio-economic and socio-demographic factors on income inequality. Key welfare changes in Kenya are necessary to ensure that gender inequality is reduced further, education investment is made more equal, rural development is encouraged so as to reduce rural urban migration and there is need to have welfare policies that support female headed households which tend to have a higher degree of income inequality no matter their location or the level of education. The high unemployment rate in Kenya in 2019 should also be addressed since its increase will ultimately lead to an increase in the inequality among Kenyan households hence undoing the progress so far and also since household where the head is unemployed have the highest degree of income inequality among all the sub-groups investigated.

5.4 Area of further Studies

Areas for further research with respect to income inequality could include:

1. Changes in the contribution share of socioeconomic and sociodemographic factors to income inequality over time.
2. The effects of other economic factors on income inequality in Kenya.
3. The effects of technological advancement on income inequality in Kenya.

REFERENCES

- Ali, A. (2016). Issue of Income Inequality under the Perspective of Macroeconomic Instability: An empirical Analysis of Pakistan. *Munich Personal RePEc Archive*. Paper No. 74963. <https://mpira.ub.uni-muenchen.de/74963/>
- Arndt, C., McKaya, A. & Tarp, F. (2016). *Growth and Poverty in Sub-Saharan Africa*. Chapter 15. DOI:10.1093/acprof:oso/9780198744795.003.0015
- Bahmani-Oskooee, M., Hegerty, S., & Wilmeth, H. (2008). Short-Run and Long-Run Determinants of Income Inequality: Evidence from 16 Countries. *Journal of Post Keynesian Economics*, 30(3), 463-484. Retrieved from <http://www.jstor.org/stable/27746811>
- Barros, R., Fox, L., & Mendonça, R. (1997). Female-Headed Households, Poverty, and the Welfare of Children in Urban Brazil. *Economic Development and Cultural Change*, 45(2), 231-257. Retrieved from <http://www.jstor.org/stable/1154534>
- Becker, G. S. (1975). Human capital: a theoretical and empirical analysis, with special reference to education. *New York: National Bureau of Economic Research*. Pp245-249
- Beegle, K., Christiaensen, L., Dabalén, A. & Gaddis, I. (2016). Poverty in a Rising Africa. Overview. World Bank Group
- Bollen, K. (1983). World System Position, Dependency, and Democracy: The Cross-National Evidence. *American Sociological Review*, 48(4), 468-479. Retrieved from <http://www.jstor.org/stable/2117715>
- Bourguignon, F., & Morrisson, C. (2002). Inequality among World Citizens: 1820-1992. *The American Economic Review*, 92(4), 727-744. Retrieved from <http://www.jstor.org/stable/3083279>
- Busayo, A. & Olufunmilayo, S. (2013). Determinants of Gender Income Inequality in Selected Sub-Saharan African Countries. *Journal of Economics and Sustainable Development*, Vol.4, No.16, 2013.
- Buvinić, M., & Gupta, G. (1997). Female-Headed Households and Female-Maintained Families: Are They Worth Targeting to Reduce Poverty in Developing Countries? *Economic Development and Cultural Change*, 45(2), 259-280. Retrieved from <http://www.jstor.org/stable/1154535>
- Castelló, A., & Doménech, R. (2002). Human Capital Inequality and Economic Growth: Some New Evidence. *The Economic Journal*, 112(478), C187-C200. Retrieved from www.jstor.org/stable/798367
- Celestin, C, N. & Clovis, M, W. (2012). Inequality of Cameroonian Households: An Analysis Based on Shapley-Shorrocks's Decomposition. *International Journal of Economics and Finance*. Vol 4, No. 6; June 2012

- Chen, S., Jolliffe, D. M., Lakner, C., Lee, K., Mahler, D. G., Mungai, R., Nguyen, M. C., Prydz E. B., Sangraula, P., Sharma, D., Yang, J., & Zhao, O. (2018). September 2018 PovcalNet Update. What's New. Global Poverty Monitoring Technical Note. The World Bank.
- Cordell, R., (2018). Gender Inequality: The Primary Determinants of a Universal Phenomenon. *International Associate for Political Science*. <https://iapss.org/2015/03/02/gender-inequality-the-primary-determinants-of-a-universal-phenomenon/>
- De Vreyer, P. & s, Lambert. (2017). Inequality, Poverty and Intra-Household Allocation of Consumption in Senegal. French National Research Agency.
- Deyshappriya, N. P. R. (2017). Impact of macroeconomic factors on income inequality and income distribution in Asian countries. *Tokyo: Asian Development Bank Institute*.
- Frank, A. G. (1966). The Development of Underdevelopment. *Monthly Review*, September 1966.
- Gonzales, C., Jain-Chandra, S., Kochhar, K., Newiak, M., Zeinullayev, T. (2015). Catalyst for Change: Empowering Women and Tackling Income Inequality, *IMF Staff Discussion Note 15/20*, (Washington: International Monetary Fund).
- International Monetary Fund. (2017). Fiscal Policies and Gender Equality.
- International Monetary Fund. (2017). Income Inequality Trends in sub-Saharan Africa: Divergence, Determinants and Consequences.
- Jencks, C. (2002). Does Inequality Matter? *Daedalus*, 131(1), 49-65. Retrieved from <http://www.jstor.org/stable/20027737>
- Jensen, H. (2001). John Stuart Mill's Theories of Wealth and Income Distribution. *Review of Social Economy*, 59(4), 491-507. Retrieved from <http://www.jstor.org/stable/29770133>
- Kabubo-Mariara, J., Mwabu, D. & Ndeng'e, G. (2012). Institutions, Pro-poor Growth and Inequality in Kenya. *Conference on Economic Development in Africa*. St Catherine's College, Oxford, 18-21 March 2012
- Kanbur, R. & Stiglitz, J. (2015). Wealth and income distribution: New theories needed for a new era. *VOX*, CEPR Policy Portal. <https://voxeu.org/article/wealth-and-income-distribution-new-theories-needed-new-era>
- Kaya, E. & Sensen, U. (2010). Gini Decomposition By Gender: Turkish Case. *Brussels Economic Review - Cahiers Economiques De Bruxelles*. Vol. 53 – N.1 - Spring 2010
- Keeley, Brian (2015), "How can governments respond to income inequality?", in *Income Inequality: The Gap between Rich and Poor*, OECD Publishing, Paris.

- Khan, A. (2005). Measuring Inequality and Poverty in Bangladesh: An Assessment of the Survey Data. *The Bangladesh Development Studies*, 31(3/4), 1-34. Retrieved from <http://www.jstor.org/stable/40795713>
- Klasen, S. & Lamanna, F. (2009) The Impact of Gender Inequality in Education and Employment on Economic Growth: New Evidence for a Panel of Countries, *Feminist Economics*, 15:3, 91-132, DOI: 10.1080/13545700902893106
- Kenya. (2018). Third Medium Term Plan, 2018-2022. Transforming Lives: Advancing socio-economic development through the “Big Four”
- Kenya National Bureau of Statistics. (2013). Exploring Kenya’s Inequality.
- Kenya National Bureau of Statistics. (2013). Basic Report: Based on 2015/16 Kenya Integrated Household Budget Survey.
- Kenya National Bureau of Statistics. (2017). Women and Men in Kenya: Facts and Figure.
- Kumi, P., Osabutey, D., Obro-Adibo, G. & Abakah, A. (2013). Measuring Poverty: the Methodological Debate. *Journal of Economics and Sustainable Development*. Vol.4, No.20, 2013
- Kuznets, S. (1955). Economic Growth and Income Inequality. *The American Economic Review*, 45(1), 1-28. Retrieved from <http://www.jstor.org/stable/1811581>
- Lakner, C. & Milanovic, B. (2015). Global Income Distribution: From the Fall of the Berlin Wall to the Great Recession. *The World Bank Economic Review*, August. 2015
- Lucky, A. & Sam, A. (2016). Poverty and Income Inequality in Nigeria: An Illustration of Lorenz Curve from NBS Survey. *American Economic & Social Review*. Vol 2. No. : 2018
- Majeed, M. & Malik, M. (2015). Determinants of Household Poverty: Empirical Evidence from Pakistan. *The Pakistan Development Review*, 54(4), 701-717. Retrieved from <http://www.jstor.org/stable/43831356>
- McAdams, R. H. (2010) "Economic Costs of Inequality," *University of Chicago Legal Forum: Vol. 2010: Iss. 1, Article 3*. Available at: <http://chicagounbound.uchicago.edu/uclf/vol2010/iss1/3>
- Moghadam, V. (1998). The Feminization of Poverty in International Perspective. *The Brown Journal of World Affairs*, 5(2), 225-249. Retrieved from <http://www.jstor.org/stable/24590324>
- Nolintha, V. & Yee, L. (2016). Inequality in Laos and the role of FDI. *International Journal of Economic Policy in Emerging Economies*. 9. 226. 10.1504/IJEPEE.2016.079125.

- Overseas Development Institute. (2002). Why Inequality Matters. Inequality Briefing. Paper No. 2 (2 of 3)
- Panda, P. (1997). Female Headship, Poverty and Child Welfare: A Study of Rural Orissa. *Economic and Political Weekly*, 32(43), WS73-WS82. Retrieved from <http://www.jstor.org/stable/4406010>
- Pepper, R. & Garrity, J. (2015). ICTs Income Inequality and Ensuring Inclusive Growth. The Global Information Technology Report, 2015.
- Rogan, M. (2013). Poverty and Headship in Post-apartheid South Africa, 1997–2006. *Social Indicators Research*, 113(1), 491-511. Retrieved from <http://www.jstor.org/stable/24719426>
- Rostow, W. (1959). The Stages of Economic Growth. *The Economic History Review*, 12(1), new series, 1-16. doi:10.2307/2591077
- Sharpe, A. (2003). Linkages between Economic Growth and Inequality: Introduction and Overview. *Canadian Public Policy / Analyse De Politiques*, 29, S1-S14. Retrieved from www.jstor.org/stable/3552274
- Sial, M., Noreen, A., & Awan, R. (2015). Measuring Multidimensional Poverty and Inequality in Pakistan. *The Pakistan Development Review*, 54(4), 685-696. Retrieved from <http://www.jstor.org/stable/43831354>
- Society for International Development and Kenya National Bureau of Statistics. (2013). Exploring Kenya's Inequality: Pulling Apart or Pooling Together?
- UBS & PWC. (2019). The Billionaire Effect Report. Issue 6.
- Ukhova, D. (2015). Gender inequality and inter-household economic inequality in emerging economies: exploring the relationship, *Gender & Development*, 23:2, 241-259, DOI: 10.1080/13552074.2015.1055082
- United Nations. (2015). Concepts of Inequality. Development Issue No.1. October, 2015
- United Nations. (2015). Inequality Measurement Development Issues No. 2. October, 2015
- United Nations. (2016). Sustainable Development Goals.
- United Nations Development Programme. (2019). Goal 5: Gender Equity. <https://www.undp.org/content/undp/en/home/sustainable-development-goals/goal-5-gender-equality.html> [Accessed March 2019]
- United Nations Women. (2018). Turning Promises into Action: Gender Equality in the 2030 Agenda for Sustainable Development.

Viaene, J., & Zilcha, I. (2009). Human Capital and Inequality Dynamics: The Role of Education Technology. *Economica*, 76(304), new series, 760-778. Retrieved from www.jstor.org/stable/40268897

Wallerstein, I. (1976). *The Modern World-System: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century*. New York: Academic Press.

World Economic Forum. (2014). *The Global Gender Gap Report*

World Bank. (2016). *Defining Welfare Measures*. <http://go.worldbank.org/W3HL5GD710>

Xie, Y., & Zhou, X. (2014). Income inequality in today's China. *Proceedings of the National Academy of Sciences of the United States of America*, 111(19), 6928-6933. Retrieved from <http://www.jstor.org/stable/23772700>