

## **Income Inequality and Household Saving in Kenya**

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### **ABSTRACT**

*Household saving in a country is a critical source of funding to its investments especially in a developing economy like Kenya. Household saving emerges as an integral part towards national saving level in that country. Currently, Kenya's national saving stands at 12% of its Gross Domestic Product and over the past three decades, Kenya has shown a declining trend in gross domestic savings since it was at 23% of Gross Domestic Product in the early 1990s and dropped to 12% in the early 2020s. This declining saving rate could be explained by the country's level of income inequality which also has detrimental effects on economic growth as well as the poverty reducing effects of a growing economy. Kenya has been having a declining rate of income inequality portrayed by the declining Gini indices. This study proposed to investigate the effects of income inequality on household saving rate in Kenya. This study used cross-sectional financial data collected from Fin Access Household Survey of 2021. Data analysis involved descriptive statistics, diagnostic tests, and probit regression analysis. The study findings were that income inequality had a negative effect on the likelihood of a household to save. This study recommends the government to intervene in addressing the issue of high income inequality through tailor-made interventions like progressive taxation, minimum wage and labor policies, and equal access to quality education.*

**Keywords:** Gini index, household saving, inequality,

### **1. Introduction**

#### **Background**

The issue of inequality is important for ethical as well as practical reasons. On the ethical front, it entails how social, economic, and political advantages are distributed in a state reflects the fairness in the institutions of that society regarding those who live in it. On the instrumental side, a growing amount of evidence demonstrates that inequality has a detrimental influence on

poverty alleviation, economic progress, and a country's stability. For instance, economic progress in unequal societies does not eradicate poverty as rapidly as it does in more equal countries (World Bank, 2006). The 2030 Agenda for Sustainable Development rallying cry has been to “leave no one behind.”

One of the key economic aspects that emerges vulnerable to income inequality is saving and, in this case, household saving. The difference between a household’s consumption and disposable income adding the adjustments for the variations of pension entitlements is known as household saving. Household saving is fundamental to capital investment in education, technology, infrastructure, among others, since it emerges as the primary domestic source of funds. When an economy has high levels of domestic savings, the country manages to finance a more substantial portion of its overall debt internally and will be able to cushion itself from adverse external shocks (Arnone & Presbitero, 2007).

Household saving rates increases with permanent income. The saving rates of the poor households decline when there is a big gap with the level of income of the reference group. This means that if there is a big difference in income between the wealthy and those with low income, there will be a decreased saving rates among the poor. In addition, an increase in income inequality has the same inequality effects in saving rates (Alvarez-Cuadrado & Vilalta,2018).

Blinder (1975) used United States time-series data and found that high income inequality raises aggregate consumption which in turn lowers saving. Other studies like one conducted by Hong (1995) found that there was a positive effect of income inequality on gross domestic saving after examining income share of the top quantile of a sample of developing and industrial countries. There have been others studies conducted on to determine how income distribution affects savings but give no consistent relationship probably due to the measure of aggregate saving used. Hong (1995) finds that income inequality increases saving after examining the income share of the top quantile on GNS in a sample of developing countries.

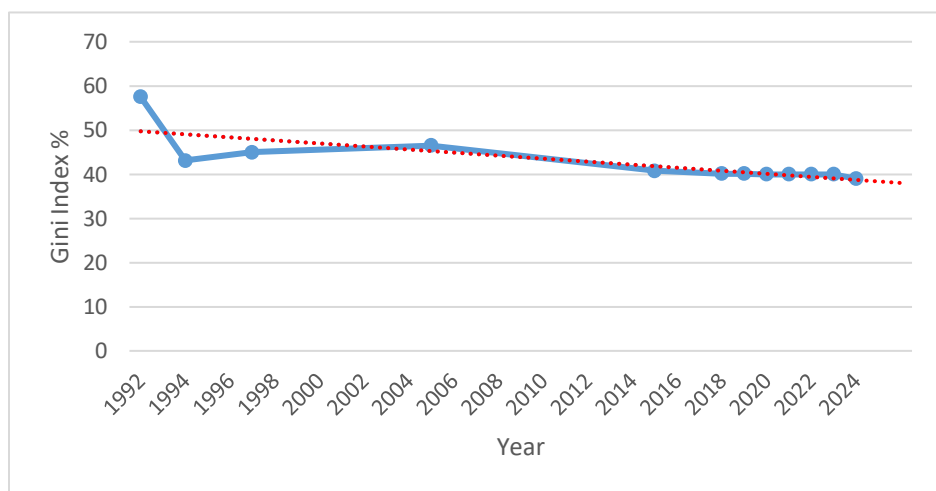
### **Income Inequality in Kenya**

Statistics have shown that currently in Kenya, income skewness is in favor of the rich and against the poor because the bottom 10% households’ control less than 1% of the income while the top 10% control more than 42% of the income (Manyeki&Kotosz, 2020). The Gini index is considered as a reliable means of measuring income inequality and when the Gini coefficient is one it represents a perfectly unequal society and when at zero, a perfectly equal society.

As shown in figure 1.1, as of 2015, Kenya’s Gini index was at 40.8%; it is currently estimated to be at 40% in 2023 and projected to drop to drop further to 39% by 2024 through 2028 (Word Bank, 2023). The available income inequality data in Kenya since 1992 shows a declining trend

of the Gini index. This trend has also been reinforced by a forecast which has also shown a further but slow decline in the Gini index. This study chooses to focus on income inequality since income acts as a proxy for the welfare of an economy as well as command over resources (Cowell, 2007). Income inequality will therefore, be defined as how the distribution of economic welfare differs from equal distribution of the same in a country or region where a section of the inhabitants has a larger share of income compared to the rest of that population (SID, 2004).

**Figure 1. 1: Trend in Kenya’s Gini Index**



Data source: World Bank’s Poverty and Inequality Platform data

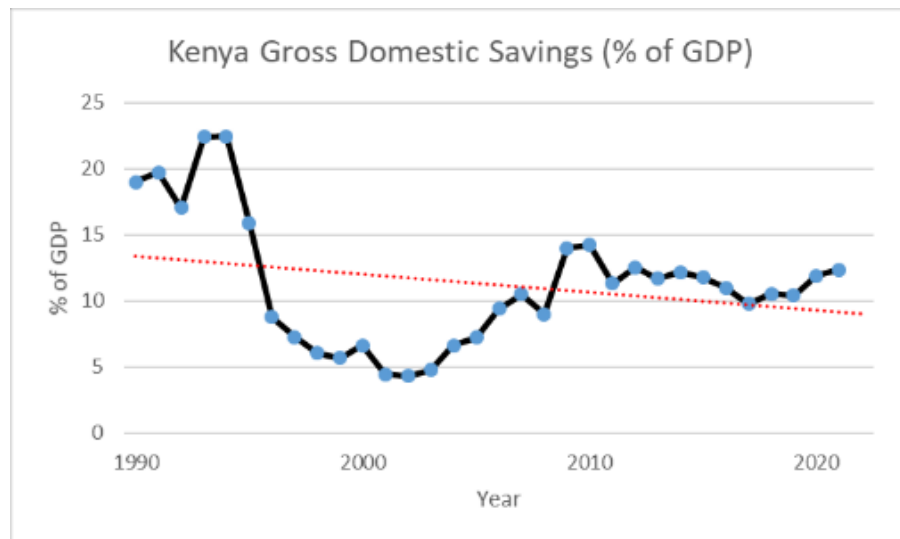
Income inequality levels in Kenya are among the highest in the world. This can be explained by the fact that Kenya is a developing country, which means that it has not yet achieved economic growth to the extent that it could reduce income inequality. Income inequality among households is a socio-economic factor that seems to affect the willingness of households to save. According to Morron (2007), greater income inequalities can be detrimental to growth.

### **Household Saving in Kenya**

There are different forms of household savings, and they include; accumulation of savings by investing in durable goods, securities investments, depositing money in the bank, and putting one’s money in a money belt, or a sock. According to Mwega (1990), for Kenya to maintain higher levels of domestic savings, the business sector and household should have a role to play, and household saving has a significant share of the National Savings. Also, rural households have a higher potential to save compared to their counterparts in urban areas. However, the increase in household saving is highly affected by various factors ranging from social, economic,

to demographic factors. Various factors can be attributed to the GNS as a percentage of GDP oscillating between a declining trend and a constant trend as shown in figure 1.2.

**Figure 1. 2: Kenya Gross Domestic Savings (% of GDP)**



Data Source: World Bank national accounts data.

There has been a general decline in the gross domestic saving trend in Kenya for the last 30 years as shown in figure 1.2. The fluctuation of the Country’s saving rate appears to be affected by political instabilities because those drastic drops in the rates appears to happen during an election or post-election period. For instance, those drops in saving rates can be seen in 2002, 2008, 2013 and 2017. Another key factor that could have contributed to these fluctuations is the change of income in households which is likely due to an increase in unemployment and high food prices (Musamali, Mutia & Ngugi, 2022). According to COVID-19 impacts and short-term economic recovery in Kenya, by KIPPRA (2020), the saving investment gap has been wide with its figures ranging from 7.1% to 12.1% of the GDP between the years 2012 to 2017, but in 2018 this gap declined to 10.2%.

These levels are evidence enough that the GNS cannot adequately finance the needed level of investment and hence the currently level of GNS needs to be doubled to be above 25% of the GDP in order to finance the required investment levels in Kenya. Therefore, the economy is likely to rely on its domestic resources to finance its planned investments because the ease of inflow of foreign savings in the country is no longer feasible (Ngugi, 1991).

Kenya is a country that has always been on the forefront of social change. These transformations have led to an explosion in household saving and wealth accumulation and they include the increased reliance on formal financial institutions as opposed to informal ones during this period.

There has also been an increase in female participation in the labor force which resulted to increased income being earned by women. Women have also shifted towards higher-earning occupations, which meant they had more disposable income available for saving (Mwangi, 2020). Some of the measures by the government to increase household incomes are like minimum wage laws, investment in education, income support programs, and social welfare programs (Odhiambo, 2019).

### **Problem Statement**

Income inequality among households is a socio-economic factor that would affect the willingness of a household to save. As Morron (2007) states, greater income inequalities are detrimental to growth rates of an economy. Therefore, it is expected that increase in income inequality would result to a decrease in the saving rates of a country, thus giving an inverse relationship. In the Kenyan setting, it has been evident that the country has been experiencing a declining rate of income inequality, which is expected to result to a positive change in the savings rate as concluded by Alvarez-Cuadrado & Vilalta (2018). In contrary, this has not been the case because despite the declining trend of income inequality, saving rates have also been taking a downward trend. Therefore, this called for an investigation to determine this discrepancy in these two variables. The downward trend of the national saving is detrimental to the country which has limited abilities to service its external debts since its gross savings is low at 11.8 percent of GDP, thus making its prospects for an increase in foreign capital inflows difficult (World Bank, 2023).

Mbuthia (2011) concluded that high level of income increased household saving in Kenya. Kimaiyo (2021) found that the financial literacy level in a household had a positive income on household savings. In addition, various studies have been carried out in Kenya regarding the relationship between distribution of income and economic growth, but only a few have been done to examine the impact of income distribution on household savings. Lack of such empirical evidence is unfortunate because savings and investment are vital in driving economic growth. Therefore, a detailed examination of impact of income inequality on savings should proceed before any systematic study on the effect of income inequality on economic growth. Therefore, this study intended to fill this missing gap.

## **2. DATA ANALYSIS**

### **Descriptive Statistics**

Descriptive statistics is a measure used to summarize important features of a dataset and it includes the number of observations, means, standard deviations, minimum and maximum. The Table 4.1 presents the summary statistics of the social demographic features in the study.

**Table 1. 1 Summary Statistics**

<b>Variable</b>	<b>Observation</b>	<b>Mean</b>	<b>Std. Dev</b>	<b>Min</b>	<b>Max</b>
Household Size	22,042	4.178179	2.407935	1	23
Location	22,042	.3433899	.474851	0	1
Education Level	22,042	2.423502	2.009991	0	8
Gender	22,042	.4240207	.4942047	0	1
Bank Account use	22,042	.1487205	.3558208	0	1
Mobile Banking	22,042	.1780212	.3825393	0	1
Saving Habit	22,042	.7140325	.4518842	0	1
Occupation	22,042	3.177224	1.462783	1	5
Income	22,042	7833.841	11203.75	500.5	100000
Gini	22,042	.0008528	.0106033	.0000752	.7700249
Age	22,042	38.89816	17.20345	16	116

*Source: Constructed from study data*

The descriptive statistics show that the mean income earned by the household is Kes.7833.84, the average education level is primary school education, the mean age is 38 years, and the mean number of household members is 4 people.

**Table 1.2 distribution of gender to location**

<b>Gender</b>	<b>Location</b>		<b>Total</b>
	<b>Rural</b>	<b>Urban</b>	
Female	37.9%	19.7%	57.6%
Male	27.8%	14.6%	42.4%
<b>Total</b>	<b>56.5%</b>	<b>34.4%</b>	<b>100</b>

*Source: Constructed from study data*

Majority of the households were female respondents as they took 57.6% of the total respondents. In addition, majority of the respondents, 56.5% resided in the rural areas while 34.4% were dwelling in the urban areas. Out of the female respondents in this study, almost half of them dwelled in rural areas as compared to those who lived in urban areas.

Table 1.3 presents summary statistics of household saving habits according to their sizes.

**Table 1. 3 Saving habits of household by size**

Saving habit	Number of Household members (grouped)				
	1-4	5-9	10-15	Above 15	Total
Not Saving	3,312 52.63%	2742 43.57%	231 3.67%	8 0.13%	6,293 100.00%
Saving	9,581 60.97%	5,799 36.91%	318 2.02%	15 0.10%	15,713 100.00%
Total	12,893 58.59%	8,541 38.81%	549 2.49%	23 0.10%	22,006 100.00%

Source: Constructed from study data

From table 1.3, approximately 60.97% of the respondents who were keeping money aside were in the category of 1-4 people in terms of number of household members. This percentage is evidently decreasing 36.91% as the number of household members increases to between 5-9, and further decrease to 2.02% as the size surpasses 10 members.

**Correlation Analysis**

Pairwise correlation matrix was incorporated to test how strongly the independent variables correlate as a way of determining the presence of multicollinearity. Table 4.4 presents the pairwise correlation matrix of the independent variables.

**Table 1. 4 Pairwise correlation matrix of the independent variables**

Variables	Ineq	Ocu	Educ	Loc	HHSize	Age	Income	Bank Ac	MBank	Gend
Inequality	1.0000									
Occupation	0.2491	1.0000								
Education	0.3454	0.1424	1.000							
Location	0.2269	0.1100	0.2844	1.0000						
HH Size	-0.0673	-0.0559	-0.1358	-0.1706	1.0000					
Age	0.0276	0.0878	-0.2770	-0.1607	-0.0857	1.0000				
Income	0.7134	0.3184	0.3298	0.3085	-0.0993	0.0138	1.0000			
Bank a/c	0.2620	0.1735	0.3146	0.1208	-0.0800	0.0655	0.2790	1.0000		
M-banking	0.1883	0.1989	0.3284	0.1777	-0.0784	-0.0784	0.2391	0.2860	1.0000	
gender	0.1466	0.0662	0.1065	0.0004	0.0018	-0.0052	0.2045	0.0873	0.0667	1.0000

Source: Constructed from study data

Multicollinearity is said to be present if the correlation between the control variables is greater than |0.8|. Income tends to have a moderately strong correlation with inequality (0.7134) and Education (0.3298) which indicates that higher income levels tend to be associated with higher

inequality and education levels. Therefore, the observations displayed in Table 4.4 show that all pairwise correlation are below 0.8 indicating that the problem of multicollinearity is absent.

**Regression analysis**

To determine the effect of income inequality on household saving, analysis was undertaken using probit regression. A probit regression aims to understand how changes in the predictor variables influence the likelihood of attaining a particular outcome. The marginal effects and estimates of the regression have been presented in the Table 4.5.

**Table 1. 5 Probit regression**

<b>Variable</b>	<b>Probit Coef.</b>	<b>Std Error</b>	<b>P Value</b>	<b>Marginal Effects</b>	<b>P Value</b>
Inequality	-4.230**	1.724	0.014	-1.071**	0.014
Age					
25-34 yrs	.151***	.038	0.00	.114***	0.000
35-44 yrs	.223***	.044	0.00	.147***	0.000
45-60 yrs	.338***	.047	0.00	.171***	0.000
> 60 Years	.302**	.060	0.00	.126**	0.035
Location					
Other Urban	-.166***	.024	.000	-.046***	0.000
Nairobi	0.035	0.061	.716	.023	0.719
Education					
Some Primary	.226***	.000	0.000	.112***	0.000
Primary Complete	.226**	.000	0.448	.179**	0.045
Some secondary	.029***	-.448	0.000	.122***	0.000
Secondary Complete	.290***	.000	0.000	.203***	0.000
Some Tech Training	.353***	.000	0.000	.203***	0.000
Tech Training Complete	.315***	.000	0.000	.202***	0.000
Some University	.549***	.000	0.000	.250***	0.000
University Complete	.273***	.002	0.002	.199***	0.001
Gender					
Male	-.185***	.021	0.000	-.049***	0.00
Occupation					
Casual	.230***	.038	0.000	-.006**	0.001
Agriculture	.457***	.045	0.000	-.076**	0.000
Employed	.407***	.059	0.000	.065**	0.000
Own Business	.653***	.053	0.000	-.152**	0.000
Income					
1001-3,000	.193***	.042	0.000	.061**	0.000



3,001-5,000	.238***	.046	0.000	.064**	0.000
5,001-10,000	.434***	.046	0.000	.104**	0.000
10,001-20,000	.413***	.058	0.000	.092**	0.000
20,001-50,000	.452***	.082	0.000	.076**	0.001
50,001-100000	.576**	.176	0.001	.132**	0.010
> 100,000	.833**	.483	0.084	.203**	0.010
Mobile banking					
Currently use	.732***	.035	.000	.160**	.000
Bank Account					
Currently use	.404***	.037	0.00	.104**	.000
Household Size					
5-9	-.056***	.084	.048	-.016**	.000
10-15	-.295***	.385	.000	-.062**	.000
> 15	-.233	.233	.546	.007	.549
Constant	-.043	.054	0.00		

Number of obs = 19,585

Log likelihood = -10324.23

LR chi2(9) = 2320.23

Prob > chi2 = 0.0000

\*\*\* $P < .01$ , \*\* $P < .05$

Source: Constructed from study data

Income inequality was found to have a statistically negative influence on the individual household saving behavior. The results demonstrated that as the Gini coefficient increase it negatively affected the probability to save by 1.07%. These findings were not different from those of Blinder (1975); Bunting (1991); Mbutia (2011); and Albayrak (2020). This study's findings however differed with those of Menchik and David (1983); Della Valle and Oguchi (1976); Lim (1980); and Venieries and Gupta (1986), who found a positive relationship between income inequality and aggregate savings.

Regarding the household location, there exists a significant negative effect of location on household saving habit. A household located in the urban area versus in the rural area reduces the probability to save by 16.6%. These findings were similar to those from Timbula, Mengesha, Mekonnen, & Kebede (2019) and Kimaiyo (2021) who attributed it to the higher cost of living in the urban setting.

This study demonstrated that there is a marginal effect of age towards the tendency to save, for each unit increase in age it results to a significant positive change in the habit to save. the results of this study show a non-linear association between age and the likelihood to save which is a confirmation of the life-cycle income hypothesis which was also similar to that of Mbutia

(2011) and Kimaiyo (2021) who found that an increase in age of the household head by one year increased the probability to save but this positive effect declines as one gets to the age of retirement.

As anticipated, being of the female gender negatively affects a household saving habit. The results elaborate that, those households that are headed by females have a lower likelihood to save as compared to those headed by males. The study shows that being male reduces the probability to save by 4.9%. These findings are consistent with those by Kimaiyo (2021) who a negative relationship between being male and the probability to save.

The results have also demonstrated that having a higher occupational status is associated to a higher probability of a saving habit and this was consistent with Kimaiyo (2021). The study results show that being in the occupation rank of a casual in comparison with being a dependent, increases the z-score by 0.23. The marginal effect also shows that being a casual worker or working in agriculture has a negative marginal effect on the household probability to save. This phenomenon can be attributed to the income stability factor associated with higher levels of occupations.

The study further finds that individuals higher in the income groups have a higher tendency to save than those in the lower income groups. The findings were that, being in the income group of those earning above Ksh.100,000 increases the probability of one saving habit by 20.3%, those earning Ksh. 50,001-100,000 increases their probability to save by 13.2% and this trend continues to those earning Ksh. 1,000-3,000 which increases their probability to save by 6.1%. This phenomenon confirms the results found by Wafula (2013) who found that those lower in the income group have lower tendencies to save. This behavior can be attributed to the greater disposable income with the households receiving higher incomes since they have more capacity to allocate funds towards savings after meeting their basic needs and expense.

Resonating with Mbuthia (2011) and Kimaiyo (2021), this study also showed that having a bank account and the use of mobile banking both contribute positively to the likelihood of household saving habit. Having a bank account compared to having none has a marginal effect of 11.8% increase in the likelihood of a household to save. Regarding the use of mobile banking services, households that currently use mobile banking services as compared to not using the services, increases their probability to save by 21.8%. This saving behavior can be attributed to convenience and accessibility opportunity that comes with using mobile banking services.

The effect of education is significant and positive and. Having attended primary school level of education versus being with no education leads to a 17.9% increase in the probability to save. Those who have completed university education in comparison to those with no education

increases their probability to save by 20.3% and a further increase of 25% in probability to save for those who have some university education compared to those with no education. These results are consistent with Wafula (2013), Samantary and Patra (2014) and Njenga (2018). One of the reasons as to why increase in the education level results to an increase in the saving habit, can be due to the fact that individuals with higher education levels are closely linked to better jobs that pay them high income which might provide them with a conducive environment to save.

The household size variable has a negative effect on respondent's saving habit. The study was consistent with those of Baidoo, Boateng &Amponsa (2018), Kimaiyo (2021) when it demonstrated that as household size has 5-9 members in comparison with the base, their probability to save decreases by 2.25% and a further reduction to 2.96% when the size increases to 10-15 members versus the base of 1-4 members. Larger households tend to encounter higher dependency ratios which necessitates the careful prioritization and allocation of funds to meet each and everyone's needs hence discouraging saving habits.

### **Post Diagnostic Tests**

From probit regression Table 1.5, the model fits the data well because it gave a low loglikelihood of -10324.23. The model also had a high likelihood ratio chi-square statistic of 2320.23 and this showed that the model fits the data. A high positive loglikelihood ratio shows strong evidence of one hypothesis over the other while a low likelihood ratio which is closer to zero shows weak or ambiguity in differentiating the hypotheses. The model's goodness-of-fit was also tested using Hosmer-Lemeshow Test. The regression's prob>chi2 which is the p-value associated with the likelihood ratio chi-square statistic was 0.0000 and this demonstrated that the model as a whole was statistically significant.

### ***Hosmer-Lemeshow Test***

This is post-estimation test is common for testing the goodness of fit for probit regression models.

Ho: Goodness-of-fit

**Table 1.6 Hosmer-Lemeshow Test for goodness-of-fit**

	<b>Chi2 (8)</b>
<b>Chi2</b>	22.13
<b>Prob&gt;chi2</b>	0.057

*Source: Computed from study data*

The output from this test suggests that the probit model for estimating the saving habits has no issues with goodness-of-fit, as indicated by the significant p-value from the Hosmer-Lemeshow test. Since the p-value is 0.057 which is above the chosen significance level of 0.05, we fail to reject the null hypothesis. Therefore, this implies that the model fits the data adequately.

***Shapiro-Wilk Test***

The Shapiro-Wilk test was conducted to determine whether the given variables followed a normal distribution.

**Table 1. 7 Shapiro-Wilk test for normality**

Variable	w	V	Z	Prob>z
Residuals	0.97903	183.887	14.002	0.08401

*Source: Computed from study data*

This test was used to check the assumption of normality of residuals. The p-value is 0.084 which is greater than 0.05. Therefore, you fail to reject the null hypothesis show that the residuals are normally distributed.

**SUMMARY, CONCLUSIONS AND POLICY RECOMMENDATIONS**

**Summary Findings**

This study aimed at investigating how income inequality affected household savings with the inclusion of other key control variables. The data revealed that majority of the households are in the lower income category while a small percentage of the households are in the topmost income group. The study found that individuals in the higher income category are more likely to save than those in the lower income groups. Individuals with bank accounts and with higher education levels have a higher likelihood to save and households with a high number of members tended to have a lower probability of saving than those with few members. Households headed by male genders and hold higher occupations status like owning businesses and being employed have a higher likelihood of having a saving habit than those of the lower occupational status like casuals and agriculture. Interestingly, households located in the rural areas tended to have a higher saving habit than those located in the urban.

The conclusion for this study’s comprehensive empirical search of income inequality influence on household saving, controlling for other saving determinants. The study finds significant evidence that income inequality has a systematic impact on household saving. The study finds that income inequality has a significant negative effect on household saving.

## **Conclusion**

In the estimation of the relationship between income inequality and household savings, the examination found that there exists a negative relationship that is statistically significant. These finding highlights that, as there tends to be higher inequalities among households, this negatively affects their ability to save or keep money aside. The findings also revealed that household incomes, level of education, occupation of the household head, size of the household, the use of mobile money, ownership of a bank account were significant in influencing the household saving habit.

## **Policy Recommendation**

The findings of this study have valuable policy implications. One of the key findings highlights the need to keep income inequality low so that household can increase their saving habits. One of the important interventions should be directed towards addressing education disparities that lead to high income inequality. This measure can be achieved through affordable higher education and equal access to quality education regardless of socioeconomic status and gender. The other intervention should be directed towards progressive taxation which exposes the Kenyan tax system to being not progressive enough. The government should consider increasing taxes on households in the higher income brackets so that these taxes can be used in welfare programs as a way of redistributing resources. Another policy recommendation that would help in reducing income inequality is through minimum wage and labor policies. Since majority of Kenyan household's source of income comes from casual labor, the government should consider adjusting the minimum wage laws so that they can enhance labor protection and advocate for fair employment practices. Additionally, the government should encourage household to engage in saving habits and to use formal financial institutions for saving. This intervention can be achieved through financial literacy programs which should be taken to people mostly those in the lower income categories.

## **Areas of Further Research**

This research undertook an analysis income inequality and its effects of household savings in Kenya. Further analysis of the effect of income inequality on household savings at county level will help outline the precise effects at county level and be able to compare these effects among counties, thus bringing a clearer picture of individual counties perform in terms of savings and how they are affected by their county level income inequality. These studies will help policymakers have more specific areas to implement their interventions like resource distribution. Moreover, this study used cross-sectional data which captures a situation at one

point in time. Therefore, further studies should also consider using time series data so that they can observe how income inequality has been affecting household savings over time.

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