Determinants of Income Inequality in East Africa: The Role of Gendered Foreign Aid

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

This manuscript investigates the impact of gender-focused foreign aid on income inequality in East Africa, a topic with limited existing research. This research adds value by providing practical recommendations for policymakers to enhance the effectiveness of aid programs in fostering economic equity through targeted interventions. Using the Generalized Method of Moments (GMM) on panel data from three East African countries for over a decade provides robust evidence that gender-sensitive aid can significantly reduce income inequality. Our findings indicate that gendered aid, education and government expenditure were the driving force towards lower income inequality. Additionally, trade openness and inflation rates reduce income inequality in sampled countries, though insignificant. In contrast, the findings provide evidence that high economic growth tends to

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increase income inequality in East Africa and support evidence of positive channels. The major findings suggest that, in general, gendered aid does reduce income inequality. We observe that there is a need for more focused efforts and balanced aid to achieve equality goals. Increased focus and aid allocation on sectors like agriculture, digital economy, supply chains and transport can enhance women's access to opportunities and economic diversification, but a declining focus on health and education could undermine gains in their well-being.

1. INTRODUCTION

Many emerging countries, especially in East Africa, continue to experience income inequality. The distribution of wealth impacts general development, economic progress, and social cohesiveness [1]. This issue may be addressed, and the condition of people experiencing poverty may be improved while economic inequality is generally reduced via targeted foreign aid programs focusing on sectoral or gender parity [2]. East African development plans have significantly involved foreign aid, including infrastructure, health, education, and poverty reduction programs [3]. More needs to be understood about how successfully gender-specific programs may reduce economic inequality, even in cases where these countries have received substantial foreign assistance. This paper looks at how gender-focused foreign aid may impact income inequality while controlling for other relevant factors such as trade openness, inflation, education, and economic growth to decrease this gap. This study reliably analyzes the dynamic interactions between these variables using the generalized method of moments (GMM) estimation technique. Smith [4] points out that wealth disparity persists in several economic sectors. Because income inequality affects economic stability, poverty reduction, and social cohesion, sustainable development depends on it.

Addressing these issues via focused foreign aid programs on gender equality may help create more equitable wealth distribution in a significant proportion. East African development initiatives have been made feasible mainly because of foreign donations. Donor countries and international organizations have helped in infrastructure, healthcare, and education, among other sectors [5]. Still, more research needs to be done on how gender-focused foreign aid explicitly impacts economic inequality. This study focuses on the role of foreign aid programs meant to reduce income inequality by enhancing economic opportunities for impoverished people, particularly women. Historical legacies, international economic trends, and socioeconomic policies complicatedly influence income inequality in East Africa. A legacy of unequal land distribution, educational opportunities, and economic opportunities left over from colonization still affects income distribution today [6]. Furthermore, socioeconomic policies in these countries sometimes have made wealth inequality worse by not being able to address the needs of the impoverished [7]. Trade openness, inflation, education, and economic progress are among the factors that mainly influence income inequality outside of foreign aid. Education is crucial in income distribution as greater income levels and better economic prospects are often associated with higher educational attainment [8]. In contrast, inflation may lower purchasing power and disproportionately affect low-income people, increasing economic inequality [9]. Finally, even in cases where economic growth is necessary to reduce poverty unless it is inclusive and beneficial to all population segments, it does not necessarily lead to decreased income inequality [10].

Many countries in East Africa have put socioeconomic policies into place that are supposed to support economic expansion and development. Still, these steps have only sometimes been sufficient to meet the needs of women and other vulnerable groups [7]. Thus, income inequality persists, and the benefits of economic growth are often distributed unfairly. Foreign aid may be very beneficial in tackling these problems when correctly selected. Women may be empowered, and gender inequities in economic opportunities can be closed with especially gender-focused foreign aid. Such support might be used to further initiatives to improve women's access to economic resources, healthcare, and education, thereby promoting

more general measures to reduce income inequality [7]. One way to continue primarily to fight income inequality is via education. More significant income and better economic prospects are strongly associated with higher educational levels [11]. Foreign aid may increase women's and girls' access to education, helping to share wealth more fairly. Moreover, educational programs for skill development and vocational training might give individuals the tools they need to participate more fully in the economy.

Programs of foreign aid that prioritize inclusive growth might help East Africa create a fairer economic environment. This study makes a comprehensive analysis of these dynamic interactions possible via the GMM estimating method. Particularly suitable for this research is GMM since it manages any endogeneity issues and provides more precise estimates of the impact of gendered aid and other factors on income inequality [12]. By taking this tack, the study can provide insightful information on how effectively gender-focused foreign aid may contribute to reducing income inequality in East Africa.

We set out to investigate this complex relationship between economic inequality, gender equality, and foreign aid in the hopes of better understanding it. While significant studies have been done on how foreign aid impacts economic development, more needs to be done expressly on gender-focused aid intended to reduce inequality [13]. To try to bridge this gap, this study examines how foreign aid helps East African projects that advance gender equality and reduce income inequality. Previous research has shown the significance of addressing income inequality to promote economic development. For instance, Ochi et al. [14] highlight that although economic growth benefits the underprivileged, how these benefits are shared still needs to be discovered. However, there needs to be more accurate data on the possible effects of gender-focused foreign aid on income distribution. This paper aims to bridge this gap by providing a comprehensive analysis of the impacts of gender-focused foreign aid on income disparities by looking at other relevant factors, including education, inflation, trade openness, and economic growth. This study uses the GMM estimation method to ensure a robust analysis that takes endogeneity and dynamic interactions among the variables. This work makes three contributions. It starts by providing accurate statistics on the impact of gender-focused foreign aid on income inequality in East Africa, a region receiving a lot of funding and attention from worldwide. Second, it underlines the need to consider economic inequality when distributing foreign aid and creating policies. Thirdly, it offers policy recommendations on effective planning and execution of aid programs to reduce wealth inequality for governments of donors and beneficiaries. This study intends to contribute to the more general discussion on development economics and income inequality by addressing these issues. This comprehensive research on gender-focused foreign assistance and its impact on income disparity in East Africa aims to give perceptive information that may direct aid programs and policy decisions intended to support more equitable economic development in the area. The findings should greatly influence the aid programs and policies to help East Africa pursue a more equal and sustainable development route.

2. LITERATURE REVIEW

According to Human capital theory [15], investing in people's health, education, and training raises their economic value and output. The theory is that while better health makes individuals more competent and effective participants in the economy, education, and training increase a person's earning potential and productivity. One of the methods these human capital investments support economic growth and development is the enhancement of female labour force participation [16]. Human capital theory is very helpful to this study as it highlights the importance of using foreign aid to finance gender-specific education and training programs. Women in East Africa may become more economically involved, which increases their income and productivity, with the help of foreign aid intended to enhance their health and education. These programs, which place a strong focus on gender equality, could help to reduce income inequality by giving women more excellent economic opportunities and a more significant financial contribution.

Another useful concept is the dependency notion theory, developed by Hays [17]. It argues that economic disparity is maintained as developing countries depend on industrialized countries. The idea is that since industrialized countries control the economies and resources of developing countries, there is an unequal trade wherein poor countries buy expensive finished goods and

provide raw materials at low prices. It further suggests that rising countries cannot achieve long-term economic development and reduce inequality because of structural constraints. Dependency theory is pertinent to our topic since it stresses the need to focus on foreign aid to empower impoverished people and reduce dependence. Foreign aid geared at women may invest in their health, education, and economic opportunities, breaking East Africa's dependency cycle. These support programs may encourage inclusive growth and self-sufficiency by enabling women and reducing economic inequality.

According to Arat [18] Modernization theory, social and economic progress results from modernization processes, including industrialization, education, and technological improvement. The notion is that countries move through stages of development from traditional to contemporary cultures and that technology and education are necessary for this transition. Economic growth is thought to raise living conditions and accelerate social progress. The significance of modernization theory in this study is that it highlights technology and education's role in economic progress. With foreign aid to promote gender equality via education and skill development, East Africa may modernize more swiftly. These aid programs may increase the economy overall and reduce income disparity by enhancing women's potential.

The income inequality in developing nations is greatly affected by the aid these countries get. It needs to be clarified from empirical research what impact foreign aid has on income distribution. Concurrently, empirical studies indicate a positive relationship between foreign aid and income inequality [19,20,21]. Gender-specific foreign aid is necessary to address gender inequality in the receiving nations. Research indicates that irrespective of initial conditions, aid delivery to sectors like health and education may effectively reduce gender disparities in early literacy and maternal mortality [22]. Donors consider differences in gender in health and education when distributing assistance; research shows that higher aid flows are associated with more female political representation [23]. Research shows that support for gender equality would increase when aid programs that include gender norms, like those from the World Bank, enhance local views, especially in gender-sensitive sectors [23]. Even when aimed at improving gender outcomes,

foreign aid alone might not address structural gender inequities; more attempts to challenge institutional structures and norms might be required [24]. Moreover, a significant disparity between self-reported funding for gender equality and the actual execution of high-quality gender equality projects casts doubt on the effectiveness of donor funding for gender equality, highlighting the need for improved project design and evaluation processes to address gender inequality effectively.

3. METHODOLOGY

3.1 Data and Model Specification

The causal research design was used to investigate the extent and nature of the cause-and-effect relationship between gendered aid and income inequalities in East Africa using secondary data spanning from 2009 and 2022. The three countries chosen are Uganda, Kenya and Tanzania, the choice is informed by the availability of data. The selected countries are classified as lower-middle income and the countries are categorized as developing countries characterized by high poverty incidence and income inequality dynamics and interactions [25]. East African countries have also set the baseline data for most of the sustainable development goals (SDGs) indicators to be between 2009 and 2014, depending on the frequency of data collection. However, because of the immediate availability of the data, this study design used data from 2009. This study adopted the Levin-Lin-Chu (LLC) technique to check for stationarity, the alternative to the ADF test. LLC allows for individual-specific intercepts and time trends [26]. The LLC unit root test is specified as shown in Equation 1.

$$\Delta Z_{i,t} = \alpha_i + \beta_i Z_{t-1} + \sum_{j=1}^{k} \gamma_{i,j} \, \Delta Z_{t-j} + \varepsilon_{i,t} \qquad (1)$$

Where Δ is the first difference operator, $Z_{i,t}$ is the dependent variable, $\varepsilon_{i,t}$ is the stochastic term, subscript t is the time and i is the country dimension.

In line with the empirical works of Saidon et al., Ndungi [27,28], and Ojeyinka and Ibukun [25], the study modified Calderon et al. [29] and Kim and Kim [30] model in estimating the impact of gendered aid on income inequality. The baseline model specification of this study can be presented by the following equation.

$$GINI_{i,t} = \alpha + \beta AID_{i,t} + \gamma X_{i,t} + \varepsilon_{i,t} \qquad (2)$$

The dependent variable is income inequality (GINI), measured by the Gini index or coefficient, the index lies between 0 and 1, with 1 representing perfect inequality and 0 perfect equality, as postulated by Saidon et al. [27] and Berisha and Meszaros [31]. This can sometimes be shown as a percentage from 0 to 100%, called the Gini index. The data on the Gini index was sourced from the World Bank and World Income Inequality Database (WIID). The independent variables included gendered aid (AID) measured by total foreign aid allocated to support gender programmes in East Africa. Disaggregated foreign aid is used to disentangle the individual effect of different categories of foreign aid on income inequality. Aid projects targeting gender equality and women's empowerment and is expected to reduce income inequality. The gender aid data was collected from the OECD Development Assistance Committee (DAC) and Credit Reporting System (CRS). Besides the key variables, some control variables (X) have been identified in the literature as major drivers of income inequality. Following Ndungi, Berisha and Meszaros [28,31] and Ojeyinka and Ibukun [25], this study identified inflation rate (INF), economic growth (GDP), education (EDU), trade openness (TRADE) and government expenditure (GOV) as control variables. Data for the set of control variables was sourced from the World Bank online database. All these variables are expected to be negatively related to income inequality except the inflation rate. Table 1 shows the sources of data and measures of study variables.

Accordingly, the regression model of the impact of gendered aid on income equality has the following equation.

$$GINI_{i,t} = \alpha + \delta_1 AID_{i,t} + \delta_2 GDP_{i,t} + \delta_3 EDU_{i,t} + \delta_4 TRADE_{i,t} + \delta_5 GOV_{i,t} + \delta_6 INF_{i,t} + \varepsilon_{i,t} \qquad (3)$$

3.2 Econometric Analysis

The study adopted the generalized method of moments (GMM) or dynamic panel data approach proposed by Blundell and Bond [32] and Arellano and Bond [12] to estimate the effect of gendered aid on income inequality through equation 3. The consistency of the GMM estimator depends on whether the lagged values of the independent variables are valid instruments in the model. Most empirical studies such as Saidon et al., Kim and Kim, Mose [27,30,33] and Ojeyinka and Ibukun [25] have all employed GMM to estimate the link between aid and income inequality. This technique allows us to control for endogeneity problems and reverse causality of independent variables, control for heteroscedasticity and eliminate time-invariant country-specific effects [27,34,25]. Time-invariant variables are eliminated from (1) since under our estimator the data is first differenced while we assume all variables are potentially endogenous. Levini-Lin-Chu test was carried out to confirm the stationarity of study variables [26]. To control for such a possibility, the study adopts the generalized method of moments (GMM) to ensure the reliability and consistency of the estimates. The dynamic model is chosen to account for self–reinforcing attributes of income inequality among developing countries. The GMM model was subjected to the residual

Table 1. Variable Measurements

Variables	Measure	Source	Expected signs
Income inequality (GINI)	Gini index (%)	World Bank	Not predicted [31]
Gendered aid (AID)	Gender total aid, US dollars	OECD	Negative [27]
Education (EDU)	Primary school enrolment (% Gross)	World Bank	Negative [25]
Trade openness (TRADE)	Total trade (% GDP)	World Bank	Negative [28]
Government expenditure (GOV)	Government expenditure (% of GDP)	IMF	Negative [30]
Economic growth (GDP)	GDP per capita growth (%)	World Bank	Negative [31]
Inflation (INF)	Inflation, consumer prices (%)	World Bank	Positive [31]

Source: Authors' Compilation

diagnostic tests, namely the Hansen-J-test and normality test, to avoid misleading inferences. To test the validity of instruments, the study conducted Hansen-J- tests aimed at checking for the validity of the exclusion restrictions. The null hypothesis states that instruments are correctly excluded from the GMM model [35,36]. Jarque-Bera test will be applied to make sure whether the data fits the normal distribution or not. This study performed the Dumitrescu-Hurlin causality test to check for the association between independent and dependent variables. Dumitrescu and Hurlin [37] offer an extension of Granger [38] causality test designed to sense causality in panel data.

4. RESULTS AND DISCUSSION

Levin-Lin-Chu (LLC) panel unit root test was performed to investigate the time series properties of the study variables. Table 2 reveals the unit root test result using the LLC approach.

LLC unit root test has revealed that income inequality, gendered aid, government expenditure, trade openness, inflation, economic growth and education have a unit root. The seven variables are converted into stationary by differentiation. The study advanced to conduct estimation analysis using GMM-based unit root inferences. The study performed a GMM regression analysis to define the relationship between income inequality and independent variables. Table 3 presents the estimated results of the impact of gendered aid on income inequality in recipient countries.

The results indicate that gender-focused aid to the East African economies exhibits a negative and significant impact on income inequality at a one per cent significant level. This implies that

gender-sensitive aid has been effective in reducing income inequality. With a coefficient of -0.012545 and a very significant p-value of 0.0021, the findings show that foreign assistance programs, especially those aiming at gender equality, may efficiently lower income inequality [19,20,21]. This emphasizes the need to focus foreign assistance on projects with a gender concentration. Empowering women, increasing their economic involvement, and removing gender-specific obstacles will help provide fair economic opportunities and rewards. Aid support might be used to further initiatives to improve women's access to economic resources, healthcare, and education, thereby promoting more general measures to increase income equality [7]. The result agrees with the empirical findings of Saidon et al. [27] and Kim and Kim [30]. Saidon et al. [27] conducted a study in 75 countries and concluded that aid is an effective tool for mitigating income inequality in aid-recipient countries.

The result has shown that government expenditure has a negative impact on income inequality at a ten per cent significant level. This implies as government budget allocation and spending increase income inequality decline. Income disparity is also much influenced by government budgeting and allocation to gender programs. This result emphasizes fiscal measures' critical role in assisting lower-income groups and income redistribution. Using necessary services and assistance to underprivileged groups, as well as effective government expenditure, especially in social services, education, health, and welfare programs, can help to reduce economic inequalities [33]. The result is similar to Kim and Kim [30] findings that show expenditure can alleviate income inequality.

Table 2. Stationarity results

Variables	Level		First difference		Order
	Adjusted t	Prob.	Adjusted t	Prob.	
GINI	0.08680	0.5346	-25.9946***	0.0000	I(1)
AID	-0.11357	0.4548	-16.5496***	0.0000	I(1)
GOV	-0.23282	0.4080	-57.3115***	0.0000	I(1)
GDP	-0.62312	0.2666	-136.876***	0.0000	I(1)
EDU	-0.36307	0.3583	-45.4772***	0.0000	I(1)
INF	-0.79316	0.2138	-8.47495***	0.0000	I(1)
TRADE	-1.24388	0.1068	-11.6992***	0.0000	I(1)

*Note *** Signifies significance at a 1% level of significance*
Null Hypothesis: The variable has a unit root
Source: Authors' Calculation

Table 3. Results of the GMM estimation

Variable	Coefficient	Standard error	t-Statistics	p-Value
AID	-0.012545	0.003762	-3.334364***	0.0021
GOV	-0.304507	0.157559	-1.932658*	0.0619
GDP	0.003949	0.001818	2.172673**	0.0371
EDU	-0.373746	0.041778	-8.945930***	0.0000
TRADE	-0.173664	0.141425	-1.227956	0.2282
INF	0.039922	0.082392	0.484531	0.6312
	Durbin Watson test = 2.225936		Adjusted R2 = 0.746326	
	Hansen-J-statistic = 0.004212		Prob = 0.948252	
	Jarque Bera test = 4.129167		p-value = 0.126871	

*Note: *** p<0.01, ** p<0.05, * p<0.1 are significance levels, in which the null hypothesis is rejected.*
Dependent variable: GINI. Source: Authors' Calculation

The results indicate that education measured by school enrollment rate has a negative relationship with income inequality at a one per cent significant level. As years of schooling increase the prospect of getting employment increases and thus reduces income inequality [25]. This solid negative link emphasizes that education is essential to advancing economic equality [39]. Education is crucial in income distribution as greater income levels and better economic prospects are often associated with higher educational attainment [8]. Higher education gives people greater economic possibilities, earning potential, and social mobility, lowering general income inequalities. Fostering long-term fair economic growth depends on investments in knowledge. Funding for education should be given top priority by policymakers, especially in underprivileged and underdeveloped areas, to guarantee that everyone can get high-quality education. By raising educational results, nations may strengthen human capital, boost production, and support more equitable economic development. Human capital is critical in reducing income inequality, mainly through education and health interventions that improve productivity and economic potential. This study finds that foreign aid focused on education significantly reduces income inequality in East Africa by empowering women and increasing their economic participation, highlighting the critical role of human capital investments in achieving more equitable economic outcomes.

The results show that GDP per capital growth as a measure of economic growth aid worsens income inequality at a five per cent significant level. As GDP increases income inequality increases in these three countries. This result implies that although general development depends on economic expansion, its advantages

are not equally shared across many income levels [40]. If the benefits of fast economic development are limited to the more affluent sections of society, then more notable income inequalities might result. Finally, even in cases where economic growth is necessary to reduce poverty unless it is inclusive and beneficial to all population segments, it does not necessarily lead to decreased income inequality [10]. Findings support similar results by Berisha and Meszaros [31] and Kim and Kim [30], who argue that as income increases wealth inequality will increase. However, the finding contrasts the result by Saidon et al. [27], who noted economic growth mitigates income inequality.

The inflation rate has an insignificant effect on income inequality. If all prices increase by the same percentage, that is, if relative prices are constant, inflation has the same impact on all income classes and thus has no impact on income inequality [41]. However, most studies argue that inflation may lower purchasing power and disproportionately affect low-income people, increasing economic inequality [9]. The result contradicts other studies that reported significant results including Berisha and Meszaros [31] and Saidon et al. [27]. Furthermore, Berisha and Meszaros [31] argue that as inflation increases wealth inequality will increase, while Saidon et al. [27] indicate that as inflation surges inequality declines. In addition, Ndungi [28] stated the relationship is negative to income inequality in East Africa.

The result has indicated that trade openness was not significant in affecting income inequality at a 5 % significant level. These findings imply that changes in trade policies had no appreciable impact on income inequality within East Africa over the research period. Empirical studies suggest that for countries where the export and

Table 4. Results of the Dumitrescu Hurlin causality test

Null hypothesis	W-Statistics	Zbar-statistics	Probability
Gendered aid does not homogeneously cause income inequality	2.51036	-0.11729	0.9066
Income inequality does not homogeneously cause gendered aid	7.72796	1.99564**	0.0460

*Note: * p < 0.1, ** p < 0.05, *** p < 0.01 are significance levels, in which the null hypothesis is rejected. Null hypothesis: no causality. Source: Authors' Calculation*

home-goods sectors are labour-intensive, growth and equality can only be promoted by ensuring that policies that favour openness also favour profit sharing [28]. The finding agrees with Saidon et al. [27] and Ndungi [28] result who also indicated that trade openness is not able to explain income inequality dynamics in East Africa. Kim and Kim [30] show the relationship is negative in most developing countries via slower erosion in money purchasing power. Post-pandemic economic disruptions have heightened income inequality in East Africa, making social inclusion even more critical. Prioritizing inclusive policies that address the needs of marginalized groups, particularly women, to ensure a fair recovery and continued progress in reducing inequality.

Our findings show that the coefficient of determination, adjusted R-squared is 0.74, this indicates that 74 per cent of the variation in the dependent variable has been explained by explanatory variables, thus showing that data fits the model well. Furthermore, the Jarque Bera test confirms that all variables are normally distributed and thus can be used for analysis and forecasting.0.126 is greater than the 5% significance level so we cannot reject Ho but rather accept Ho and conclude that the residuals are normally distributed. Durbin Watson value of 2.22 has confirmed that the error term is free of autocorrelation. Implying serial correlation is not an issue. Hansen-J- test is conducted to check the validity of the instruments. Based on the result, the Hansen-J-test p-value is greater than 0.05 at a 5 per cent level of significance, which is 0.948. This means the regression model is not over-identified since we fail to reject the null hypothesis of no over-identification restriction. The test has confirmed that the instruments used have no over-identifying restrictions residuals are interdependent and the GMM approach can be used in regression analysis. The study continued to check the causality relationship between dependent and explanatory variables using the pairwise Dumtrescu-Hurlin panel causality test. Table 4 defines the association between dependent and independent variables.

Table 4 result presents the causality analysis estimates. The study has established one-way causality running from income inequality to gendered aid, while there is no causality running from gender aid to income inequality. The result indicates that an increase in income inequality will lead to an increase in gendered aid inflow. Aid is associated with higher inequality in more aid-recipient countries. Aid in alleviating income inequality can be amplified further, helping recipient countries achieve more inclusive and balanced growth. This also implies policies affecting income inequality will not have causal effect on gendered aid and vice versa.

5. CONCLUSION AND RECOMMENDA-TIONS

This study investigates whether gender-focused aid helps to alleviate poverty and equalize income distribution, based on the aid focused on the economic empowerment of women in recipient countries. The impact of gender-sensitive aid on income inequality has not been extensively investigated while existing empirical literature conclusions are divergent. For this purpose, we include gendered aid, government expenditure, economic growth, inflation rate, trade openness and education as determinants of income inequality. This study employs the generalized method of moments (GMM) technique for a panel set of three East African aid recipient countries for the period of 2009-2022. According to the empirical estimation, the results indicated that gendered aid exhibits a negative and significant impact on income inequality. Meaning that gendered aid is effective in reducing income inequality in aid-recipient countries. In addition, government expenditure and education attainment show a negative impact on income inequality. While economic growth indicated a positive and significant impact on income inequality. The study has established that gendered aid, government expenditure and education are enablers of economic equality in East Africa. In contrast, inflation rate and trade openness do not appear to exert any statistically significant effect on income inequality. These

results assist one in understanding how changes in macroeconomic factors may produce more equitable economic outcomes and provide a clear picture of the financial processes of gender financing in East Africa.

Regression analysis suggests that addressing gendered aid, education attainment, government spending, economic growth, inflation rate and trade openness could significantly affect economic inequality in East Africa. The implication yields the following recommendations. One of the key policy recommendations is more terrific gendered foreign aid. Following dependence theory, which emphasizes the need for foreign support to eliminate structural disparities and enhance development, the study shows that gendered foreign aid significantly reduces income inequality. Local governments and international sponsors should prioritize gender-oriented development projects and additional funding. These programs should empower women, increase their economic participation, and eliminate gender-specific barriers, fostering more inclusive economic growth. These underscore the need for focused efforts and balanced aid in order to achieve gender equality goals. Increased focus on sectors like transport, supply chains, digital economy, climate change, agriculture and rural development can enhance women's access to opportunities, but a declining focus on health and education, upskilling and re-skilling, could undermine gains in their well-being. Without stronger and more focused efforts, progress will stall, leaving gender disparities unresolved and hindering global development. Further, the government need to promote gender-responsive budgeting and develop a comprehensive aid information system to track all internationally funded initiatives. In addition, data is needed to map all areas of need to help donors allocate funding based on national priorities and funding gaps.

Still, another vital recommendation is to increase government social service expenditure through an increase in the government own allocation for equity. Modernizing theory holds that state-led initiatives reduce inequities and promote inclusive development. Higher government spending typically helps to reduce income inequality. East African nations should pay more attention to social services, education, health, and welfare projects. Public investment should be guaranteed to reach and assist the most deprived populations most effectively using clear and effective processes.

Human capital theory stresses how education might assist in reducing inequality and increasing economic opportunities. Studies show that increased education levels significantly reduce wealth differences. Governments should prioritize educational expenses, especially in undeveloped and impoverished regions. Policies should focus on increasing access to high-quality education, improving academic performance, and eliminating poverty, gender inequality, and geographical distances, all of which stand in the way of educational success. By raising human capital, output will increase, and more fair economic development will be advanced.

The paper also underlines the need to promote inclusive economic growth. According to modernity theory, inclusive development policies guarantee fair economic outcomes. Still, the facts reveal that growing income inequality is connected to economic growth. Policymakers should use inclusive development policies that guarantee equitable sharing of the benefits of economic growth. Policies, including inclusive economic policy, social security programs, and progressive taxation, are critical to ensure that development benefits all spheres of life, particularly the economically deprived. Funding education is also another fundamental policy idea. Our results demonstrate that gender-focused foreign aid significantly reduces income inequality in Kenya, Uganda, and Tanzania. The GMM analysis shows a negative and significant effect, with a coefficient of -0.012545 (p = 0.0021), confirming the effectiveness of targeted aid. Policymakers should prioritize gender-specific programs in education and healthcare to sustain these positive impacts on inequality.

Finally, the manuscript recommends adjusting trade and inflation measures under observation. Although dependence theory and modernization theory suggest that economic policies should be context-specific to fit local needs and dynamics, the actual data of this study indicates that trade openness and inflation were statistically immaterial in impacting income disparities. Still, one needs ongoing observation and context-specific adjustments. Policymakers should consider the more significant economic structure and local factors when designing trade and inflation strategies to ensure they assist in producing fair outcomes. In terms of the limitation of the study, future studies might expand the scope by including all countries in sub-Saharan

Africa. Future studies can also consider the analysis of the possibility of asymmetrical and symmetrical relationships between two main variables. Further, studies should look on the role of gendered aid on social inclusion and development to increase understanding on the influence of social inclusion in economic recovery will be essential for crafting effective aid programs in the future.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Khanum R, Jahan N, Mahadi A. Income Inequality of Tribal Households in Bangladesh: A Decomposition Analysis. Environmental Development. 2024; 100988–100988.
2. Thompson L, Ahmed S, Khokhar T. Defining Feminist Foreign Policy: A 2021 Update; 2021. Available:https://www.icrw.org/wp-content/uploads/2021/09/Defining-Feminist-Foreign-Policy-2021-Update.pdf
3. Carroll P, Kellow, A. The OECD: A Decade of Transformation: 2011–2021. In Google Books. Walter de Gruyter GmbH & Co KG; 2021. Available:https://books.google.com/books?hl=en&lr=&id=VwRGEAAAQBAJ&oi=fnd&pg=PR5&dq=OECD
4. Smith B. Fiscal Policy Effects on Income Inequality in the United States. American Journal of Economics. 2024;8(1): 1–12.
5. Javed MS, Nisar UG, Vidya SR, Warsi SH, Billah MM, Karkkulainen EA. Mapping the Disparities between Urban and Rural Areas in the Global Attainment of Sustainable Development Goals, Economic and Social Aspects of Global Rural-Urban Migration. Educational Administration: Theory and Practice. 2024; 30(6):2052–2064.
6. Dixit A. Somewhere in the middle you can survive: Review of the narrow corridor by Daron Acemoglu and James Robinson. Journal of Economic Literature. 2021; 59(4):1361–1375.
7. Manda DK, Mwabu GM, Oleche M, Muriithi MK. Understanding inequality and its evolution in Kenya: The contribution of the UNU-WIDER World Income Inequality Database initiative; 2023. Available:Www.econstor.eu; https://www.econstor.eu/handle/10419/283805
8. Patrinos HA, Psacharopoulos G, Tansel A. Private and Social Returns to Investment in Education: The Case of Turkey with Alternative Methods. Applied Economics. 2020;1–21.
9. Siami-Namini S, Hudson D. Inflation and Income Inequality in Developed and Developing Countries. Journal of Economic Studies. 2019;46(3).
10. Lechheb H, Ouakil H, Jouilil Y. Economic growth, poverty, and income inequality: Implications for lower- and middle-income countries in the era of globalization. The Journal of Private Equity. 2019;23(1):137–145.
11. Indrawati SM, Kuncoro A. improving competitiveness through vocational and higher education: Indonesia's vision for human capital development in 2019–2024. Bulletin of Indonesian Economic Studies. 2021;57(1):29–59.
12. Arellano M, Bond, S. Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. Rev. Econ. Stud. 1991;58(2):277–279.
13. Ravallion M. On the origins of the idea of ending poverty. National Bureau of Economic Research; 2020. Available:https://www.nber.org/papers/w27808
14. Ochi A, Saidi Y, Mohamed A. Nonlinear threshold effect of governance quality on poverty reduction in South Asia and SUB-SAHARAN Africa: A dynamic panel threshold specification. Journal of the Knowledge Economy; 2023. Available:https://doi.org/10.1007/s13132-023-01271-3
15. Becker G. Human Capita; 1964. Available:http://digamo.free.fr/becker1993.pdf

16. Naftaly M. Economic growth and female participation in the labour market: Gender Disaggregated Data. Business and Economic Research. 2024;14(2):93-110.

17. Hays DG. Dependency theory: A formalism and some observations. Language. 1964;40(4):511.

18. Arat ZF. Democracy and economic development: Modernization theory revisited. Comparative Politics. 1988;21(1):21–36.

19. Nosheen M, Maqbool S, Mubarak SH, Ali A. The impact of foreign aid on income inequality: evidence from developing countries. Application of the FMOLS Approach. NUST Journal of Social Sciences and Humanities. 2022;7(2):166–185.

20. Alao RO, Alola AA. The role of foreign aid and income inequality in poverty reduction: A sustainable development approach for Africa? Journal of Social and Economic Development. 2022;24(2):456–469.

21. Mouneer S, Khan R, Safdar N. Does corruption invade the effectiveness of foreign aid on income inequality in developing economies? Pakistan Journal of Humanities and Social Sciences. 2022;10(1):332–344.

22. Pickbourn L, Ndikumana L. The impact of the sectoral allocation of foreign aid on gender inequality. Journal of International Development. 2016;28(3): 396–411.

23. Gehring K, Dreher A, Klasen S. Gesture politics or real commitment? SSRN Electronic Journal; 2013. Available:https://doi.org/10.2139/ssrn.2371072

24. Bali Swain R, Garikipati S, Wallentin FY. Does foreign aid improve gender performance in recipient countries? Journal of International Development. 2020;32(7).

25. Ojeyinka TA, Ibukun CO. Do remittances mitigate poverty? Evidence from selected countries in Africa, Asia and Latin America. Economic Change and Restructuring. 2024;57(3):1-18.

26. Levin A, CF, Lin CF, Chu CJ. Unit Root Tests in Panel Data: Asymptotic and Finite-Sample Properties. Journal of Econometrics. 2002; 108:1-24.

27. Saidon R, Yusop Z, Ismail N, Hook L. Sectoral foreign aid and income inequality. International Journal of Economics and Finance. 2013;5(9):117-122.

28. Ndungi G. Effects of macroeconomic factors of income East Africa. A dissertation. KCA University; 2017.

29. Calderon C, Chong A, Gradstein M. Can foreign aid reduce income inequality and poverty? Public Choice. 2009; 140:59–84.

30. Kim, S., & Kim C. Foreign Aid and Income Inequality. Journal of International and Area Studies. 2022;29(1):61-78.

31. Berisha, E., & Meszaros, J. (2020). Macroeconomic determinants of wealth inequality dynamics. Economic Modelling, 89, 153-165.

32. Blundell R, Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel models. Journal of Econometrics. 2022;87(1):115–143.

33. Mose N. Government Expenditure and Economic Growth: Does Corruption and Democracy Matter? Asian Journal of Economics, Business and Accounting. 2024;24(5);581–593.

34. Ergün U, Göksu A. Applied econometrics: With E-views Applications. International Burch University, Sarajevo; 2013.

35. Hansen BE, West KD. Generalized method of moments and macroeconomics. Journal of Business and Economic Statistics. 2002;20 (4):460–469.

36. Roodman D. Practitioners' corner: A note on the theme of too many instruments. Oxford Bulletin of Economics and Statistics. 2009;71(1):135–158.

37. Dumitrescu E-I, Hurlin C. Testing for Granger non-causality in heterogeneous panels. Economic modelling. 2012;29(4): 1450-1460.

38. Granger J. Causality, cointegration, and control. Journal of Economic Dynamics and Control. 1988;12 (3):551-559.

39. Lu S. Correlation between Educational Inequality and Income Inequality. BCP Education & Psychology. 2022;7:400–403.

40. Dorofeev ML. Interrelations between income inequality and sustainable economic growth: Contradictions of empirical research and new results. Economies. 2022;10(2):44.

41. Makori E, Matundura E, Mose N. Effect of fiscal and monetary policy on gross domestic savings in Kenya. Journal of Economics and Sustainable Development. 2022;13(2):44-52.

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