Effect of Foreign Aid On poverty in Kenya

[1]Don Okello, [2]Prof.John Byaruhanga, [3]Dr.Edwin Simiyu, [4]Dr.Angela Mungai

[1]Department of Economics, Masinde Muliro University, Kenya. Masinde Muliro University, School of Business and Economics Kakamega town P.O Box 190-50100 Kakamega, Kenya

[2]Department of Economics, Masinde Muliro University, Kenya. Masinde Muliro University, School of business and economics Kakamega town P.O box 190-50100 Kakamega, Kenya

[3]Department of Economics, Masinde Muliro University, Kenya. Masinde Muliro University, School of Business and Economics Kakamega town P.O Box 190-50100 Kakamega, Kenya

[4]Department of Economics, Masinde Muliro University, Kenya. Masinde Muliro University, School of Business and Economics Kakamega town P.O Box 190-50100 Kakamega, Kenya

Abstract

This article investigates the effect of foreign aid on poverty in Kenya. Poverty has emerged as one of the main public concerns across the globe. Every year, the gap between rich and poor grows wider, and many countries' circumstances have deteriorated. In Kenya, the wealth disparity has reached extreme proportions, with less than 10% of the population owning more wealth than the bottom 90%. Kenya is a developing country that aims to be industrialized by 2030.Economic growth is expected to increase in order to achieve the vision 2030, so the government must also understand the trends, causes, and effects of poverty in order to formulate relevant policies to ensure equitable income distribution and high living standards by 2030.In order to establish the existing relationship, the study investigated the effect of foreign aid on poverty in Kenya. This study made use of time series data spanning from years 2010 to 2020. The study employed causal-effect research design to establish the relationship between poverty and foreign aid. Augmented Dickey Fuller test for unit root revealed the presence of unit root at levels but on first difference, the variables were stationary. Variance inflation factor (VIF) test was 1.06<10 showing no multi-collinearity. Durbin test statistic was 1.931<2.5 which indicated no serial correlation. Descriptive statistics such as measure of dispersion was done to show general characteristics of the sample. Correlation analysis on the other hand revealed a negative and moderate relationship between foreign aid and poverty (-0.5331). Johansen test for cointegration showed that there are three co-integrating equations. Model regression estimates were,(-1.330267,p< 0.0500).The study recommends that; the government should create an enabling environment for investors, ensure that the foreign aid money does not device debt. The central bank should also closely monitor the interest rate movements, public speculation and political situation so as to manage the volatility of the exchange rate of Kenya shilling against other currencies.

Keywords: Poverty, foreign aid, foreign direct investment

1.0 Introduction

This article analyses the effect of foreign aid on poverty in Kenya. Poverty has for long been an area of concern among economists worldwide (ILO, 2019). To determine poverty predominance in a family, society, nation, or region, three broad approaches are used. The revenue or expenditure strategy is perhaps the first method, and it is centred on human basic needs approach (BNA). The latter technique of measuring poverty presupposes that people are poor if their revenue or consumption falls below a certain threshold, which is commonly known as "poverty line" (World Bank,2018). Human capability is the second way to measure the pervasiveness of poverty. In this method, poverty is associated with lack of fundamental human capabilities to operate at a socially acceptable standard (Arndt, Jones& Tarp,2015). The third way to measure poverty is a hybrid method that acknowledges poverty as a multi - dimensional phenomenon encompassing aspects such as security, consumption, health, mortality, and levels of income (UNDP,2019).

The global income distribution reveals an unusually high level of poverty (Mahmood, 2017). About eighty percent of the population in the world earned far less than the top 20% of the world's population (UNCTAD, 2018). Three-quarters of global income is controlled by the wealthiest 20 percent of the inhabitants. At the bottom, the poor and vulnerable 40 percent control 5 percent of worldwide income, whereas the underprivileged 20% influence only 1.5 percent (ECA, 2017), while rich countries control the top 20% (Adinde,2017). Poverty has such a considerable impact on many countries' development, including developed ones. Countries including United Kingdom, France and the United States continue to face challenges from poverty and income inequality, a World Bank study found that in 2009.

Poverty has historically persisted in Africa, and the continent has some of the world's most skewed income distributions (Field, 2010). Africa isn't just the second most unequal continent on the planet in terms of income inequality, trailing only Latin America, but it is also the world's poorest region (UNDESA, 2010). The top African countries with the lowest poverty rates in the year 2007 were Malawi 7.8%, Mozambique 7.9%, Sudan 9.6%, Angola 17.6% and Mauritania at 19.8%. Some of the countries growing very fast economically include Mozambique, Niger, Burkina Faso, Chad, Ethiopia and Rwanda (Klahsu, 2010). All the same, development in so many parts of Africa have indeed been dreadful, negative, or unresponsive, an example is for countries like Democratic Republic of the Congo, Zimbabwe, Burundi and the Republic of the Congo.

According to Central Bank of Kenya report on poverty levels in (2011), the top 10% of Kenya's wealthiest households govern above 40 percent of the nation's national income. Less than 1% is controlled by the impoverished ten percent of the economy. In 2021, approximately 16% of Kenya's population lived on a daily basis of below 1.90 USD World Bank (2020). The severe poverty rate in the country has decreased slightly from 17 percent in 2020. The share increased in 2020, reversing a downward pattern which had existed as of 2017.The downturn has indeed been attributed to by the coronavirus (COVID-19) disease. Kenyans' population living below the poverty line ($1.90 per day in 2011) fell from 43.6 percent through 2005/06 to 35.6 percent through 2015/16, according to the most recent country economic update from World Bank

(2020). Kenya does have one of the lowest poverty levels in East Africa, and it is lesser than that of the national averages for Sub-Saharan Africa, as per the World Bank 2020 update. The report does note, however, that Kenya's poverty rate, when contrasted to those other lower middle-income nations, remains high.

The Gini Coefficient quantifies income disparity where perfect equality is assigned a value of zero and absolute inequality is assigned a value of 100. Kenya's score is 47.7, trailing Rwanda's 50.8 but 10 points higher than Burundi, the East African country with the best wealth distribution (33.3). A variety of factors explain this rise in poverty, including Progressive tax policies, corporate provision of health and retirement benefits, strong unions and shifting cultural standards concerning pay inequality are all examples of progressive policies (Dankur, 2010).

Kenya is a developing country with a goal of becoming industrialized by 2030. To achieve the vision, economic development is expected to pick up. In order to ensure a declining poverty trend and high living standards by 2030, the government must also understand the causes and effects of poverty. This formed the basis for the current study, which sought to investigate the effects of foreign aid on poverty in Kenya between 2010 and 2020.

Foreign Aid and Poverty

Foreign assistance encompasses all resources transferred to recipient nations by donors, including tangible product, experience and technical expertise, financial grants (gifts), and subsidized loans (Riddell, 2008). There are two forms of foreign assistance: bi - lateral (two-way) as well as multilateral (many-sided). The latter consists of direct aid from a state donor to a state recipient. The last is aid provided by an international body on behalf of a number of government donors. The United Nations Development Programme (UNDP) and the World Bank are two international organizations that manage multilateral aid (World Bank, 2020). Moreover, donor government agencies administer bilateral assistance. According to the OECD (2021), more than two-thirds of total ODA from DAC is offered bilaterally, primarily in the form of grants. Some aid funds are provided by private organizations, such as "non-governmental organizations" (NGOs).

Since their independence, African countries have relied on foreign assistance. Several US development charitable organizations, especially ones focused on nations and people, such as the Millennium Challenge Corporation (MCC) and also the Africa Development Foundation (ADF), had also produced long-term results in areas such as sustainable agricultural production, high growth prospects, and enhanced access to electricity (Aguilar & Sumner, 2019). Amidst these accomplishments, many experts argue that overseas aid has sometimes cultivated a dependency syndrome in Africa, as well as paternalism instead of collaboration, with the least impact on poverty reduction in the majority of African and other developing nations (Masud& Yontcheva,2015). Consequently, African governments should indeed grab this chance to broaden democratic policies, thus also fostering African wellbeing via tangible priorities such as creating jobs, regional development, and sustained economy (Alvi & Senbeta 2012).

From 1960 to 2019, Kenya received an average of 813.87 million US dollars in foreign aid and official development assistance, with 21.11 million US dollars in 1960 and 3,306.84 million US dollars in 2013 (KNBS,2019). The most recent figure is 3250.97 million US dollars for 2019. Figure 1 depicts how foreign aid is distributed in Kenya.
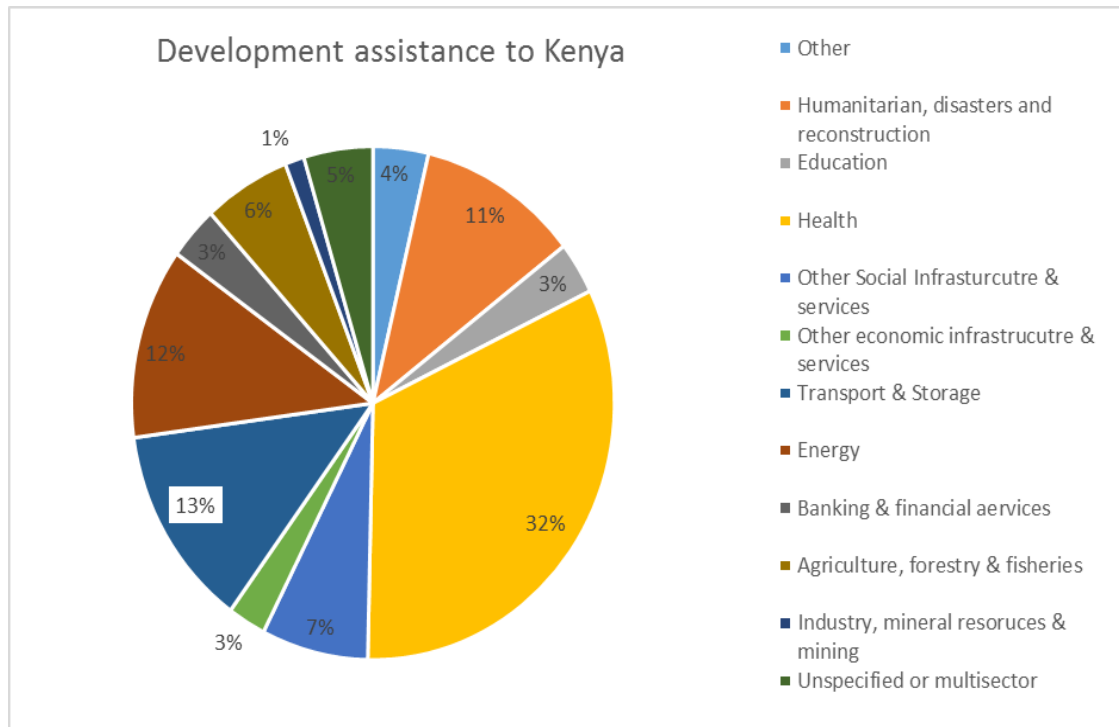

Figure 1: Distribution of the Foreign Aid in Kenya (KNBS 2019)

As can be seen in Figure 1, 32% of any and all assistance disbursed from 1967 to 2016went to the health sector, helping to reduce infant mortality rates and communicable diseases, thus improving Kenya's human development index and lowering poverty levels.13 percent which is the second largest component of the budget was allocated to social services and infrastructure, that encompasses education, wellbeing, water and sanitation, as well as governance assistance. 12 %, which is the third largest component, was allocated to energy sectors, with agriculture, forestry, and fisheries receiving 11 percent, boosting the country's food security levels. The smallest portion, at 1%, is made up of debt and humanitarian aid allocations. With Kenya aiming to become a middle-income economy by 2030, poverty must be eliminated. This study was conducted to determine the contribution of overseas aid to Kenya's poverty reduction.

1.2 The statement of the problem
Poverty levels in many African nations have been so wide leading to questions as to what could be causing this disparity. Despite almost all African nation attaining independence at the same period, a lot of differences has emerged in term of poverty levels where some countries have

narrowed their rate of poverty levels more than others (Ananda& Pulungan,2019). In Kenya, despite an impressive economic growth since 2005, poverty still affects millions of people's lives. According to the Kenya's poverty reports from the African Development Bank (2019), less than 10% of the population own more wealth than the bottom 90%. The richest, who constitute 10% of people in Kenya earn on average 23 times more than the poorest (World Bank,2020). Persons living below $1.90 a day are said to be living below poverty line or they are poor that's according to (World Bank, 2020), while minority of wealthy individuals and investors are creaming off the yields of the country's economic performance, the fruits of economic growth are failing to trickle down to the poorest. The number of super-rich in Kenya is one of the fastest growing in the world. It is predicted that the number of millionaires will grow by 80% over the next 10 years, with 7,500 new millionaires set to be created (World Bank,2020). Nevertheless, if poverty remains at the same level for the following five years, 2.9 million more people will be living in extreme poverty (ADB,2019). Hypothesis have been created trying to explain these disparities in income inequality with some suggesting that income inequalities could be a cause of persistent poverty in many African nations but few researches has been done to explain this relationship. To ascertain what could be leading to this faster growth rate of poverty levels, this study therefore investigated the Effects of foreign aid on poverty in Kenya for the period between 2010 and 2020 with a view of establishing the existing relationship between foreign aid and poverty in Kenya.

1.3 Objective of the study
This article sought to investigate the effects of foreign aid on poverty in Kenya for the period between 2010 and 2020.The study was guided by the following hypothesis

H_{O1}: There is no statistically significant effect of foreign aid on poverty in Kenya.

1.4 Significance of the study
The results of the study findings form a basis for policy formulation in imputing appropriate amendments that can help to reduce the rate of poverty levels and income inequality in Kenya. The knowledge gained from this study contributes to existing literature in the area of income distribution to narrow the poverty levels. To other researchers and scholars, the outcomes of this research will be a fundamental source of literature material for future studies on income distribution and economic development in general. This study enabled the researchers find areas for further research through the suggestion for future researchers. Furthermore, the study findings are valuable to investors by providing them with relevant information on business environment to put their investment and reap big.

1.5 Literature Review
Various authors have investigated the effect of foreign aid on Poverty. Hirano and Otsubo (2014), employed the poverty-growth-inequality (P-G-I) relationship as well as the worldwide conceptual model to analyze the efficacy of development assistance. The research reaches the conclusion that while economic support (spending on transportation, energy, communication, and financial infrastructure) boosts the income of the poor though the economic expansion,

social aid-spending on water and sanitation, health care, and education-directly and noticeably advantages society's vulnerable citizens.

The effects of aid on growth in the economy, social welfare indicators (poverty and child mortality), and intermediate outcomes were explored in a study conducted by Arndt et al. (2015). The study estimated the long-term cumulative impact of assistance in developing countries between 1970 and 2007 using the limited information maximum likelihood (LIML) and inverse probability weighted squares (IPWLS) approximation in a simultaneous equation's framework. They found proof that assistance increases growth in the economy, raises social welfare indicators, and decreases poverty. Even though the findings suggest that aid has little impact on poverty, it has been found to promote investment, enhance school attendance, raise life expectancy, and lower newborn mortality (Arndt et al., 2015).

In a trivariate Granger model that includes democracy, Arvin and Barillas (2012) examine the direction of causality among aid and poverty in a bivariate Granger model. Annual data from 118 aid-receiving countries from 1975 to 1998 are used to test the bivariate and trivariate models. The countries were divided into two broad categories in the study: geographical regions and income levels. The results of the study for the overall sample indicated that aid had no effect on poverty and conversely. Aid had been found to lessen poverty throughout East Asia and the Pacific, although in the sub-samples, it had a detrimental impact on poverty in low-income nations (Arvin & Barillas, 2012).

To calculate the impact of foreign aid on poverty, Bahmani-Oskooee and Oyolola (2009) combined time - series data and cross-sectional data for West African nations from 1981 to 2002. The researchers used 2SLS panel estimate methods to account for endogeneity. The analysis revealed that while inequality makes people poorer, aid makes them better off. Dynamic panel-data methods were employed by Chong, Grandstein, and Calderon (2009) to analyze the effects of aid on the elimination of economic inequality from 1971 to 2002. According to the analysis, there was no statistically significant link between foreign aid and the alleviation of poverty or economic disparity.

Masud and Yontcheva (2015) utilized infant mortality and illiteracy or education as proxies to evaluate how well foreign aid reduced poverty. The research evaluated the effects of two types of foreign aid: project aid, which is given to developing nations through international non-governmental organizations (NGO), and official bilateral aid, which is given directly from a donor government to a nation. Both the two-stage least-squares (2SLS) regression and the system Generalized-Method of Moments (SGMM) technique are used. According to the study's findings, NGO aid help considerably lowers infant mortality when compared to bilateral aid, and both types of assistance have a negligible effect on education (Masud&Yontcheva, 2005).

Alvi& Senbeta (2012) looked at how foreign assistance affected poverty in 79 developing countries between 1981 and 2004. The dynamic panel-data estimation methods developed by Blundel and Bond (1998) were used in this work. The headcount index, the poverty-gap index, and the squared poverty-gap index were utilized in the research, along with bilateral and

multilateral aid sources, grants, and concessionary loans. The results demonstrate that "after controlling for average income and income distribution, assistance reduces poverty" (Alvi&Senbeta, 2012). The study found that while grants and multilateral assistance lessen poverty, loans and bilateral assistance don't really.

Kaya and Gunter (2013) look into how agricultural support affects Tanzania, Kenya, and Uganda's efforts to reduce poverty. The study focused on agricultural aid and segmented overall aid into different groups. Four years of averaged cross-country statistics for just a panel of recipient nations' overseas aid from 1980 to 2011 were used in the empirical analysis. The key explanatory factors are agricultural assistance and personal protective equipment, while the main dependent variable is the poverty headcount ratio, which is set at one. Using the fixed effects panel estimator, it was found that a one percent rise in agricultural aid lowers the headcount poverty proportion in aid recipient nations by 0.2 percentage. According to the study, depending on the specification, the headcount poverty ratio's growth elasticity ranges from 1.7 - 3.5. The study claims that growth brought on by agricultural aid can reduce poverty both directly and indirectly (Kaya et al., 2013). The study, however, was limited to agricultural foreign aid, which may not provide a complete picture of poverty and foreign aid. As a result, the current study includes other sectors in Kenya that receive foreign aid and their impact on poverty.

1.6 Theoretical review

The study was modelled by Modernization theory. This theory is used to explain the societal modernization process. Talcott Parsons' modernization model was built on the theories of Harvard sociologist Max Weber (1864–1920), a German sociologist (1902-1979). The idea considers a nation's internal variables and makes the assumption that, with help, "traditional" nations can attain the same degree of development as more advanced nations. Before losing popularity, modernization theory dominated the social sciences in the 1950s and 1960s. In 1991, it reappeared under the name Neo-Modernization theory. The notion holds that foreign aid provides the funding required to catapult developing nations' economies into self-sustaining economic development. It was said that poor nations required a "strong push" to escape the minimal trap, and as a result, foreign aid.*"kickstarts economic growth and begins a virtuous cycle in which investment generates income, raising the economic return on further investment"* (Shleifer, 2009).Despite disagreements about whether aid is indeed an effective tool for development, the spirit of modernization theory inspired the formation of the United Nations, International Monetary Fund, and the World Bank three international financial organizations through which developed countries still channel money to less developed nations today. This theory is relevant in this study because it explains how foreign aid can help to manage the vulnerability levels, particularly in developing nations.

2.0 Methodology

2.1 Study Area

The study was conducted in Kenya. Kenya is located approximately between latitudes 5^0N and 4^040'S, with a geographical area estimated at 580,367Km^2 and a population of 55,920,673 (UN DATAs 2021). The country is almost bisected by the Equator horizontally into almost two halves and vertically by 38^0E longitude. Longitudinally it extends from longitude 33^053' East of

Greenwich Meridian (From Suba, Mfangano, Ilemba and the pyramid islands on Lake Victoria) to $41^055.5$' East. 2.3% of the total area is occupied by water surface and it is the largest economy in East Africa.

The practical considerations that dictated the choice of the study area. Firstly, inadequate comparable studies to give enough and concrete information concerning Effects of foreign aid on poverty in Kenya. Secondly, Kenya's economy is one of the largest and fastest growing economies in the East African region while on the other hand there is a widening poverty level. Thirdly, Kenyan economy stands at a very strategic location in the Eastern Africa region. It serves five landlocked countries that are relatively resource-rich (Ethiopia, South Sudan, Uganda, Rwanda, and Burundi). Its comparative advantage lies in improving its port facilities, road and railway networks, and transit airports as trade routes for these five countries. Even more significant has been the strengthening of the institutions of governance through the 2010 enactment of a progressive constitution that has radically altered the previous dominance of the executive. At the core of the new constitutional dispensation is devolution of decision-making powers to 47 county governments. All these factors augur well for continued strong economic performance and reducing poverty among its people (Kimenyi and Ndung'u, 2015).

2.2 Data Collection method and procedures

Data for this study was exclusively collected from secondary sources using content analysis method. The study used time series data from Kenya National Bureau of Statistics (KNBS) publications as well as economic surveys and World Bank website. Foreign aid data were obtained from published economic surveys by KNBS for every year from 2010 - 2020. Poverty data (Multidimensional poverty index) were collected from World Bank.

Description and Measurement of the Variables

Table 1: Description and Measurement of Variables

Variable	Description	Measurement	Prior-Expected Sign
Poverty:	A measure of economic well-being among individuals in a group, among groups in a population, or among countries	metrics: wealth, income, andconsumption (Peñalosa&Turnovsky, 2006)	+/-
Foreign Aid	Resources, financial grants (gifts) or concessional loans, which are transferred by donors to recipient countries	Measure of the market value of production that flows through the economy.	+/-

Source: (Author's computation, 2021)

2.3 Research design

The study adopted causal research design using time series data from 2010 to 2020. This design can display patterns of variables over time, which is a powerful way for the researcher to learn about cause-and-effect relationships. The study data, which were quantitative in nature, were analyzed using descriptive as well as inferential statistics. Descriptive statistics included frequency distributions, mean, standard deviation and percentages. Inferential statistics included the estimation of regression analysis to evaluate the effect of foreign aid and poverty in Kenya. Foreign aid was measured by annual financial grants (gifts) or concessional loans, which are transferred by donors to recipient countries as a percentage of GDP and poverty measured using metrics of wealth, income, and consumption.

3.0 Statistics and Data analysis procedures

Data was first tested using the pre-diagnostic tests for consistency in measurement and outliers were removed after confirmation. After that data was refined and transformed into ratios it was entered into a STATA software used for analysis. The software is preferred for time series analysis as it can be used to conduct various tests. Second, linear relationship on the explanatory variable was tested using the correlation matrix. Third, autocorrelation between the dependent variable and the residuals was tested using Durbin Watson d- statistic. A statistic of 2.0 shows no serial correlation and the residuals become the error correction term (ECT). Fourth, unit root test was carried out to appraise the effect of shock and to avoid spurious regression related to non-stationary variables by using Augmented Dickey Fuller test (ADF) statistics. It is advisable to lag the variables once; however, the number of lag lengths depends on the test statistic and that for critical values at 1%, 5% and 10%. If the test statistic will be less than that at critical values, then the variable is stationary. Lagging was done until this was achieved for all variables and fifthly, correlation analysis was carried out. The last step was the unit root test. This involved a two-step analysis. The first step entailed estimation of the long rum Ordinary Least Square (OLS) equation of the variables integrated to order (n) in this case n=1. The second step was be to run an OLS by including the Error Correction Term.

3.1 Model specification

The study adopted the following stochastic model as shown in equation 3.1 below.
The model was modified as;

$$PVTY_t = f(FNA_t)...\text{…………………………………….…………}3.1$$

In expansion equation 3.1 becomes

$$PVTY_t = \beta_0 + \beta_1 FNA_t + \varepsilon_t \text{…………...……………………………}3.2$$

Where, $PVTY_t$ is the poverty rates, β_0 is the intercept FNA_t is the foreign aid and ε_t the stochastic error term, t is the time, β_1 are the regression estimate parameters.

4.0 Results and Discussion

Descriptive statistics were applied specifically to establish the basic information about variables in the dataset in use as shown in table 2 below:

Table 2: Summary of Descriptive Statistics

Variable	Observation	Mean	Std. Dev	Min	Max
PVTY	44	35.56955	4.875702	26.40	41.90
F.A	44	3.918128	1.208363	1.09817	6.0345

Source: (Author's Computation based on STATA v.16, 2022)

The table above shows that there was substantial dispersion of data among variables as evidenced by standard deviation values that lays distant from their respective mean values. From its structure, it was so anticipated as time series analysis especially those, which comprise aggregates follows a random or stochastic process. The poverty composite index had a standard deviation of (4.875702) indicating the fluctuations of the poverty levels in Kenya within the study period. Foreign aid expressed as a percentage of GDP had a mean of (3.918128) and a standard deviation of (1.208363) minimum value of 1.09817 and maximum value of (6.0345).

4.2 Stationarity test

Presence of a unit root led to spurious regression that renders inferences inapplicable and consequently the model cannot be used in predicting. The unit root test was done by use of Elliot Rothenberg stock Test on the individual variables. The test findings are as indicated in table 3 below:

Table 3: Elliot–Rottenbergstock Unit root test at levels

Variables	DF-GLS TEST STATISTICS	DF-GLS CRITICAL VALUES		TEST	Conclusion
		1%	5%	10%	
PVTY	-6.33	-12.424	-11.08	-10.56	*Unit root*
FA	-10.07	-12.42	-11.08	-10.56	*Unit root*

Elliot –rottenbergs stock unit root at first difference

Variables	DF-GLS TEST STATISTICS	DF-GLS CRITICAL VALUES		TEST	Conclusion
		1%	5%	10%	
PVTY	-32.75	0.000	-14.32	-12.08	Stationary
FA	-31.07	0.013	-14.42	-12.08	Stationary

Source: (Author's Computation based on STATA v.16, 2022)

It is evident that all the variables had unit root at levels as shown by DF-GLS test statistics greater than DF-GLS critical values at 1%, and 5% critical values at levels. However, upon first

differencing, the variables became stationary shown by DF-GLS test statistics values less than 1%,5% and 10% DF-GLS critical values. Therefore, the null hypothesis of series having unit root was rejected in favor of alternative hypothesis that the series had no unit root and it was therefore concluded that the series were stationary at first difference.

4.6 Johansen's Cointegration Test

Having established that the individual time series were integrated of order three, I (3), it was necessary to carry out the Johansen Test for cointegration. It is a common phenomenon for economic variables to be integrated (direct long-run equilibrium relationship between economic variables). Johansen cointegration test procedure involve use of two test statistics, first, trace statistics and second, maximum Eigen value statistics as shown in the table below, (Cameron and Trivedi, 2005). From the results presented in the table 4 below it was concluded that there exist three cointegrating equation. In the output above, the null hypothesis of no cointegration was strongly rejected in favor of the alternative hypothesis that there exists more than one cointegrating equation.

Table 4: Result for the Johansen Test for Cointegration

Trend: constant Sample: 4-44				Number of observation = 42 lags = 4	
Maximum rank	**Parms**	**LL**	**Eigenvalue**	**Trace Stastistic**	**5%Critical Value**
0	30	-284.8714		117.4568	68.52
1	39	8.5769987	0.31716	71.9798	47.21
2	46	14.474664	0.24485	40.5324	29.68
3	51	16.526391	0.09308	18.6163	15.41
4	54	-226.9900	0.33816	1.6941*	3.76
5	55	-226.1430	0.04048		

Source: (Author's Computation based on STATA v.16 ,2022)

The results in table 4 shows the Johansen Test for cointegration. At the top of the table is the number of observations in the study period, the type of trend in the study data and the number of lags. Johansen's cointegration test involves use of test statistics, trace statistics and maximum Eigen value statistics (Cameron and Trivedi, 2005). At rank zero, it means there is no co-integration relationship and if the rank is more than one it means there is one co-integration equation. It is indicated that the trace statistic at maximum rank of 0 is (117.4568) which is greater than its critical value at 5% percent (117.4568>68.52) and therefore at maximum lag of 0 the null hypothesis of no cointegration was rejected. At maximum rank of 1 the trace statistic was greater than the critical value at 5% level of significance (71.9798>47.21) and the null hypothesis of utmost one cointegration is rejected again. It was also found out that at maximum rank of 2 the trace statistic was greater than the critical value (40.5324>29.68) and the null hypothesis of no cointegration was rejected in favour of alternative hypothesis of at least 2 cointegrating equation. At maximum rank of 3 the trace statistic was greater than the critical values at 5% (18.6163>15.41) and the null hypothesis of no cointegration was rejected in favor

of alternative hypothesis of at least 3 cointegrating equation. At maximum rank of 4 it was found out that the trace statistic was less than the 5% critical value (1.6941<3.76) and the alternative hypothesis of at least 3cointegrating equation was selected against the null hypothesis of no cointegrating equation. It was therefore concluded from Johansen test for cointegration that there are 3 cointegration among the variables which implies a long-term association among the variables in the study. The study therefore proceeded with Vector error correction model (VECM) instead of the vector autoregressive (VAR) because of the presence of 3 integrating equation

4.3 Vector Error Correction Model (VECM)

The Vector error correction model (VECM) was used to determine the dynamics in the short run and long run relationships and to demonstrate the speed of adjustment (the rate at which the dependent variable changes in response to a change in the independent variables) of the error correction term towards its long-term adjustment path or to the point of convergence as a result of temporary shocks.

Table 5: Vector Error correction model results

Sample 5-44
No. of obs = 40
R-Square = 0.6948

	Coef.	Std. Err	Z	P >	z		(95% Conf. Interval)
D_PVTY					
_cel L1	-.116275	.03799836	-3.06	0.000	-.248142 .015591
_cel L2	-.179584	.0836052	-2.148	0.000	-.525829 .166661
_cel L3	-.2329606	.093936	-2.48	0.001	-1.35126 .885343
LD dpvty	-.1087882	0.0549	-1.98	0.0000	-.234760 .017184
LD dFA	-2.04625	.5480249	-3.73	0.0000	-3.12036 .972143

Source: (Author's Computation based on STATA v.16, 2022)

The Vector error correction model (VECM) estimated the error correction term of the first cointegrating equation equals to -.116275 suggesting that there is a long-term relationship running from poverty rates and, foreign aid. This also indicated that previous years' errors or deviations from the equilibrium error were corrected within current year at a convergence speed of 11.6275 percent. The absolute value showed that 11.6275 percent of long-run disequilibrium

is adjusted from lagged period of error shock. 17.9584 percent of previous years' equilibrium error to be corrected. The third cointegrating equation (_ce3) had a coefficient value of (-.2329606) indicating that the short run adjustment towards equilibrium error can be adjust at a convergence speed of 23.29606%. This further confirms the long run relationship between the independent and the dependent variables in the study.

4.4 Test for heteroscedasticity

Heteroscedasticity occurs whenever the variance of the error term differs for each value of the independent variable. This study employed the Breusch-Pagan test to determine the presence of heteroscedasticity. The resulting result is displayed in Table 6.

Table 6: Breusch- Pagan / Cook-Weisberg test for Heteroscedasticity

Chi 2 (1)	8.20
Prob > chi 2	0.0941
Ho: Constant variance	
Variables: fitted values of Dltxr	

Source: (Author's Computation based on STATA v.16, 2022)

From the table 6, it's seen that the Prob > chi 2 value is 0.0941 which is higher than 0.05 thus showing the absence of heteroscedasticity and therefore the alternative hypothesis is rejected in favor of the null hypothesis.

4.5 Regression Analysis

The major objective of this paper wasto determine the effect of foreign aid on Poverty in Kenya. The necessary diagnostic tests were carried out, and the logarithmic model showed that there exists a relationship between the foreign aid and poverty. Table 7 below shows the regression results obtained.

Table 7: Regression Analysis

dPVTY	Coefficients	Std. Err.	T	P>|t|	[95% Conf. Interval]
dFA	-1.330267	.444905	-2.99	0.000	-2.470483 -.190051
Cons	-.019241	.0059662	3.225	0.000	-.5113353 .4728532

Number of obs = 42	Prob > F = 0.0000	Adj R-squared = 0.6527	Root MSE = 1.5635 SS=16.468992
F(3, 38) = 22.5	R-squared = 0.69461		MS=5.48964276

Source: (Author's Computation based on STATA v.16, 2022)

Discussion

Probability value of (0.0000) implies that the variables in the model are jointly significant in explaining the variation of poverty levels in Kenya at 5% level of significance. From the regression results in Table 7 the coefficient results for the foreign aid were (-1.330267) and a p value 0.000< 0.05 hence the effect of foreign aid on poverty in Kenya is statistically significant and exhibit a negative sign as expected. Holding other factors constant, an increase in foreign aid by 1% will cause a decrease in extreme poverty levels in Kenya by 133.0267%. Foreign aid significantly reduces poverty since it is always directed toward pro-poverty public spending, such as agriculture, education, health care, and other social services. Foreign aid is also allocated to productive sectors, infrastructure, and economic development initiatives, which are far more effective in alleviating poverty directly. This study's findings agrees with those of Aguilar and Sumner's (2019) study on the impact of foreign aid on poverty in Sub-Saharan African nations, which found that development assistance programs, particularly those that are people- and country-centered, such as the Millennium Challenge Corporation (MCC) and the Africa Development Foundation (ADF), have demonstrated lasting results in programs that stimulate local economies and reduce aid dependency, such as sustainable agriculture, youth entrepreneurship, and others. This study further agrees with the findings of Hirano and Otsubo (2014) in developing countries, Arvin and Barillas (2012) in south east pacific Asia, Bahmani-Oskooee and Oyolola (2009) in west African countries Alvi and Senbeta (2012) in developing nations who found out that foreign aid greatly reduces the levels of extreme poverty in their respective study areas.

In Kenya of all the assistance given from 1967 - 2016, 32% went towards the health sector contributing towards reduction of the infant mortality rates and communicable diseases thus improving the human development index in Kenya and lowering the extreme poverty levels. The second greatest portion (13 percent) was allocated to social infrastructure and services, including education, health, water and sanitation, and assistance for governance. The third largest portion (12 percent) was allocated to the energy sector, while agriculture, forestry, and fisheries received 11 percent to increase the country's food security. The lowest proportion, 1 percent, was allocated to debt and humanitarian help. In order for Kenya to attain a middle-income economy by 2030, poverty must be abolished.

The results from the regressions on foreign aid and poverty, where poverty was measured using proxies such as education indicators e.g. illiteracy, health indicators such as infant mortality and standards of living reveal that government effort through increased support of foreign aid measured by social sector expenditures plays an important role in improving human development indicators hence reducing poverty levels.

These findings also show that the relationship between official development assistance and poverty levels are directly related. Arguments by Hirano & Otsubo (2021) support this study's findings that government effort both official and nongovernmental aid flows have directly been used on poverty alleviations programs such as school feeding programs ,handwash

campaigns ,constructions of hospitals ,employment creation among other sustainable livelihood programs .Granville and Mallick (2016) also assert that NGO aid, funds have heavily supported and transited through government programs provide teachers incentives that go along in improving learners welfare hence poverty reduction.

5.0 Conclusion and recommendation

From the findings foreign aid strongly reduces the rates of extreme poverty rates. This can be explained by the fact that foreign aid considerably lowers vulnerability levels because it is always aimed at pro-poor governmental expenditures such as agriculture, health, education, and other social services. In conclusion for the Kenya government to achieve the millennial development goal of poverty alleviation, the government needs to create conducive environments to attract investors through initiatives such public private strategy (PPS) to attract more investors, tax breaks. The government should ensure that aid money is not used to service debts, improving quality and monitoring, as well as harmonizing aid programs. Based on the study findings this study suggests the following recommendations.

The study also demonstrated that foreign aid had a considerable and statistically significant negative impact on Kenya's poverty rates. As a result of these findings, the report suggests that the government ensure that aid funds are not used to pay off debts, enhance quality and monitoring, and coordinate help programs. The foregoing analysis informs policy decisions in several respects. In order to address the current problem, the creation of more job possibilities, the government should encourage investors interested in the agricultural sectors to consider rural areas because these areas in Kenya have the highest rates of poverty. The report makes a number of recommendations for removing obstacles from the way foreign aid programs are implemented, including better procurement procedures, ensuring that aid funds are not used to pay off debts, enhancing quality and monitoring, and harmonizing aid programs. It suggests better data systems and more responsibility.

References

Adinde, C. S. (2017). The impact of income inequality on economic growth: A case study on Nigeria. A thesis, 1-51. https://www.researchgate.net/publication/320410820

Alvi, A., & Senbeta, A. (2012). Does foreign aid reduce poverty? Journal of International Development, 24(8), 955–976. doi:10.1002/jid.1790

Arndt, C., Jones, S., & Tarp, F. (2015). Assessing foreign aid's long-run contribution to growth and development. World Development, 69, 6–18. May 2015. doi:10.1016/j.worlddev.2013.12.016

Arvin, B. M., & Barillas, F. (2012). Foreign aid, poverty reduction, and democracy. Applied Economics, 34(17), 2151-2156.

Bahmani-Oskooee, M., &Oyolola, M. (2009). Poverty reduction and aid: cross-country evidence. International Journal of Sociology and Social Policy

Dankur, K. A. (2010). Inequality, Income and Poverty: Comparative Global Evidence, Social Science Quarterly, vol. 91, No. 5, December 2010.

Economic Commission for Africa (ECA ,2017). Economic Report on Africa: FDI Inflows and Industrialization for Africa's Transformation. Addis Ababa, Ethiopia.

Fields, G. (2010). Accounting for Income Inequality and its Change: A New Method, with Application to the Distribution of Earnings in the United States. Research in Labor Economics, 22, pp. 1-38.

Granville, B. and Mallick, S. (2016) 'Integrating poverty reduction in IMF-World Bank models', Working Papers id:502, eSocial Sciences, Econ Papers. Available at: http://econpapers.repec. org/paper/esswpaper/id_3a502.htm [Accessed 4 November 2014

Gujarati, D. (2009). Basic Econometrics. India: Tata McGraw-Hill Edition

Guzaa, G. M., Ishakb, S., Banic, Y., &Madina, A. (2020). The Determinants of Income Inequality in Nigeria: An Autoregressive Distributive Lag Approach. International Journal of Innovation, Creativity and Change, 11(12), 218-234.

Hailemariam, A., Sakutukwa, T., &Dzhumashev, R. (2020). Long-term determinants of income inequality: evidence from panel data over 1870–2016. Empirical Economics, 1-24.

Hirano, Y., &Otsubo, S. (2021). Aid is good for the poor.

ILO,(2019). Unemployment crisis in Developing nations, No. 83. June. New York : International Labour Organization reports Industries and development.

Klahsu, K. A. (2010). Growth, Inequality and Poverty Reduction in Developing Countries: Recent Global Evidence, Centre for the Study of African Economies (CSAE) WPS/2011-07.

Kumari, R. (2018). Economic growth, disparity, and determinants of female labor force participation: A research agenda. World Journal of Entrepreneurship, Management and Sustainable Development.

Mahmood, M. (2017). Income inequality and poverty in Kenya. The Financial Express, November11, 2017.Retrievefrom http://thefinancialexpress.com.bd/views/income-inequality-and-poverty-in-bangladesh-1510415084

Masud, N. Yontcheva, B.(2015), Does Foreign Aid Reduce Poverty?: Empirical Evidence from Nongovernmental and Bilateral Aid. IMF Working Paper No. 05/100, Available at SSRN: https://ssrn.com/abstract=887969

Njuru, S. G. (2012). Effects of fiscal policy on private investment in Kenya (1964- 2010). Kenyatta University. Nairobi: Kenyatta University.

OECD (2021), "Towards Green Growth: A Summary for Policy Makers" (brochure), OECD, Paris, www.oecd.org/greengrowth/48012345.pdf.

Riddell (2008) Does foreign aid really work? XXVIII, 507pp., Oxford University Press, Oxford, New York 2008.

Soltani H.& Ochi A.(2012). "Foreign Direct Investment (FDI) and Economic Growth: an approach in terms of cointegration for the case of Tunisia," Journal of Applied Finance & Banking, SCIENPRESS Ltd, vol. 2(4), pages 1-13.

Suri, T., Tschirley D., Irungu C., Gitau R., Kariuki D., (2008) Rural incomes, inequality and poverty dynamics in Kenya, Tegemeo in institute of Agricultural policy and Development, Egerton University

Tambunan T, (2005), "The Impact of Foreign Direct Investment on Poverty Reduction – A Survey of Literature and a Temporary Finding from Indonesia." University of Trisakti, Jakarta-Indonesia

Thalassinos, E., Ugurlu, E. and Muratoglu, Y. (2012). Income Inequality and Inflation in the EU. European Research Studies, 15(1), pp. 127-140.

Tridico, P. (2018). The determinants of income inequality in OECD countries. Cambridge Journal of Economics, 42(4), 1009-1042.

Trinh, N. H. (2016). The effect of foreign direct investment on income inequality in Vietnam. International Journal of Economics, Commerce and Management, 4(12), 158-173.

UNCTAD (UN Conference on Trade and Development) (2019). Key Statistics and Trends.

UNDESA (2010). World Economic and Social Survey (2010): In Search of New Development Finance. New York: United Nations

UNDP (United Nations Development Programme) (2019), Africa Inequality Study, Working Paper Series Volume 2, Numbers 6-10.

World Bank (2018).World GDP growth Economic Co-operation and Development. Retrieved from data.worldbank.org