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The Nexus between Economic Stimulus Programme and Food Security and Nutrition in Kenya

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Abstract

This study examines how economic stimulus programs influences food security and nutrition in Kenya. There is limited understanding of this connection, particularly regarding the Northern Rift Economic Bloc in underdeveloped counties in Kenya. The target population was residents of Keiyo South Sub-County, located in Elgeyo-Marakwet County which is one of the forty-seven counties in Kenya. The study utilized an explanatory research methodology and adopted a systematic random sampling strategy. Data was collected using County using a structured questionnaire from 370 respondents. Collected data was analyzed using descriptive statistics and also hierarchical regression analysis. The findings of this study suggest that economic stimulus programs have a beneficial impact on food security and nutrition. This implies that improving and expanding existing economic stimulus programs are key for enhancing food security and security for overall well-being of the population. Although this research has made valuable additions to the literature, it is important to acknowledge its limitations.. Caution should be exercised when generalizing the conclusions of this study, as it may restrict the extent to which the findings can be applied to other situations. The findings of this study can offer valuable direction for enhancing the quality of life for the residents. The county government of Elgeyo Marakwet should collaborate with stakeholders and Community Based

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Organizations to educate the citizens about the significance of engaging in the ESP program for their lives. This study contributes to the expanding body of research by investigating the role of government policy as a moderator in the relationship between economic stimulus programs and food security and nutrition in the specific context of the education sector in Kenya.

Keywords: Economic Stimulus Programs, Government Policy, Food Security, Nutrition, Economic Development

Introduction

Optimal nutrition and food security at all stages of life is a fundamental pillar of a thriving society (Simelane & Worth, 2020). Based on the most recent Kenya Demographic and Health Survey, it has been shown that 26% of children under the age of five in Kenya suffer from severe malnutrition, resulting in stunted growth or being shorter than expected for their age. These circumstances have both immediate and long-lasting effects on the individual, society, and economy. Stunting rates reach up to 46% in certain areas, such as Kitui and West Pokot. The poll reveals that throughout the entire nation, over 10% of youngsters are underweight, with 4 percent experiencing wasting or being underweight in relation to their height. Attaining food security is a challenging task (Gudu et al., 2020). Despite receiving ongoing support from international organizations such as the WFP, FAO, UNICEF, and others, food production in various regions of the world, including Kenya, is hindered by factors such as limited technological capability, inefficient production methods, slow economic growth, population growth, and climate variability. As a result, there is either a lack of progress or only small improvements in food and nutrition security. Food and nutrition security in Kenya has been gradually improving, while the COVID-19 pandemic has caused a temporary decrease in food production (Wainaina, 2019).

The second sustainable development goal (SDG #2), also known as "zero hunger," is to eradicate hunger and malnutrition by the year 2030. The task of guaranteeing universal access to safe, nourishing, and ample food throughout the year, while also eliminating all types of malnutrition, is becoming more intricate due to the rapid spread of the COVID-19 pandemic (Arora & Mishra, 2022). Global assessments of food security and nutrition indicate that the international community is significantly failing to achieve this objective, as the number of individuals experiencing food insecurity and malnutrition is increasing. According to FAO et al. (2021), the number of individuals experiencing hunger in 2020 ranged from 720 to 811 million globally. Additionally, there were 149 million children who suffered from

https://doi.org/10.69897/bx0w

stunted growth and 45 million who were wasted due to malnutrition, indicating a persistent global concern (Galabada, 2022).

The international economic stimulus has emerged as a key means of providing financial assistance in response to the ongoing worldwide financial slump resulting from the COVID-19 epidemic and the ongoing Russia-Ukraine War (Makin & Layton, 2021). Many nations are grappling with severe economic upheaval and struggling to recover from the repercussions of this economic calamity. During periods of financial crisis, the governments of individual economies offer global economic stimulus packages (Economy Watch, 2010). Developing nations have consistently encountered economic shocks, including those stemming from global trade, investment, and financial disruptions (Wilkins, Gilchrist, & Phillimore, 2021). These shocks cause disturbances in the functioning of the economy and, over time, hinder its growth velocity. The outcome entails extended durations of economic instability and stagnation. Therefore, the arrangement of the gap limitations is crucial in the pursuit of sustainable economic expansion. In recent decades, the escalation of greenhouse gas emissions has led to the occurrence of extreme hot weather, intense rainfall, and the exacerbation of agricultural and ecological droughts (Steel & Harris, 2020). Despite Africa's limited contribution to climate change, the continent is particularly susceptible to its impacts (Baarsch et al., 2020). Consequently, there has been a decrease in agricultural output, leading to food insecurity, an increase in poverty rates, and a decline in human productivity in terms of health and farming prospects. In the past decade, the nutrition situation in Kenya has shown signs of improvement. However, progress has been inconsistent, particularly in the arid and semi-arid land (ASAL) regions, where stunting rates exceeding 30% and wasting rates of 15% persist. Kenya has faced several issues that have posed a danger to food and nutrition security. Changing rainfall patterns, the invasion of quelea birds, pests, and illnesses, among other factors, have a significant impact on food supply (Ingutia & Sumelius, 2022).

In response to this situation, the Kenya Ministry of Devolution and Planning devised a strategic plan to promote advancements in achieving sustainable development goal number 2. This plan includes implementing programs aimed at improving the quality and quantity of food production, as well as increasing access and availability through enhanced agricultural productivity. Programmed interventions, as stated by the Kenya Ministry of Devolution & Planning in 2017, include market access incentives such local fertilizer production or infrastructure expenditures aimed at reducing transaction costs (Ngigi & Busolo, 2019). Agriculture remains the fundamental pillar of Kenya's economy, and the progress of the economy relies on advancements in the agricultural sector. Maize is the primary staple food in Kenya, constituting around 65% of the total calorie intake from

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staple foods and 36% of the total caloric intake from all foods (Nyaranga, Hao, & Hongo, 2019). Kenya holds the distinction of being the primary importer of food and agricultural products in the eastern African region. Currently, the administration of the country is making efforts to alleviate poverty. Over the past decade, the nation has been diligently addressing the issues of food security and nutrition. In order to elevate the country to a status of a moderately developed nation, the government should prioritize key areas such as ensuring food security, reducing poverty, transitioning agriculture from subsistence farming to commercial farming and agribusiness, building robust markets, and promoting the effective utilization of agricultural goods (Cheptanui, 2019). The Kenyan government recognizes that the agriculture sector holds significant potential in guaranteeing food security. Consequently, there has been a heightened emphasis on the necessity of a robust population to enhance agricultural productivity for domestic food supply and generate excess for international trade. The economic stimulus program in the agricultural sector comprises three primary elements: funding, improving food security and nutrition, and human resource development, which aims to enhance the skills and capabilities of individuals participating in the program. Financing is a mechanism that facilitates the movement of monies from the government to projects for consumption (Cheptanui, 2019).

Hypotheses Development and Review of Literature

Theoretical Review

The economic theory underlying the stimulus package may be veiled in exact numbers, but it ultimately relies on John Maynard Keynes's speculative hypothesis regarding human nature. Keynes posited that individuals manage uncertainty by adopting the assumption that the future would resemble the present. This inclination worsens economic downturns and should be resisted by a substantial fiscal stimulus that revitalizes the enthusiasm and confidence of consumers and investors. The Keynesian hypothesis argued that the remedy for the Great Depression was to invigorate the economy ("encouragement to invest") by employing a mix of two strategies: a decrease in interest rates (monetary policy) and government expenditure on infrastructure (fiscal policy). The government communicates to commercial banks that they should lower the interest rates they charge their clients by decreasing the interest rate at which the central bank lends money to commercial banks (Fletcher, 1989).

The government's investment in education stimulates economic growth by generating business prospects, employment opportunities, and

https://doi.org/10.69897/bx0w

increased demand, thereby counteracting the previously described imbalance. Governments obtain the funding for this expenditure by borrowing cash from the economy through the issuance of government bonds. As a result of government spending surpassing the amount of tax income received, a fiscal deficit is created (Frankel & Wallen, 2000). One key finding of Keynesian economics is that, in certain circumstances, there is no robust automatic process that drives output and employment towards levels of full employment. This conclusion contradicts economic theories that presuppose a robust inclination towards equilibrium. The 'neoclassical synthesis' is a framework that merges Keynesian macroeconomic notions with a microeconomic base. In this framework, the conditions of general equilibrium enable price adjustment to ultimately attain the desired outcome. In a broader sense, Keynes perceived his theory as a comprehensive framework in which the use of resources may vary between high and low levels. This was in contrast to earlier economic theories that primarily concentrated on the specific scenario of full resource utilization (Hollings, 2000).

Economic Stimulus Programmes

For the purpose of reviving an economy that is experiencing difficulties, a government may implement a series of economic initiatives known as an economic stimulus package. The stimulus package is a preventative or corrective step that was implemented in order to decrease the impact of a recession or to prevent one from occurring. A number of different actions, including lowering interest rates, expanding government spending, implementing quantitative easing, and others, are included in this plan. This has been a topic of discussion in recent years, which was prompted by the string of economic downturns that have been experienced by both developed and developing nations all over the world throughout the years (Mahamallik & Sahu, 2023). In the past, governments all over the world have adopted a variety of methods in attempt to stabilize the economy. These policies include decreasing interest rates, increasing government expenditure, and adopting quantitative easing. As a result of the credit crisis that occurred in 2008-2009, the term "economic stimulus" became widely used as a reference to efforts that were taken in order to stimulate the economy. The consequence of this was that nearly all countries around the world experienced economic downturns, and in some cases, catastrophic economic downturns (Etelkozi, 2023).

Initiatives designed to stimulate the economy have been essential in the economic recovery of a number of nations in the years after the Great Depression. Over the course of the past decade, a number of nations were successful in implementing economic stimulus packages. An economic stimulus package with a total value of US$ 2.18 trillion was presented by a

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group of 43 countries in 2009. This amount is equivalent to 3.5% of the gross domestic product (GDP) of the entire world. Based on an examination of the ways in which countries responded to the economic and financial crisis, it has been determined that Asia adopted stimulus measures of around the same magnitude (Gu, Venkateswaran, & Erath, 2023). Aktar, Alam, and Al-Amin (2021) discovered in 2008 that the continent of Asia and the Pacific, with the exception of Korea and Japan, allocated around 9.1% of its gross domestic product to stimulus measures. Herron (2018) asserts that China played a significant part in the process of stimulating expenditures in Asia by implementing a stimulus package that amounted to 12.7 percent of the country's gross domestic product in 2008. A number of countries, including the United States of America, Korea, and Saudi Arabia, have announced significant economic stimulus programs (Triggs, 2018). China is one of the top twenty nations that have made such announcements. According to Ocampo and Vos (2008), the United States package is exceptional due to its substantial magnitude, which is comparable to 5.6 percent of the country's gross domestic product in 2008 and amounts to nearly $800 billion. In the meantime, of the countries that make up the G20, Russia, the United Kingdom, Indonesia, Mexico, Brazil, and France all presented stimulus packages that were equal to or lower than two percent (Triggs, 2018). There are continuing questions over the effectiveness of economic stimulus packages, notably in Kenya (Wesonga, 2018). This is despite the fact that these packages have been frequently employed in both developed and developing nations to stimulate the economy. In the case that a government anticipates an economic downturn, it may take the initiative to launch a coordinated effort to either lessen the severity of the downturn or to completely prevent it from occurring. An economic stimulus package is a series of economic actions that are implemented by the government in the form of a stimulus package. The measures are carried out in order to take advantage of the considerable multiplier effects, which will ultimately lead to an increase in consumption from the private sector and an increase in investment spending (Raga, 2022). During the speech that was given to parliament in 2009/10 about the budget, the Economic Stimulus Programme or Package (ESP) was presented to the public and made known to them in Kenya (MoF, 2010). The event was centered on the topic of "Overcoming Contemporary Obstacles for a More Promising Future in Kenya," which was the centrepiece of the event. Particularly in response to the severe repercussions of the post-election violence that occurred in 2007/08 and the global economic recession that occurred in 2008/09, both of which had substantial detrimental impacts on economies, including that of Kenya, the objective of the initiative was to promptly revitalize the Kenyan economy for the purpose of long-term expansion and progress (Ochieng, Matanga, & Iteyo, 2023).

https://doi.org/10.69897/bx0w

According to Gregory (2005), the government allotted 22 billion Kenyan shillings for the budget of the economic stimulus program (MoF, 2009). The coordination of the Economic Stimulus Program was overseen by the Ministry of Finance on behalf of the government. Following the global economic crises that occurred in 2008 and 2009, the majority of countries around the world had an increase in their real GDP in 2010. This was a positive outcome that was brought about by the global fiscal stimulus measures that were implemented by various countries (Lumumba, 2018). It was anticipated that worldwide production would increase by 4.2 percent in 2010, following a decrease of 0.6 percent in 2009. This was in response to the economic crisis that that occurred in 2009. Nevertheless, the rate of economic recovery around the globe varied from country to country when compared to one another. According to the Economic Stimulus Programme Handbook (2009), the primary goals of the Economic Stimulus Program (ESP) were to help the nation's economy recover, to allocate resources toward sustainable solutions for food security issues, to increase job prospects in rural areas, to foster equitable regional development for social stability, to improve infrastructure, education, and healthcare standards, to allocate funds toward environmental preservation, to expand and enhance access to information and computer technology (ICT) in order to stimulate economic opportunities, and to speed up economic growth (Stern & Zenghelis, 2021).

Food Security and Nutrition

Food security is the state in which every individual has consistent and unrestricted access to an adequate supply of safe, nutritious food that fulfills their dietary requirements and personal food preferences, enabling them to lead a healthy and active life (Steier, Kang, & Ramdas, 2022). Food security encompasses various aspects, such as the presence of sufficient food, the ability to obtain it, its effective usage, its consistency across time, the capacity to make choices regarding food, and its long-term sustainability (Elechi, Nwiyi, & Adamu, 2022). Food security and nutritious eating are crucial components of food systems that have significant impacts on the health of populations. Healthy nutrition focuses on the nutritional value of diets. Food policies that are effective and optimal should be developed with a thorough understanding of the socio-economic and demographic factors that can impact food security and nutrition (Mustafa, Mabhaudhi, Avvari, & Massawe, 2021).

Societies in both industrialized and developing countries still face the problem of food and nutrition insecurity, especially during years of abundant harvests. This verifies that the presence of food does not necessarily result in food and nutrition security (FNS). Despite the presence of food, it may not be easily obtainable for all individuals in need (Ogot, 2021). Additionally, the food

https://doi.org/10.69897/bx0w

that is accessible may not contain all the necessary nutrients to adequately fuel the body, support growth, prevent illnesses, and meet basic physiological needs. Occasionally, there may be an abundance of food that is easily obtainable, yet it may not meet the criteria of being suitable or capable of being maintained over time. All of these occurrences represent possible instances of food and, particularly, nutrition insecurity (Mrabet, 2023).

The categorical aspect of food security typically consists of four main pillars: availability, access, usage, and stability. In order to attain food and nutrition security, it is imperative that all four pillars are consistently fulfilled without prioritizing one over the others. Therefore, it is crucial to thoroughly examine each pillar (Varzakas & Smaoui, 2024). Hege, Oo, and Cummings (2020) describe availability as the tangible presence of food that may be obtained, either from agricultural sources or through purchases made outside of farms, such as from marketplaces. The definition clearly indicates that in the context of self-production, land and other production resources, such as capital, labor, knowledge, and skills, play a crucial role in ensuring the availability of food and, consequently, food security. Food availability at the national level is determined by a combination of factors including commercial production, household production, food imports, foreign donations, and domestic food stocks. Food availability often pertains to the presence of food at the household or regional levels. At the individual level, it is seldom taken into account (Bozsik, Cubillos T, Stalbek, Vasa, & Magda, 2022).

Food is considered available when households and individuals have the means and resources to acquire the food required for a nutritionally full diet. Access to food encompasses two key dimensions: "physical accessibility" and "financial accessibility"(Martin-Shields & Stojetz, 2019). Accessibility is determined by the presence of resources, such as financial capital for purchasing food, physical mobility to get food, and knowledge to make informed judgments about accessing food. This indicates that the capacity of households to produce food is not the only factor that determines whether they have sufficient access to food (El Bilali, Callenius, Strassner, & Probst, 2019). It also depends on their ability to get and buy food from the market. Therefore, while a household may have the capacity to produce food, its capacity to earn income is crucial in order to attain food and nutrition accessibility. Food accessibility refers to the ability of individuals to obtain food, either by growing it themselves, purchasing it, receiving it as gifts, accessing food aid, or engaging in bartering or trade (UNICEF, 2021).

Food utilization refers to the capacity of an individual's body to absorb and incorporate nutrients from ingested food (Clapp, Moseley, Burlingame, & Termine, 2022). An individual's ideal calorie and nutrient intake is determined by proper care and dietary practices, food handling, a diverse diet, and the distribution of food within the family (Sobal, Khan, & Bisogni,

https://doi.org/10.69897/bx0w

1998). An individual's nutritional status is determined by a combination of these elements, together with effective biological food use. Another component of utilization pertains to the socioeconomic factors associated with food, such as knowledge, behaviors, and decision-making processes (which are significantly influenced by culture and educational attainment). This includes considerations of which food items to purchase, the techniques used for food preparation, and, notably, the equitable distribution of food within the household, taking into account who consumes what food and when (Sobal et al., 1998).

Stability pertains to the duration during which food and nutrition are taken into account. Food security can be either acquired or lost at any one moment (Mbow et al., 2020). This suggests that even if a person consumes food at an ideal level presently, they may still face food and/or nutrition insecurity if they cannot maintain access to the necessary food for the required period. More precisely, having sporadic access to the appropriate diet is linked to a weakened nutritional condition (Mwaniki, 2006). Hence, it is imperative to effectively handle and mitigate various pressures and disturbances such as adverse weather patterns, conflicts stemming from a volatile political climate, and economic factors like joblessness and escalating food costs in order to maintain food and nutrition security (FNS), as these factors can directly or indirectly affect the state of FNS (Clapp et al., 2022). Hence, it is imperative to employ tactics to ensure the stability of all the elements that contribute to the stability of food and nutrition security. Therefore, the study proposes an argument that;

H_{01}: *Economic stimulus programs have no effect on food security and nutrition*

Methodology

Research Design

This study utilized an explanatory research methodology and applied a systematic random sampling strategy. This quantitative methodology enables the researcher to assess the research objectives using numerical and objective investigations (Amaratunga, Baldry, Sarshar, & Newton, 2002). The researchers employed an explanatory study approach to establish a causal relationship between variables. According to (Hair Jr et al., 2021), employing an explanatory study design enables the utilization of inferential statistics to determine the relationship between the dependent and independent variables. Typically, it is a quantitative study that examines pre-existing assumptions by evaluating the connections between variables (Zohrabi, 2013).

https://doi.org/10.69897/bx0w

Johnson et al. (2020) carried out a comparable study in the United States, utilizing same research methodologies.

Data And Sample

This study focused on analysing the economic stimulus program and the effect it had on the food security and nutrition of the residents in Keiyo South Sub-County, located in Elgeyo-Marakwet County, Kenya. The study obtained data by employing a closed-ended, self-administered questionnaire from a targeted sample of 370 participants. The surveys underwent pre-testing to verify the appropriateness of their wording, format, and question sequencing.

Reliability and Validity

Given that the study's data were collected at several levels of measurement, it was deemed crucial to evaluate its dependability (Frohlich & Westbrook, 2001; Agus, 2010). Cronbach's alpha was employed to evaluate the internal consistency of each factor. The reliability analysis was conducted by calculating the Cronbach's alphas for the main constructs in the study. We eliminated superfluous components to optimize simplicity and efficiency. The results reported in Table 1 indicate that the Cronbach's alpha values for the three core constructs above the acceptable threshold of 0.70 set by Nunnally (1994).

Table 1: Reliability Statistics

Variable	Cronbach's Alpha	N of Items
Economic Stimulus Programs	.737	5
Food Security and Nutrition	.813	4

The construct validity of each scale was evaluated by confirmatory factor analysis (CFA). This study assessed the effectiveness of each individual component in quantifying the magnitude, as determined by Sujati and Akhyar (2020). The study employed confirmatory factor analysis to ascertain the unidimensionality of each idea. Tests were performed to ascertain and assess the ultimate components of the constructs that will be utilized for statistical analysis and hypothesis testing.

Exploratory factor analysis (EFA) was conducted to assess the alignment between the components generated from the analysis and the constructs provided in the literature. The EPA results indicated that all components had significant loadings on their respective variables, with eigenvalues exceeding 1.000. The range of total variance explained varied from 18.50 to 77.34, as seen in Table 2. In addition, the KMO (Kaiser-Meyer-Olkin) test produced a score of 0.599, suggesting a significant level of adequacy. Furthermore, the Barlett's Test of Sphericity yielded a significant

https://doi.org/10.69897/bx0w

chi-square value of 2538.699. According to Hair, Anderson, Tatham, and Black (1998), the Kaiser-Meyer-Olkin (KMO) score in this analysis surpassed the minimum threshold of 0.50. All constructs were categorized based on the assigned factors, which had substantial factor loadings. The outcome gave empirical support for the theoretical formulation of the three constructs.

Table 2: KMO and Bartlett's Test

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.599
Bartlett's Test of Sphericity	Approx. Chi-Square	2538.699
	df	136
	Sig.	.000

The factor analysis procedure resulted in the identification of six components, as shown in Table 3, with Eigen values greater than 1.0. Table 4.4 displays the factor loading of each item, with the variables arranged in order of magnitude. The eigenvalues for each factor exceed 1.0 (3.30, 2.51, 2.15, 1.71, 1.23, and 1.11), indicating that each factor may account for a greater amount of variance than a single variable. The total proportion of variance accounted for by the six components is 70.72 percent. To clarify, these six factors can account for or explain more than 70 percent of the common variance shared by the 9 items. Construct validity is confirmed based on these findings.

https://doi.org/10.69897/bx0w

Table 3: Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.301	19.417	19.417	3.301	19.417	19.417	2.754	16.203	16.203
2	2.518	14.810	34.228	2.518	14.810	34.228	2.305	13.558	29.761
3	2.151	12.652	46.880	2.151	12.652	46.880	1.950	11.468	41.229
4	1.711	10.062	56.942	1.711	10.062	56.942	1.867	10.983	52.211
5	1.232	7.245	64.186	1.232	7.245	64.186	1.735	10.208	62.420
6	1.111	6.536	70.722	1.111	6.536	70.722	1.411	8.302	70.722

Rotated Component Matrix[a]

	Component					
	1	2	3	4	5	6
G4	.715					
G6	.706					
GI	.650					
G3	.527					
ESP4		.721				
ESP5		.719				
ESP2		.652				
ESP1		.649				
ESP3		.617				
ED2			.869			
G8			.800			
ED3				.788		
G7				.645		
ED1					.885	
G5					.814	
ED4						.800
G2						.749

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 23 iterations.

Variables and Measurement

https://doi.org/10.69897/bx0w

The variables investigated in the present research were assessed using scales that were adapted from prior studies, with some modifications to suit the particular context of the current study (Wang et al., 2018). Participants were directed to indicate their level of agreement or disagreement with each issue using a five-point Likert scale, which ranged from (1) "strongly disagree" to (5) "strongly agree." We implemented the notion of economic stimulation programs by utilizing five specific elements. The assessment of food and nutrition security was based on four specific issues. The study employed dummy variables to evaluate gender, providing a binary value of 1 to males and a binary value of 2 to females. The age, education, and domicile of the respondents were categorized.

Model Specification

In order to examine the hypotheses, the study utilized a hierarchical multiple regression model (Baron & Kenny, 1986). The objective of the investigation was to propose three regression models. The subsequent sets of equations were utilized:

Model 1. Testing the effect of the predictor variable economic stimulus programs on food and nutrition security.

$FNS = \beta_0 + \beta_1 ESP_{it} + \varepsilon_{it}$ …. ..... (1)

Where;
FNS = Food and Nutrition Security
βo = Constant
β_1- β_2 = Coefficients of the equations
ESP =Economic Stimulus Programs
t = Time
i = Firm
ε = error term

Empirical Findings

Profile of Respondents

Table 4 presents a comprehensive summary of the demographic characteristics of the participants in this study. Accurately identifying and understanding the demographic and personal features of respondents is essential, as these elements have a tendency to impact their perspectives on specific subjects. A grand total of 399 self-administered questionnaires were disseminated to the participants, however, only 370 were retrieved, signifying an impressive response rate of 92.7%. Removing outliers helps eliminate

https://doi.org/10.69897/bx0w

potential factors that could undermine the internal validity of the study. Consequently, it was crucial to ascertain if the study variables included multivariate outliers. The researcher utilized the Mahalanobis distance and Chi square methods to detect outliers with many variables. There were no instances of an outlier being identified. Hence, the researcher proceeded with the analysis using 370 examples.

Table 4: Demographic characteristics of the respondents

Characteristics		Frequency	Percent
Gender	Male	148	40.0
	Female	222	60.0
	Total	**370**	**100.0**
Age	18-30 Years	148	40.0
	31-45	111	30.0
	46-60	111	30.0
	Total	**370**	**100.0**
Education	No formal education	74	20.0
	Primary School	111	30.0
	High School	37	10.0
	College	74	20.0
	University	74	20.0
	Total	**370**	**100.0**
Residency	0-5 years	74	20.0
	6-10 years	37	10.0
	11-15 years	111	30.0
	Over 16 years	148	40.0
	Total	**370**	**100.0**

Effects of Economic Stimulus Programme on Nutrition

The study went further and sought the opinions of the respondents on their levels of agreement on the effects of Economic stimulus Programme on nutrition. The results were as shown in table 5. A significant majority of respondents, 70% in total, strongly agreed that ESP projects have increased the quantities of food intake. An additional 10% agreed with this statement, while 10% were undecided, and another 10% disagreed. This result suggests a prevailing perception that the program has positively influenced food availability, resulting in increased food intake among a substantial portion of the community.

Table 5: Effects of Economic Stimulus Programme on Nutrition

Nutrition	SA	A	UD	D	SD

https://doi.org/10.69897/bx0w

Increased quantities of food intake	259(20%)	37(10%)	37(10%)	37(10%)	0
Increased varieties/types of food intake	37(10%)	222(60%)	111(30%)	0	0
Improved frequency of food intake	37(10%)	148(40%)	148(40%)	37(10%)	0
Improved balanced diet intake	148(40%)	37(10%)	0	185(50%)	0

A smaller proportion of respondents, 10%, strongly agreed that ESP projects have led to an increased variety or types of food intake. However, a considerable majority, 60%, were in agreement with the statement, and 30% remained undecided. This mixed response suggests that while the majority perceive an improvement in dietary variety, some respondents are uncertain about or do not perceive such changes.

A minority of respondents, 10%, strongly agreed that ESP projects have led to an improved frequency of food intake. An additional 40% agreed with this statement, while another 40% were undecided, and 10% disagreed. The mixed perception on the frequency of food intake indicates that a substantial portion of the community is uncertain about the program's impact on meal frequency. Regarding the influence of ESP projects on balanced diet intake, 40% of the respondents strongly agreed with this effect, and 10% agreed with it. However, a majority of respondents, 50%, disagreed with the statement. This result indicates a divergence in perception, with some acknowledging an improvement in balanced diet intake while others disagree with this notion.

The findings indicate a positive perception that ESP projects have increased the quantities of food intake among a significant portion of respondents. There is also a general perception of improved dietary variety. However, the impact on the frequency of food intake and balanced diet intake is met with mixed or uncertain responses, with a portion of respondents not perceiving significant improvements. These findings highlight the program's positive impact on food availability and dietary variety, which can be valuable for addressing food security and diet diversity.

The study findings revealed that the establishment of food production ESP project will in future ensure food security for the residents whereby they can produce consumption and the surplus which will be sold to earn a living. In order for aquaculture to improve livelihoods in the long-term, integrated

https://doi.org/10.69897/bx0w

agriculture-aquaculture practices may be the way forward. Dey et al (2006) for example established that low soil fertility and water availability, the two major constraints to crop production on small-scale farms in Malawi, were at least partially overcome by the role of fish ponds in nutrient recycling and water storage.

Overall farm-output for home-consumption and income creation may hence be increased. Also, organic farm by-products and wastes, like manure, green and garden/kitchen waste, are used in integrated systems (Dey et al, 2006). Aquaculture has also been shown to indirectly improve livelihoods. As a valuable alternative for fish production, it presents and important environmental role in helping to conserve threatened wild fish species. The importance of this is evident, Bene, Steel, Luadia and Gordon (2009) for example describe fish from small-scale fisheries in Congo as "bank in water" for local communities. However, it needs to be noted that especially in developing countries record keeping in aquaculture is often not adequately practiced. Okechi (2004) reports this as a constraint to aquaculture related research in Kenya.

Descriptive Statistic and Correlation Analysis

Table 6 presents the summary statistics for the sampled variables, indicating that economic stimulus programs (ESP) had the highest mean (M = 3.98) and standard deviation (SD = 1.24). Subsequently, food and nutrition security (FNS) had a mean score of 3.87 with a standard deviation of 1.31. Pearson's correlation analysis was conducted to evaluate the associations between the variables (Bougie & Sekaran, 2019). Table 6 shows that the variables have a positive connection.

Table 3: Descriptive Statistic and Correlation Analysis

	Mean	SD	FNS	ESP
FNS	3.87	1.31	1	
ESP	3.98	1.24	.533**	1

**. *Correlation is significant at the 0.01 level (2-tailed).*

The data presented in Table 6 indicates that there is a significant and robust correlation between economic stimulus programs (ESP) and food and nutrition security (FNS) is 0.533, with a significance level (p-value) of 0.000 which was less than 0.05 level of significance.

Regression Analyses

Multiple linear regression analysis was performed to calculate the effects of the predictor variable on food and nutrition security. Model 1 reveals the results of the direct effect hypotheses while holding constant the control variables. The combined prediction of all the variables accounted for

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approximately 29.8 % of the total variation in food and nutrition security. This is supported by the R^2 change value of .298, the F value of 25.717, and the p value of .000 implying that the model was fit to predict food and nutrition security using the independent variable.

The study hypothesized that economic stimulus programs have no effect on food security and nutrition. However, the results presented in Table 7 below showed a positive and significant association between economic stimulus programs and food and nutrition security (β = .284, ρ=.000). Therefore, the hypothesis was not supported and conclusion was made that economic stimulus programs had a significant influence on food and nutrition security.

Table 7: Coefficient Results for Direct Effect

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.076	.025		3.074	.002
	Food and Nutrition Security	.284	.077	.217	3.693	.000
Model Summary						
R			.546			
R^2 Change			.298			
Std. Error of the Estimate			.07183			
Model Fit						
F change			25.717			
Sig.			.000			

Discussion of Findings, Conclusions and Recommendations

Discussion of Findings

The main objective of this study was to investigate the effect of economic stimulus programs on food security and nutrition. The study established that economic stimulus programs had a positive and significant influence on food security and nutrition. This is consistent with past studies such as (Lumumba, 2018; Knoll, 2017; Mumin & Abdulai, 2020) who concluded that that funding through the ESP had positively and greatly influenced food and nutrition security. Thus, improving and expanding existing economic stimulus programs are crucial for enhancing food security and security for overall well-being. This entails extending their coverage, streamlining their operational procedures, and guaranteeing transparency and equity in their execution. Food security is achieved when all people at all times have regular

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and permanent physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.

Food security and nutrition not only carries significant benefits for human health, but also serves as the basis to achieve sustained economic growth. For this reason, it is essential that we understand that a food security strategy needs to be seen as more than a single sector issue; it requires a combination of coordinated actions in various sectors. We are talking about actions in finance, agriculture, health and nutrition, infrastructure, and other sectors.

Conclusion

The Kenyan economy witnessed a plummeted growth in past few years leading to recession. The entire economic activity all over the globe was disrupted due to the COVID-19 pandemic. To revive the economy out of recession, various monetary and fiscal stimulus measures were announced by the Government.

Most of the empirical literature on the impact of fiscal stimuli is confined almost exclusively to developed countries, and treats only broad categories of expenditure (transfers, tax cuts, public expenditure). The lack of quality data on developing countries makes it difficult to understand to what extent existing results would carry over to these very different economic settings. At the same time, the lack of sectoral disaggregation of fiscal data, even for developed countries, limits what the literature can cover on the relative efficacy of different types of spending with a view to providing guidance on prioritization.

Recommendation

Theoretical Contribution

This work theoretically enhances the existing literature in the field of development studies. This study aimed to address the existing gap in the literature by investigating the role of government policy in regulating the relationship between economic stimulus programs and education development in the Kenyan economy. Data was collected from respondents in Kenya to achieve this objective. In addition, we constructed a thorough conceptual model that is unique in its approach, drawing upon an extensive literature scan and analysis of policies. To the best of our knowledge, very few research studies have tried such a model thus far. Hence, this might potentially make a significant contribution to the current body of research by evaluating the effects of a stimulus package on educational progress, specifically in the post-lockdown era. The work may provide valuable insights

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for future researchers investigating ambiguous scenarios similar to the one addressed in this study.

Practical Implications

The study's findings would have significant policy implications for monetary and fiscal authorities. This study aims to ascertain the efficacy of stimulus measures on food security and nutrition, specifically by evaluating the extent to which these measures have contributed to the increase of real GDP and the advancement of food security and nutrition. This information could assist policymakers in evaluating the goals of their actions and implementing interim adjustments if necessary.

The study might potentially be expanded to incorporate an analysis of how the fiscal stimulus packages implemented by both domestic and foreign governments affect the actual growth of Kenya's gross domestic product (GDP). Furthermore, in the future, it may be beneficial to conduct face-to-face interviews with the primary recipients of these monetary and fiscal stimulus packages in order to assess the efficacy of each program on enhancement of food security and nutrition.

Limitations

While this research does make some contributions to the existing body of knowledge, it does have several drawbacks. When it comes to Kenya, the database only has information from a single county. Due to the fact that we are unable to determine whether or not the findings of this study can be generalized to other countries and countries, it is important to exercise caution when generalizing the findings of this study. In order to make the findings of this study more applicable to a wider range of scenarios, further data from a variety of emerging economies is required. A further disadvantage of this study is that there were just a few samples taken. The quality of the study was not affected in any way, despite the limits that were described earlier. Taking into consideration the fact that the sample was restricted to those working in the education sector in a single county, it is possible that researchers in the future will carry out the same study on a variety of different sectors.

Robustness Test

Furthermore, we conducted a sequence of meticulous examinations to guarantee the dependability and consistency of our findings. Outliers pose a substantial methodological challenge in empirical research, since they can greatly skew research findings (Cousineau & Chartier, 2010) or lead to improper acceptance or rejection of hypotheses (Bollen & Jackman, 1985). Multicollinearity occurs in a multivariate regression model when there are

https://doi.org/10.69897/bx0w

significant inter-correlations among two or more independent variables. Multicollinearity in a model can cause the independent variables to be influenced, resulting in broader confidence ranges and reduced reliability of probability estimates. Therefore, we employed the VIF test to evaluate multicollinearity. The variance inflation factor (VIF) measures the extent of multicollinearity among a set of variables employed in multivariate regression analysis. A high Variance Inflation Factor (VIF) indicates a significant association between the dependent variable and the other components included in the model. Multicollinearity impedes regression models in distinguishing the effects of independent and dependent variables. The traditional VIF (Variance Inflation Factor) commences at a value of 1 and does not possess a maximum threshold. Our data have definitively ruled out the existence of this problem.

Declaration of Conflicting Interests

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