

# Assessment of the Moderating Effect of Cash Transfer Program on Off-Farm Activities and Food Security in Siaya County, Kenya

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## ABSTRACT

Social protection through cash transfer schemes came forward as an approach to bolster food security for elderly adults by supporting their economic activities. Several critics remain undecided about how effectively these interventions handle food insecurity conditions. The Older Persons Cash Transfer program (OPCT) in Kenya supports people aged 70 years and above who fulfil conditions of being financially poor, non-pensioners and non-receivers of other government cash transfers (World Bank, 2019). The research investigated how payment agents distribute KES 2,000 each month to recipients over two monthly payments as part of the Siaya County OPCT. OPCT membership influences food security by providing different revenue streams that enhance household food security. The study targeted 300 older adults and sampled 75 OPCT recipients from five wards in Siaya County. Structured questionnaires and key informant interviews were applied in data collection, and analysis was conducted using Statistical Package for Social Sciences (SPSS). Content analysis was used to analyze qualitative information. A linear regression model was applied to test relationships between study parameters. The research revealed that cash transfer schemes make a significant contribution to food security by enabling elderly recipients to access off-farm livelihood opportunities, thereby reducing their dependence on agriculture. While cash transfer provides financial support, it minimally contributes to ensuring food security in the long term unless accompanied by broader livelihood support schemes. The research recommends combining cash transfer schemes with skill enhancement schemes and farm support services to enhance effectiveness in ensuring food security among elderly groups.

**Key Words:** Cash Transfer Program, Food Security, Off-Farm Activities, Older Persons, Sustainable Livelihoods

## INTRODUCTION

Cash transfers started in the 16th century in Europe after the English government accepted collective responsibility in ensuring that the poor and vulnerable persons were a form of social transfer. The scheme entails the distribution of actual money to a designated beneficiary either conditionally or unconditionally (Lavers, T., & Hickey, S. 2021). Various cash transfer schemes exist targeting different groups of people, from orphans, low-income people, widows, and elderly persons.

Among these, cash transfers to the elderly have gained significant research attention in recent decades due to their potential to enhance well-being. In contrast, in Kenya, individuals aged 70 and above qualify as elderly and are eligible for a Ksh. 2,000 monthly cash transfer program (UNHCR, 2018; Pazan & Wehling, 2021). The money is able to improve their welfare by enabling them afford a more diverse and nutritious diet or engage in off-farm activities, improving their food security status. According to Guttal, (2021), food security exists when all people have constant access to enough wholesome food to keep them healthy and active. Ensuring all the four pillars of food security—availability, accessibility, stability, and utilization—is challenging in developing countries, where vulnerable populations such as the elderly, children, and women are disproportionately affected

(Varshney & Rashid, 2021). Food insecurity remains a significant challenge among the elderly, who are often left alone in rural villages with little support (Njai, 2024).

Currently, no single measure comprehensively captures all dimensions of food security. Instead, complementary metrics must account for its diverse aspects, including food expenditure, dietary diversity, consumption frequency, food insecurity experiences, and self-assessed indicators (Dasgupta & Robinson, 2021). This study aimed to establish the moderating effect of the cash transfer program on the relationship between off-farm activities and food security among the beneficiaries in Siaya County. It highlights the importance of targeted social protection programs in enhancing food security among vulnerable populations, particularly the elderly.

### **Statement of the Problem**

The elderly in Siaya County are one of the most socioeconomically disadvantaged and vulnerable groups that have problems. Among these is having no limited regular income to cater to their basic needs (Awino, 2018). Kenya's government has taken measures to counteract this by initiating the Older Persons Cash Transfer (OPCT) program, a social safety net programme that provides the elderly with access to essential goods such as food, clothes and shelter (Awino, 2018). Nevertheless, the program has experienced problems, such as problems of adequacy of funds, timing in remittance, and poor perceptions of beneficiaries on general effectiveness (Osuo, 2022).

Previous studies have found different outcomes of cash transfer programs on food security and the reduction of poverty in different contexts. Some European countries have recorded significant socioeconomic benefits from cash transfer programs, including reducing food insecurity and poverty. Other specific context programs have scored only limited success, including Siaya County in Kenya (Roberts, 2021). Social cash transfer programs in industrial economies promote broader economic progress through changes in the behaviour of households, the economy and the ability to generate income in other local economies (Tang & Gao, 2021). Preventing such negative coping strategies with this economic empowerment can contribute to sustainable food security (Tang & Gao, 2021).

Research investigating these types of programs exists in large quantities. However, at the same time, a significant gap in our knowledge remains regarding understanding which paths, more specifically, participation in such programs, aids in improving food security for older people in Siaya County. Particular attention has been paid to the lack of attention to off-farm activities to improve food security among cash transfer beneficiaries. It is unknown how elderly beneficiaries consume and can meet their nutritional needs (ILO, 2017), as this is a little-known area.

Consequently, we will need to know whether social protection program membership, such as OPCT, affects food security among older individuals in Siaya County. This knowledge gap is addressed by addressing whether program membership moderates off-farm work and food security. This will contribute to the formulation of social protection policies when Kenya's population is ageing (FAO & UNICEF, 2019).

### **Rationale for the Study**

This research will help the government of Kenya assess the performance of the Older Persons Cash Transfer (OPCT) program in terms of enhancing older persons' welfare through off-farm economic activities, which improve their living and food security. Results will inform policymakers about the program's strengths and weaknesses and provide them with data to make informed decisions relating to service delivery focusing on sustainability. Some of the research findings will also be applied to a database for government agencies, researchers, and development partners to improve social protection programs and economic resilience among older persons.

### **Scope of the Study**

The study occurred in Siaya County, which has a high elderly population and a long-existing cash transfer program. The intervention was only limited to aged individuals enrolled in the OPCT program in Siaya County.

It examined how elderly beneficiaries use cash transfers to improve food security and off-farm economic activities to improve their livelihood.

## LITERATURE REVIEW

The literature review presents scholarly perspectives on the relationship between cash transfers and food security for the elderly. The review is structured into subthemes based on key aspects of food security.

### Accessibility of Food

A cash transfer to the elderly results in an increased extent of off-farm activities and, hence, their food security. Hara and Toussaint (2021) reported in Makueni County that recipients of Older Persons's Cash Transfers bore the brunt of these expenses into food expenditures. Apart from directly buying food, a few others put their money into small businesses, such as selling farm produce, tailoring, and petty trading, to employ alternative sources of income to make food available. A study by the Bangladesh Rural Advancement Committee (2008) revealed that in Bangladesh, the recipients of older adult cash transfers are diversifying their sources of income by starting up small businesses and increasing the quantities and dietary variety of food consumed

### Food Availability

Evidence indicates that OPCT financing has served to augment off-farm sources of income for older recipients, enabling them to acquire a stable food supply. Workman and Ureksoy (2017) indicate that receivers in Lesotho spend part of their funds on small businesses, thus reducing the dependence on non-regular food sources and enabling household access to food.

Similarly, Mofya-Mukuka and Hichaambwa (2018) discovered that to the age of some of the older recipients in Zambia, the OPCT funds had been applied to work in a small agriculture business, obtaining livestock to be sold or traded. However, through this entrepreneurial activity, access to food improved and the seasonal food shortfalls were reduced.

In addition, Gorman (2010) pointed out that cash transfers allow recipients the capital to engage in off-farm activities and function to provide safety and augment economic welfare. The outcome is to ensure a stable food supply and, thus, food security from seasonal deficiency. OPCT moderates its effect in increasing food security through the elderly's ability to engage in other economic activities.

### Theoretical Framework

The theoretical framework comprises theories, concepts, and generalizations of numerous research findings closely related to the research study being examined (Marriott & Williams, 2018). This study employed the sustainable livelihood approach to explain cash transfer and its role in promoting food security for the elderly in Siaya County.

### Sustainable livelihood approach

The sustainable livelihood approach was initially conceived in 1966 by the Brundtland Commission and later expanded during the United Nations Conference on Environment and Development in 1992 (Woyesa & Kumar, 2021). Conway (2019) has characterized a sustainable livelihood as being able to withstand shocks, recover from stresses, and maintain or enhance capacities, assets, and activities without depleting natural resources. It aids in planning activities in development like agriculture and markets, earning off-farm incomes, and assessing how they can contribute to livelihood sustainability (Meyer & Auriacombe, 2019).

The sustainable livelihood approach provides three valuable lessons regarding poverty. Economic growth can reduce poverty, but it will be determined by whether or not poor people can capture new opportunities (Aazami & Shanazi, 2020). Secondly, poverty extends to include poor health, illiteracy, social services deprivation, vulnerability, and powerlessness, in addition to low incomes. Lastly, poor people best understand what they need and should be involved actively in shaping policies and programs to improve livelihoods (Ndhlovu, 2018).

The theory is relevant to the study in that it relates to Kenya's Older Persons Cash Transfer (OPCT) programme, which provides a sustainable livelihood to older adults with lateral employment. The theory accounts in how older recipients can enhance food security through involvement in off-farm activities such as business, tailoring, and fishing (Ndhlovu, 2018).

## Conceptual framework

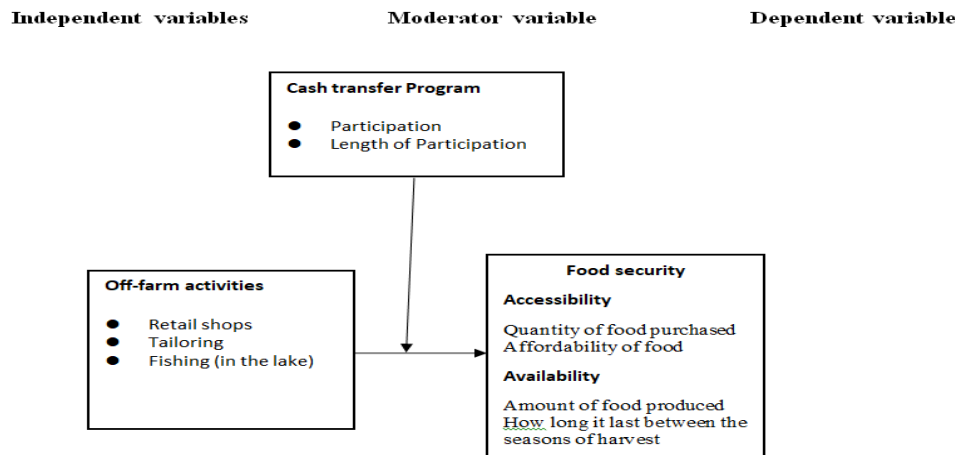


Figure 1.1: Conceptual Framework

## Cash Transfer Program

The government runs this social security program to periodically give elderly persons aged 70 and above 2000 shillings monthly to cushion them against hunger. The study aimed to assess how participation in the program influences and moderates the food security of the recipients through off-farm activities.

## Off-farm activities

This study examined the participation of older adults in profit-making off-farm activities, namely retail shops, tailoring, and fishing in the lakes or rivers. The programs help enhance livelihoods by supplementing households' incomes and improving food security among the programme beneficiaries.

## Food Security

This is the dependent variable. It aims to assess the recipients' level of food security and determine how participating in the program moderates their status.

# METHODOLOGY

## Research Design

The research design consists of the blueprint for data collection, measurement, and analysis (Cash & Summers, 2022). As this study seeks to establish the moderating effect of participation in the Cash Transfer Program on the level of food security of older persons in Siaya County, a cross-sectional survey design is appropriate for the study. Khan and Burki (2020) define a cross-sectional survey as a mere snapshot of the situation at a particular time. In the cross-section approach, we conducted interviews and gave structured questionnaires to individuals to gain a comprehensive understanding of the subject matter.

## Target Population and Study Area

The study benefited 300 older persons registered under the Older Persons Cash Transfer (OPCT) program from the five wards in Siaya County. Based on key informants among chiefs and local administrators and by actual wards, respondents were organized in strata.

Table 1.1 OPCT population per Ward

S/N	Name of Ward	Number of OPCT Beneficiaries
1	Central Sakwa	60
2	South Sakwa	58
3	West Sakwa	65
4	North Sakwa	52
5	West Yimbo	65
	<b>Total</b>	<b>300</b>

(Source: KNBS, 2024)

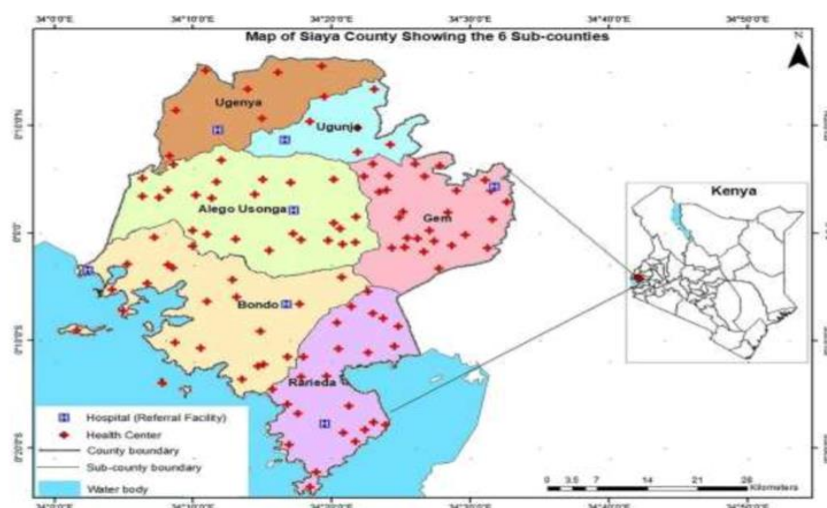


Figure 1.1 Study area

Source: (Olaleye et al., 2024)

## Sample Size and Sampling Techniques

To account for possible non-response, stratified sampling was employed to ensure the inclusion of various groups of older persons (Soltanzadeh & Hashemzadeh, 2021). The study adopted the simplified formula by Yamane (1967) to determine the sample size:

$$n = N / (1 + N(e)^2)$$

Where n-sample size

N- Population size

E - Level of precision

$$n = 300 / 1 + 300(0.1)^2$$

$$n = 300 / 4$$

$$n = 75$$



Thus, a sample of 75 OPCT beneficiaries was selected for the study. A control group comprising 10 respondents was included to assess response variations.

### Data Collection Instruments

Two primary data collection methods were employed:

(a) **Questionnaires**—a structured questionnaire was used to collect quantitative data. Questionnaires were selected due to their ability to reach a large number of respondents within a short period, allow adequate response time, ensure respondent anonymity, and reduce bias (Owens, 2002).

(b) **Key Informant Interviews (KII)** – Interviews with key informants, including chiefs and other local administrators, provided qualitative insights into the implementation and effects of the OPCT program on food security.

### Pilot Test

Mugenda & Mugenda (2003) recommend that a pilot study comprise at least 10% of the total sample size, ensuring homogeneity in characteristics. Eight respondents (10% of 75) were selected for pilot testing for this study. The pilot study was conducted in Juja Ward, Juja Sub-County, Kiambu County, ensuring that these respondents were not included in the final study. Area chiefs were engaged as key informants during the pilot test to assess the reliability and effectiveness of the data collection instruments.

### Reliability of Research Instruments

Reliability refers to a research instrument's ability to consistently measure what it has been constructed to do (Bishop, 2007). To assess consistency in various parts of the research instrument, the study applied Cronbach's Alpha coefficient to test internal reliability (Taherdoost, 2016). It ranges from 0 to 1, with a value of 0 indicating no internal consistency and a value of 1 indicating perfect reliability (Mohajan, 2017). A value between 0.7 and 0.8 would be a standard acceptable value in testing internal consistency.

Validity was ensured by cross-verifying findings with official statistics from the County Department of Social Development, key informants, and the Ministry of Labour and Social Protection to validate the research instruments.

### Data Analysis

Data analysis utilized multiple regression analysis to determine the relationship between independent, dependent, and moderating variables (Kothari, 2014). The regression equation was formulated as follows:

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon$$

$\beta_0$  = Constant term

$\beta_1$  = beta coefficients

$X_1$  = Off-farm activities

$\varepsilon$  = Error term

Two factors were key in the food security assessment: Food Availability and Accessibility to OPCT recipients in Siaya County (Wiafe & Yeboah, 2023). Programme participation's moderating effect was examined by estimating the regression model with and without programme participation as a predictor variable (Tegowati, Khamimah, Mutmainnah, & Syahrenny, 2022).

## RESULTS AND DISCUSSIONS

### Demographics Characteristics

Table 1.2 presents the demographic characteristics of the respondents, specifically focusing on the Older Persons Cash Transfer Program (OPCTP) beneficiaries. Most respondents (88.2%) were beneficiaries of the OPCTP, while 11.8% were non-beneficiaries (control group). The gender distribution was nearly balanced, with 49.4% male and 50.6% female.

Table 1.2 Demographic Characteristics

Continuous Variables	Pooled (n=85) %	S.D	Beneficiaries (n=75) %	Non-Beneficiaries (n=10) %	P-Value
Age (years)	75.98	5.122	75.47	79.8	0.001
Estimated monthly income (Ksh)	2247.06	675.346	2153.33	2950	0.021
Household Members	2.87	0.704	2.92	2.5	0.813

Source: Field survey data, 2025

Categorical Variables	Measurements	Pooled (n=85) %	Beneficiaries (n=75) %	Non-Beneficiaries (n=10) %	P-Value
Gender	Male	49.4	49.3	50	0.523
	Female	50.6	50.7	50	0.601
Main source of income	Donations	22.4	22.7	20	0.785
	Cash Transfer	64.7	73.3	0	0.011
	Remittance	12.9	4.0	80	0.241

Source: Field survey data, 2025

The average age of respondents was approximately 76, with a standard deviation of 5.122 years, which aligns with the policy requirement that beneficiaries should be at least 70 years old. However, the mean age of none beneficiaries was significantly higher than that of participants. Most respondents' primary source of income was cash transfers (64.7%), with an average estimated monthly income of 2,247 Ksh. It was noted that non participants significantly earn more than the participants. This align with the policy that states that the beneficiaries should be vulnerable senior citizens Regarding household size, the average number of household members was about three, with a minimum of two and a maximum of six members and a standard deviation of 0.704, indicating a relatively moderate variation in household sizes.

The findings suggest that most elderly individuals in Siaya County benefit from the Older Persons Cash Transfer Program (OPCTP), which is a primary income source for most respondents. The average age of participants aligns with policy guidelines, and the household sizes are relatively small, which may influence food security dynamics. The relatively balanced gender distribution indicates that both men and women benefit from the program. These results imply that cash transfers support older people and improve their financial stability and food security.

## Descriptive Statistics

### Food Security

The study on food security revealed that maize is the primary staple food consumed by the respondents, followed by rice, as shown in Table 4.3. A majority of respondents (67.1%) purchase staple foods every month. The most commonly consumed vegetable is kale, followed by cabbage, which may suggest their abundance in the region or affordability. In contrast to staple foods, vegetables are purchased more frequently, with most respondents buying them daily. Regarding production, the average respondent grows 2.39 bags of staple crops and 0.11 acres of vegetables. Regarding purchases, respondents buy an average of 0.9 bags of staple crops and 43.82 kg of vegetables monthly, at an average cost of 3,623.53 KES and 9.18 KES per kilogram, respectively.

The findings suggest that while maize remains the primary staple food, the reliance on rice and frequent vegetable purchases indicate a diverse dietary pattern among respondents. The frequent purchase of vegetables, particularly cabbage and kale, reflects a high demand for such food items, possibly for their availability and price in the region. The relatively low-scale production of staple foods and vegetables reveals that most households rely on procurement in the market to meet their food needs, specifically for vegetables. The mean price of staple foods and vegetables reflects the food expense burden. All these observations reveal that food security in the region could be under strain with low production capacity and overreliance on availability and price in the market, particularly for frequently purchased vegetables over cereals.

Table 1.3 Food Security

	Statement	Response	Frequency	Percentage (%)
<b>Staples Foods</b>	Staple food consumed	Maize	57	67.1
		Rice	26	30.6
		Sorghum	2	2.4
	Frequency of purchase	Weekly	1	1.2
		Two weeks	2	2.4
		Monthly	57	67.1
		Once in three months	25	29.4
<b>Vegetables</b>	The main vegetable consumed	Kales	42	49.4
		Cabbage	30	35.3
		Indigenous vegetable	13	15.3
	Frequency of purchase	Daily	25	29.4
		Weekly	22	25.9
		Two weeks	18	21.2
		Monthly	19	22.4
		Once in three months	1	1.2

Source: Field survey data, 2025

Variable	Valid (N)	Mean	Median	Std. Deviation	Minimum	Maximum
Quantity of staple crop produced (90 Kg)	85	2.39	2	1.23	1.5	8



bags)						
Quantity of staple crop purchased (90 Kg bags)	85	0.9	1	0.64	0	4
Cost of staple crop per 90 Kg bag (KES)	85	3623.53	3500	242.82	3000	4000
Quantity of vegetable produced (acres)	85	0.11	0.13	0.03	0.06	0.13
Quantity of vegetable purchased (Kg)	85	43.82	30	26.26	20	100
Cost of vegetables per unit (KES)	85	9.18	10	2.87	5	20

Source: Field survey data, 2025

The findings of this study align with similar research conducted by Mwangi et al. (2020), which highlighted that smallholder farmers in Kenya often rely on both homegrown and market-purchased foods to meet their household needs. In their study, they found that households with limited agricultural production were more dependent on market purchases, especially for vegetables. Similar to our study, the high consumption and frequent purchase of vegetables, such as kales and cabbage, reflect a reliance on accessible and affordable foods, which may be influenced by local availability or cost factors. This underscores the need for enhancing local production and reducing market dependency to improve food security in the region.

### Participating in Cash Transfer Program

Table 4.4 indicates that most participants (38.8%) have been receiving benefits from the Older Persons Cash Transfer Program (OPCTP) for two years. A significant portion (56.5%) reported that the program had moderately improved their lives and played a crucial role in enhancing food security. When asked about financial decision-making, 50.6% of respondents said they manage the cash transfer. In comparison, 49.4% indicated that someone else makes these decisions for them. Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs) revealed that in families where older people do not make financial decisions, mistreatment by caregivers is more prevalent. These findings support Scolastika (2024), who emphasized the importance of implementing systems to protect elderly individuals from exploitation by relatives.

Regarding how respondents allocate their cash transfer, most rated food, health, and debt repayment as their top priorities, with food ranking 5<sup>th</sup>, clothing and debt repayment both at 4<sup>th</sup>, and health at 5<sup>th</sup>, with none ranking 1<sup>st</sup> or 2<sup>nd</sup>. Notably, the majority (64.7%) affirmed that the cash transfer serves as direct financial support, reinforcing its significance in supporting elderly households.

Table 1.4 Participating in Older Persons Cash Transfer

Statement	Response	Frequency	Percentage (%)
How long have you participated in Cash Transfer Program?	0-1 Year	22	25.9
	2 Years	33	38.8
	3 Years	20	23.5
	4 Years and Above	10	11.8
How has the program helped to improve your life?	Slightly	29	34.1
	Moderately	48	56.5
	very much	8	9.4

Do you think that Cash Transfer Program plays a role in food security?	no	27	31.8
	Yes	58	68.2
Do you make financial decisions on how your cash transfer is spent?	no	42	49.4
	Yes	43	50.6
Does the cash transfer act as a direct financial support for you?	no	30	35.3
	yes	55	64.7

Source: Field survey data, 2025

Table 1.5 Rating of spending out of 10

Statement	Response	Frequency	Percentage (%)
Food	4	20	23.5
	5	46	54.1
	6	3	3.5
	7	16	18.8
Clothing	2	5	5.9
	3	8	9.4
	4	28	32.9
	5	40	47.1
	6	4	4.7
	3	28	32.9
	4	29	34.1
	5	20	23.5
	3	4	4.7
	4	32	37.6
	5	33	38.8
	2	8	9.4
	3	16	18.8
	4	25	29.4
	5	28	32.9

Source: Field survey data, 2025

The findings suggest that the OPCTP has a positive but moderate impact on the lives of elderly beneficiaries, particularly in improving food security. However, the fact that a significant portion of respondents does not

control financial decisions implies potential vulnerability to exploitation within households. This is particularly concerning as it could lead to mistreatment of elderly individuals, as highlighted by the FGDs and KIIs. The allocation of most of the funds towards medical care, food, and debt servicing signifies that although such a program is significant for survival, financial independence for older adults is in demand. Besides, the role of such a program in direct financial aid signifies its worth, but at the same time, it means a demand for creating a mechanism for offering security for the proper distribution and use of such funds in a family.

The observations in this research are consistent with such research, for example, Njai (2024), whose research focused on the beneficial but sometimes limited contribution made by cash transfer schemes towards improving the welfare of older people. That susceptibility to abuse is consistent with our research, where older people in such households, where older people do not have control over their monies, encountered abuse with high likelihood. Similarly, in research carried out by Chirwa (2016) on cash transfer schemes in Sub-Saharan Africa, such schemes successfully improved food security in households and reduced poverty but highlighted that schemes need to have inbuilt mechanisms for safeguarding older people's beneficiaries in having greater control over monies to prevent abuse. The focus on food, health, and debt repayment in the allocation of cash transfers underscores the prioritization of immediate survival needs, a trend observed in other literature, such as that by Iversen et al. (2017), which emphasized the essential role of cash transfers in alleviating basic needs for vulnerable groups, including older people.

## Off-Farm Activities

The findings on off-farm activities revealed that a minority (40%) of respondents engage in fish farming, as shown in Table 1.6. Tilapia is the most commonly farmed species (25.9%), followed by catfish and Nile perch (7.1%). Most farmers feed their fish using maize bran (32.9%) and harvest using fishing nets (21.2%). On average, fish farmers previously harvested 30.49 kilograms of fish, generating an average revenue of Ksh 14,276.91. The primary motivation for fish farming is sales (32.9%), with the revenue often used to pay school fees for grandchildren. This was corroborated by Key Informant Interviews (KIIs), which highlighted the active involvement of elderly individuals in supporting their grandchildren's education.

Only 29.9% of respondents reported involvement in trading activities, with most operating retail shops (27.1%), mainly in rural areas (36.5%). A sole proprietorship is the most common form of business ownership (29.4%), and many traders (23.5%) reinvest their earnings in farming activities. On average, these businesses have been operating for 8.14 years, with an annual turnover of Ksh 70,938.82. Despite their long-term presence, the revenue generated from trading remains modest, reflecting the need for enhanced business opportunities and market access to boost profitability.

Tailoring accounts for another notable off-farm activity, with 41.2% of respondents involved. Most tailoring businesses are family-owned, with the majority (23.5%) allocating their revenue toward purchasing food. Other income uses include healthcare (11.8%) and school fees (5.9%). The average annual income from tailoring is Ksh 41,758.82; however, most respondents (47.1%) expressed that the revenue generated is insufficient to meet their financial needs.

Table 1.6 a. Fish Farming

Statement	Response	Frequency	Percentage (%)
<b>Do you engagement in fishing?</b>	No	51	60
	Yes	34	40
<b>Category of fish farming</b>	earth	18	21.2
	floating	16	18.8
	n/a	51	60

<b>species of fish farmed</b>	Nile perch	6	7.1
	tilapia	22	25.9
	catfish	6	7.1
	n/a	51	60
<b>Feeds used</b>	vegetables	12	14.1
	maize bran	28	32.9
	n/a	45	52.9
<b>Harvesting material</b>	fishing net	18	21.2
	mosquito net	16	18.8
	hook	6	7.1
	n/a	45	52.9
<b>The main destination of the fish produced</b>	consumption	6	7.1
	sales	28	32.9
	n/a	51	60
<b>The primary use of the revenue earned</b>	school fees	11	12.9
	food	17	20
	n/a	57	67.1
<b>Is the revenue enough?</b>	no	11	12.9
	yes	17	20
	n/a	57	67.1

Source: Field survey data, 2025

Table 1.6 b. Traders

<b>Statement</b>	<b>Response</b>	<b>Frequency</b>	<b>Percentage (%)</b>
<b>Are you a trader</b>	no	60	70.1
	yes	25	29.9
<b>What business do you trade on?</b>	Retail shop	23	27.1
	Open air market	18	21.2
	n/a	44	51.8
<b>Where is your shop based?</b>	urban	13	15.3
	rural	31	36.5

	n/a	41	48.2
<b>Type of business ownership</b>	Sole proprietorship	25	29.4
	partnership	19	22.4
	n/a	41	48.2
<b>To what extent do you invest the money you get from your sales?</b>	Restock	15	17.6
	Farm	20	23.5
	Plough back to business	5	5.9
	n/a	45	52.9

Source: Field survey data, 2025

Table 1.6 c. Tailoring

Statement	Response	Frequency	Percentage (%)
Are you a tailor?	no	50	58.8
	yes	35	41.2
Do you employ other persons in your business?	no	60	70.6
	yes	25	29.4
What do you use the revenue generated for?	n/a	50	58.8
	food	20	23.5
	health	10	11.8
	school fees	5	5.9
Is the revenue generated enough?	no	40	47.1
	yes	15	17.6
	n/a	30	35.3

Source: Field survey data, 2025

Table 1.6 d.

	Quantity of fish previously harvested during the KG?	How much revenue do you generate from the fish sales	How long has your business been trading (years)?	What is your business annual turnover in Ksh?	What is your tailoring annual turnover in Ksh?
N	Valid	85	85	85	85
	Missing	0	0	0	0
Mean		30.49	14276.91	8.14	70938.82
					41758.82



Median	35	12000	10	100000	6000
Std. Deviation	20.293	11594.893	4.986	72731.015	62787.179
Range	70	87349	20	199500	199000
Minimum	0	655	0	500	1000
Maximum	70	88004	20	200000	200000

Source: Field survey data, 2025

### Inferential Statistics

The model summary shows a strong relationship between the predictor variables and food security as shown in Table 1.7. Model 2, which includes interaction terms for off-farm activities, dependency, agricultural production, and cash transfers, explains 72.5% of the variance in food security. This highlights the significant impact of these factors on food security, with the inclusion of cash transfers further improving the model's explanatory power. The standard errors are low, indicating accurate predictions, and the Durbin-Watson statistic suggests no autocorrelation, ensuring model reliability. These findings suggest that a multifaceted approach, including cash transfers, is crucial for improving food security.

Table 1.7 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.690 <sup>a</sup>	0.540	0.801	6.116	1.826
2	.739 <sup>c</sup>	0.725	0.890	4.428	2.190
a. Predictors: (Constant), Off-farm activities					
b. Predictors: (Constant), Off-farm activities					
c. Predictors: (Constant), Off-farm activities, Off-farm activities*CT					
d. Dependent Variable: Food Security					

Source: Field survey data, 2025

The ANOVA results in Table 1.8 confirm that the regression models are statistically significant in explaining food security. In Model 1, with predictor such as the off-farm activities, the model is significant ( $p = 0.023$ ). Model 2, which includes interaction terms, shows even stronger significance ( $p = 0.000$ ), indicating that the combined effects of these variables, especially with the inclusion of interaction terms, explain a substantial portion of the variance in food security. .

Table 1.8 ANOVA

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1144.245	3	381.415	.218	.023 <sup>b</sup>
	Residual	141525.930	81	1747.234		

	Total	142670.175	84			
2	Regression	3609.328	7	515.618	.286	.000 <sup>d</sup>
	Residual	139060.847	77	1805.985		
	Total	142670.175	84			
a. Dependent Variable: Food Security						
b. Predictors: (Constant), Off-farm activities						
c. Predictors: (Constant), Off-farm activities, Off-farm activities*CT						

Source: Field survey data, 2025

The results for the moderating effect of Cash Transfer (CT) indicate strong interactions with key factors such as off-farm work and how such interactions contribute to food security effects. The cash transfer-off-farm activities interaction has a positive value for the coefficient ( $B = 0.056$ ) and statistical significance ( $p = 0.022$ ). This indicates that cash transfer complements off-farm activities' contribution to food security. Households with cash transfers can use the cash to maintain or increase off-farm earning sources, such as trading or small businesses, which can contribute to food security. The positive moderating effect indicates cash transfer's ability to improve off-farm livelihoods, making it easier for households to have alternative sources to maintain themselves and withstand food security hardship.

Table 4.10 Coefficients

Coefficients <sup>a</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	607.958	13.623		44.628	.030		
	Off-farm activities	.022	.110	.090	.809	.003	.998	1.002
2	(Constant)	563.165	123.652		4.554	.000		
	Off-farm activities	.012	.012	.994	1.060	.000	.014	1.230
	Off-farm activities*CT	.056	.160	.916	-.973	.022	.014	1.762
a. Dependent Variable: Food Security								

Source: Field survey data, 2025

### CT=Cash Transfer

The positive off-farm activity and CT concur with a study in a PMC (2024), whose results revealed that cash transfers facilitated off-farm income diversification, enhancing food security. On a marginally significant and positive level, its interaction with dependency ratios concurs with a study by UNICEF (2024), whose results established that cash transfers empower high-dependency-ratio households to bear financial burdens, enhancing food security. Overall, these studies reveal the multi-dimensional role played by CT in increasing food security through off-farm livelihoods and high-dependency-ratio households.

## Hypothesis Test

Table 4.11 Hypothesis Test

Objectives of the study	Significance value	Decision
H0 <sub>2</sub> : There is no significant moderating effect of participation in Cash Transfer Program on off-farm activities and food security in Siaya County.	.000	Reject H0

Source: Field survey data, 2025

## CONCLUSIONS AND RECOMMENDATIONS

### Conclusion

The findings from the inferential statistical analysis indicate that food security for older adults in Siaya County relies primarily on off-farm activity participation and assistance from cash transfer schemes. According to the study, food security improves with cash transfers, albeit with a multifaceted effect. Besides direct financial support, the scheme offers access to alternative sources of income, primarily in off-farm activities, to enhance food security.

The study focuses on adopting a holistic strategy that combines off-farm activities and financial assistance to promote sustainable food security for the elderly in Siaya County. The cash transfer is a vital safety net that shields against risks associated with heavy dependence on rainfall agriculture and a lack of irrigation facilities. By reducing vulnerability to climatic shocks and financial insecurity, the programme enhances resilience among the elderly and improves food security status. While cash transfer has helped to ensure finances and augment alternative incomes from off-farm sources, long-term food security can be ensured with integrated policy interventions. The approach in the future must integrate support schemes in agriculture with cash transfer schemes to create a holistic approach to ensuring financial independence and agrarian development. Integrating financial support with sustainable livelihood opportunities will enhance social protection programs' effectiveness in alleviating food insecurity in older adults.

### Recommendations

According to the findings and observations made during the study, the following are recommended to improve the effectiveness of cash transfer programs in improving food security among older persons in Siaya County.

**Off-farm income opportunities:** Since cash transfers increase off-farm incomes and lead to greater food security, the government can enhance skill development schemes and open microfinance opportunities. Such schemes encourage small entrepreneurship, handicrafts, and service-oriented jobs, providing alternate sources of income for older adults. Cash transfers can provide off-farm livelihood opportunities, and if they become a safety net rather than a panacea to end food insecurity, they can strengthen food security amongst recipients.

**Enhanced Monitoring and Evaluation of Cash Transfer Programs:** A robust monitoring and evaluation system would be necessary to improve cash transfer programs' effectiveness in alleviating food security issues. Continuous monitoring of how the program affects recipients will provide helpful feedback about its efficiency and effectiveness in addressing the specific needs of older adults. Regular evaluation will also provide timely policy responses to shifting economic and social factors to ensure that cash transfer programs can effectively alleviate food insecurity and improve recipients' welfare.

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