Determinants of multidimensional poverty vulnerability in Tanzania: Does the Tanzania Social Action Fund matter?

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ABSTRACT

The study aims to analyse the multifaceted factors that contribute to poverty while accounting for the disparities that exist between Tanzania's Social Action Fund recipients and the general population. The study is entirely quantitative, utilising data from the Tanzania Demographic and Health Survey (2022). It involves surveying 73,774 households from the general population and 7,787 households participating in the Tanzania Social Action Fund. By using the Alkire and Foster approach to compose the deprivation levels, multidimensional poverty vulnerability was created as a binary measure with a cut-off point of 0.3333. The multidimensional poverty index of 0.3333 mapped non-vulnerable households, while vulnerable households have a multidimensional poverty index of above 0.3333. Both descriptive analysis indicating frequencies and percentages and inferential analysis, specifically the binary logistic regression, were applied to determine the multidimensional poverty determinants. The study revealed that Tanzania Social Action Fund beneficiaries were more deprived than the general population. However, it was found that both samples were more deprived of sanitation, electricity and cooking fuel. The place of residence, specifically rural residence, significantly increased multidimensional poverty vulnerability. On the other hand, households with heads older than 65 years were more prone to multidimensional poverty. It was also revealed that savings, specifically having bank accounts, reduces households' vulnerability to multidimensional poverty. The study also found interesting results that Tanzania Social Action Fund benefits reduce households' multidimensional poverty vulnerability across age of the head of household, household size and bank savings. Thus, justifying the relevance of the Tanzania Social Action Fund programme in mediating the effects of multidimensional poverty determinants. The government should increase the budget to support a variety of multidimensional poverty-vulnerable households, such as those headed by the elderly and other vulnerable groups who have few opportunities to earn income through employment. Similarly, TASAF beneficiaries should receive more training in financial management and entrepreneurial skills to improve their sources of income and enable them to save for the future, thereby reducing financial shocks.

Keywords: Multidimensional Poverty, Social Security Action Fund, Tanzania, Vulnerability
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I. INTRODUCTION

The global population face significant deprivations in multiple aspects of their lives, including health, education, and living standards, beyond just income. Thus, poverty cannot be adequately addressed by focusing on monetary measures alone (Banks et al., 2021; Díaz et al., 2022; Gakuru & Yang, 2024), necessitating the need for multidimensional poverty measurement approaches that cut across various dimensions of the human wellbeing. Multidimensional poverty is a global and a multifaceted phenomenon experienced in a significant number of countries in the world. The global multidimensional poverty index in 2024 estimated that among 112 countries, 1.1 billion of the 6.3 billion people were living in poverty . This number was significantly contributed by Sub-Saharan African countries with nearly a half (48.3 percent) of its people living in poverty. This was followed by Asia which scores the second position with 35.0 percent of the total population living in multidimensional poverty (OPHI & UNDP as cited in Pradhan et al., 2022). Therefore, these regions are prone to low Human Development Index (HDI) which signifies the highest levels of multidimensional poverty among the people living in those regions. Most likely, children and rural population are affected by multidimensional poverty in these regions unlike adults and the urban population. The Poverty and Human Development Initiative (2024) report shows that 27.9 percent of

the children were multidimensional poor, doubling the adults' levels (13.5 percent) (OPHI & UNDP as cited in Pradhan et al., 2022).

Low- and low-middle-income countries have been adopting a number of strategies to address poverty and ensure their people's wellbeing. The most commonly implemented strategies are stimulating inclusive economic growth, economic and institutional reforms, promoting microfinance institutions and programmes, improving the marketing system and social security schemes (De Salvo & Vaquero Piñeiro, 2022). However, the social security schemes which come with the main two components, social security and social assistance (Barrientos, 2023), have gained global recognition in enhancing economic empowerment and poverty reduction among the poor population. Whereas, cash transfer is reported to have a high contribution in vulnerable groups' wellbeing aspects, like health and reduced mortality rates, due to increased access to nutrition and health care (Richterman et al., 2023; Wang et al., 2022; Zhao & Wang, 2025).

Like many other nations in Sub-Saharan Africa, Tanzania struggles with multidimensional poverty, characterised by aspects like inadequate housing, electricity, cooking fuel, education, nutrition and health care, other than income (Wang et al., 2021). For instance, the most recent survey data estimates of 2021 indicate that 36,288 (57.1 per cent) of the Tanzanian population were multidimensionally poor, while an additional 23.4 per cent were classified as vulnerable to multidimensional poverty. Thus, the Multidimensional Poverty Index (MPI) value, which is the share of the population that is multidimensionally poor adjusted by the intensity of the deprivations, is 0.284 (Bujiku Sende et al., 2025; Charles et al., 2023). In this regard, a manifold strategy that addresses several facets of deprivation is necessary to address this complicated issue

In Tanzania context the Tanzania Social Action Fund (TASAF) is the main social security scheme entrusted in reducing poverty vulnerability among the vulnerable population. In Kilosa district, Morogoro region, Tanzania Athuman and Kashaga (2023) found that TASAF plays a great role in elders' economic empowerment through cash transfer and business skills development. Thus, the program has increased opportunities for engaging in crops cultivation and income generation essential for food security and assets (land, livestock) accumulation hence, reduction in multidimensional poverty. Similarly, Komba and Kitole (2025), reported positive impacts of TASAF III programme on household income. Whereas, the program facilitates economic empowerment through its Productive Social Safety Net (PSSN) and health insurance (Mwaijande & Mwakalikamo, 2024). Moreover, Njuga et al. (2022) found that cash transfer improved qualities of some housing indicators like floor, sanitation and some of productive and non-productive assets.

Despite the role played by TASAF in ensuring the poor population segment with fund to reduce their vulnerability by reducing income poverty, there is limited understanding of their multidimensional poverty levels as well as the associated determinants. Traditional measures of the poverty reduction interventions have been focusing on measuring the programs' outcomes separately (Gidigbi, 2023; Hailu & Amare, 2022; Patel-Campillo & García, 2022; Zhou et al., 2023). However, an integrated measure of the outcomes would bring about a clear understanding on the significance of the program in reducing poverty among beneficiaries. Thus, the multidimensional poverty measure is the appropriate approach to address this information gap. Yet, clear understanding on levels and determinants of their multidimensional poverty vulnerability is of the most significance in the target to increase the effectiveness of TASAF services in poverty reduction. Therefore, the study aims at assessing the levels and determinants of multidimensional poverty vulnerability among TASAF beneficiaries and non-beneficiaries.

It is widely recognized that a number of demographic and institutional factors influence the level of households' multidimensional poverty. Significant number of scholarly works have addressed the demographic and institutional determinants of multidimensional poverty in low and middle income countries. Charles et al. (2023) addressed the determinants of multidimensional poverty in rural Tanzania, whereby demographic characteristics like sex of head of household, education levels, marital status, age and access to family planning services were significant determinants of multidimensional poverty in rural households. Likewise, in Ethiopia, Nigeria and Hong-Kong studies identified education level of the head of household, farm size, access to improved agricultural inputs, market distance and localities to be among the factors envisaging multidimensional poverty status (Haile et al., 2021; Mare et al., 2022; Sulaimon, 2022). With rich literature in the determinants of multidimensional poverty, most of them have given much attention to rural settings and their agricultural characteristics. Likewise, the focus on TASAF has not considered the non-TASAF beneficiaries thus, limiting the conclusion on the role played by TASAF in mediating the influence of other factors on multidimensional poverty.

Understanding the current variations in the effects of various factors on multidimensional poverty among TASAF and non-TASAF recipients in both rural and urban settings is critical. This study aimed to close this knowledge gap by performing a comparative analysis of the multidimensional poverty determinants among TASAF beneficiaries and the general population. Therefore, the state of deprivation in housing, sanitation, cooking fuel, electricity, drinking water, asset ownership, and education was especially examined. In addition, the factors that contribute to multifaceted poverty were

examined, including household location, the age of the household head, household size, ownership of agricultural land, bank account, livestock, and TASAF support accessibility. Policymakers may use the findings of this study to enhance social security programs while tackling a number of issues that are more relevant to TASAF recipients. This is because making well-informed judgements about poverty reduction is crucial to achieving Sustainable Development Goal (SDG) number one, which aims to eradicate poverty. Additionally, the research is essential to achieving the second pillar of Tanzania Development Vision 2050, which focusses on social development and human skills.

II. LITERATURE REVIEW

2.1 Theoretical Framework

2.1.1 Capacity Approach

Sen's Capability Approach (CA) is grounded on a conceptual framework that connects commodities (income) with capability to operate and individual well-being (Share, 1976). The approach takes into account not just an individual's access to commodities (income), but also the ability to function with the goods and services available to him or her. Individuals, however, vary in their ability to translate goods and services into achievements. People at high risk of multidimensional poverty require more assistance to function with available services or goods in order to escape poverty (Diwakar & Shepherd, 2022). Therefore, access to resources can empower vulnerable impoverished individuals to improve their lives (De Salvo & Vaquero Piñeiro, 2022). This suggests that providing social security benefits through TASAF to vulnerable individuals such as elders, rural households, and those with restricted access to assets can help reduce poverty among individuals. Despite its potential to connect peoples' access to opportunities and their ability to exploit those possibilities to improve their living conditions, the capacity approach is more individualistic and fails to address multidimensional poverty at the household level (Luz & Portugal, 2022). As a result, it does not place a strong emphasis on access to common amenities like housing, sanitation, cooking fuel, and power, all of which household members benefit from together.

2.1.2 Social Protection Theory

The idea of social protection is widely defined in many contexts, but in general, it refers to a policy designed to address concerns of risk, vulnerability, and extreme poverty. In 2003, the Asian Development Bank's (ADB) social protection policy highlighted five major threats to the poor: individual life cycle, health, economic, environmental, and social/governance-related risks (Schüring & Loewe, 2021). These risks are more likely to impact the vulnerable poor population because they have fewer chances, assets, and reserves to deal with them. Accordingly, life cycle risks make rural households and those with insufficient assets, savings, and debt more susceptible to multidimensional poverty (Kandikuppa, 2022). The theory also identifies conditions such as illness from diseases or injuries, disabilities, old age, and death as the factors that might result in insufficient savings and assets together with debt, as threats that restrict households' ability to obtain basic necessities (Banks et al., 2021; Panda & Mohanty, 2025; Pinilla-Roncancio & Alkire, 2021). It is known that both macro and sectoral policies that support economic growth and public policies which address community needs are effective ways to lower the risk of poverty among the poor. On the other hand, the main goal of social protection measures has been to provide social support to the most disadvantaged population. As a result, nations have adopted a variety of approaches to provide financial and in-kind social support to assist the poverty vulnerable population to escape from poverty.

Hence, the theory of social protection was adequately applied in this study as it explains mechanisms that lead a certain group of people to become vulnerable to poverty through their lives' cycles. Thus it gives a clear description of how old age, limited access to productive resources like agricultural assets and savings can lead to households' vulnerability. More likely, the approach gives a clear framework to link multidimensional poverty vulnerability with TASAF support which is the common social protection support in Tanzania (Athuman & Kashaga, 2023; Njuga et al., 2022). Therefore, within the social protection framework, the study assessed how the fund reduces multidimensional poverty vulnerability to the vulnerable households (Schüring & Loewe, 2021). In this study, the most multidimensional poverty vulnerable households were identified as households headed by old aged persons, with large household size, lacking productive resources like land for agricultural production and livestock as well as savings in bank account. These factors are more important as they can dictate households' access to basic necessities like education, health, water, cooking fuel, housing, electricity and sanitation.

2.2 Empirical Review

Reviewed literature indicate various factors associated with multidimensional poverty and vulnerability which are categorised into geographical, demographic, socio-economic and political factors. A study done by Hernández and Zuluaga (2022) on poverty vulnerability in Colombia found that households' location was directly associated with the households'

likelihood of being multidimensionally poor. Similarly, the study by Charles et al. (2023) on the determinants of multidimensional poverty in rural Tanzania analysed the influence of age, education level, marital status, and family planning use on the households' multidimensional poverty. It revealed that age, educational level, being married, and the use of family planning reduced the probability of being multidimensionally poor. Thus, these variations in levels of multidimensional poverty vulnerability necessitate the majority of social protection schemes including TASAF to prioritise the most vulnerable population segments. This has brought positive impacts in the reduction of poverty among the vulnerable population like those in rural areas and the elderly.

Various studies (Athuman & Kashaga, 2023; Komba & Kitole, 2025; Mwaijande & Mwakalikamo, 2024; Njuga et al., 2022) have been done on the impact of TASAF support on poverty reduction. The majority of these studies found that the programme had positive impact on reducing multidimensional poverty vulnerability through improved living standards. The program has notable contribution in increasing access to business capital, income, and access to health and education important for human capita development. For example, a study done by Athuman and Kashaga (2023) found that cash transfer support through TASAF improved elders' access to food, health and investment in income generating activities which further reduced their multidimensional poverty vulnerability. Similarly, Njuga et al. (2022) in their study on the impact of cash transfer on poverty reduction in Lindi district of Tanzania, found that the program improves access to basic needs like cooking fuel, water and sanitation. It also increased ownership of assets like mobile phones and chairs which increased beneficiaries' social participation and improved social status.

Therefore, literature provide a detailed explanation of what exposes households to multidimensional poverty vulnerability and how TASAF reduces that vulnerability among vulnerable groups, such as the elderly. However, there is limited information of how TASAF support mediates the determinants of poverty. Thus, given the role of TASAF in reducing multidimensional poverty, its mediating effect was so important in addressing how it reduces the influence of the identified determinants of multidimensional poverty. This will facilitate strengthening of social action schemes that are more targeted on addressing the specific population characteristics that increases vulnerability to multidimensional poverty.

III. METHODOLOGY

This study is purely quantitative, it utilizes the Tanzania Demographic and Health Survey (TDHS) data collected by the National Bureau of Statistics (NBS) in 2022. It is a comparative study aiming at analyzing multidimensional poverty vulnerability determinants differentials between the general population and the Tanzania Social Action Fund (TASAF) beneficiaries. The general population include all 73,774 surveyed households while, TASAF beneficiaries include 7,787 receiving TASAF support as indicated in figure 1.
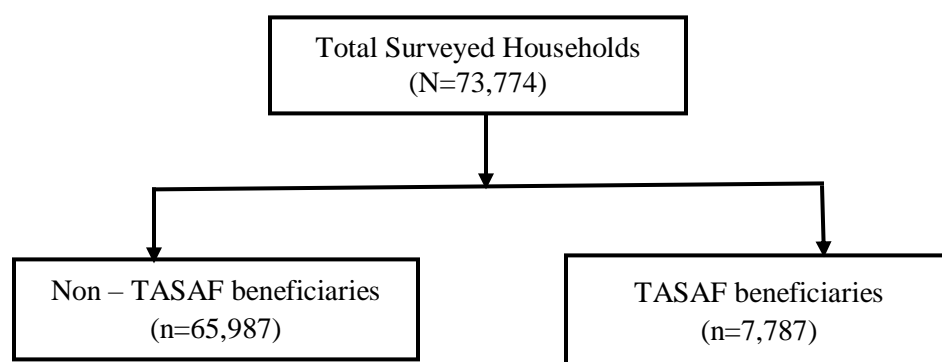
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        ┌─────────────────────────┐
        │ Total Surveyed Households│
        │      (N=73,774)          │
        └─────────────────────────┘
                    │
          ┌─────────┴─────────┐
          ▼                   ▼
┌───────────────────┐  ┌───────────────────┐
│ Non – TASAF       │  │ TASAF beneficiaries│
│ beneficiaries     │  │    (n=7,787)       │
│   (n=65,987)      │  │                    │
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Figure 1
Study Sample Selection

Data analysis involves descriptive and inferential (binary logistic regression) statistical analysis using STATA version 17. The descriptive analysis summarizes data and the Chi-square test was carried out to determine the factors associated with multidimensional poverty vulnerability. The significant factors at the 95% confidence level were considered in the binary logistic regression analysis. The dependent variable is multidimensional poverty vulnerability which was proximately measured by the Multidimensional Poverty Index (MPI) calculated using the weighted scores as suggested by (Alkire & Foster, 2011). The Index included three major indicators of multidimensional poverty (health, education and living standard). The Multidimensional poverty index was obtained as the sum of weighted scores of indicators with equal

weights of 1/3 each. The composite variable of poverty vulnerability was established based on the cut-off point of MPI at 0.3333. Households with the MPI ranging from 0 to 0.3333 were considered not vulnerable to multidimensional poverty (denoted by 0). On the other hand, MPI ranging from 0.67 to 1 where considered as being vulnerable to multidimensional poverty (denoted by 1). Thus, deprivation in at least one indicator puts an individual or a household as being vulnerable to multidimensional poverty (Diaz-Bonilla et al., 2024). The cut-off point C_i was calculated based on the following mathematical expression:

$$C_i = W_1 I_1 + W_2 I_2 + W_3 I_3$$

Where, the values of I_1, I_2, I_3 are 1 if a household is deprived in either health, education or living standard dimensions respectively and 0 otherwise, and the weighs W_1, W_2, W_3 sum to 1 (Table 1).

That is:

$$\sum_{i=1}^{3} W_i = 1$$

Table 1

Multidimensional Poverty Index Indicators and Measurements

Indicators	Description	Weight
Health	Access to health services is measured through being covered by health insurance.	1/3
Education	education is measured by considering years completed in school whereby if a household had a member who had not completed seven years in schooling while at an age of 14 and above was considered being poor in education aspect.	1/3
Living standard		
Housing	This variable describes the house construction material in its floor, walls and roof. A household is described as poor in housing dimension if either its floor or walls or roof are constructed using unimproved materials like grass, shrubs, mad	1/18
Cooking fuel	This variable indicates the main household's cooking fuel (i.e fuelwood, charcoal, shrubs, gas, electricity). If a household uses other energy sources than gas and electricity is considered poor.	1/18
Sanitation	This variable is based on household ownership of the toilet facility and its status. A household is categorized poor if it has no toilet instead household members are saving themselves in bushes or the toilets are not improved and are environmental unfriendly.	1/18
Drinking water	This variable measures access to clean and safe water by taking two factors into account. It considers the sources of drinking water and the distance to get water, if the household's source of drinking water is either unimproved or not accessed within 30 minutes walking distance it is regarded that the household if poor.	1/18
Electricity	This variable measure access to improved lightening. A household was categorized as multidimensional poor if it was not connected to electricity.	1/18
Assets	measured by considering the ownership of at least two assets (radio, television, bicycle, motorcycle)	1/18

We conducted the multicollinearity test to check if independent variables are highly collated. Multicollinearity test was done using the Variance Inflation Factor (VIF) which was computed as follows:

$$VIF_j = \frac{1}{1 - R_j{}^2}$$

Whereby:

VIF$_j$ is the Variance Inflation Factor for the jth independent variable and $R_j{}^2$ is the coefficient of determination when the jth independent variable is regressed on all other independent variables. According to Chan et al. (2022), a VIF greater than 10 indicated high correlation of the independent variables which reflects Multicollinearity problem. In this study, none of the independent variables violates the multicollinearity assumption as indicated in Table 2.

Table 2

Multicollinearity Test of the Independent Variables

Variable	General Population		TASAF Beneficiaries	
	VIF	1/VIF	VIF	1/VIF
Place of residence	1.29	0.774375	1.14	0.880274
Age of head of household	1.04	0.964800	1.06	0.942024
Household size	1.04	0.959957	1.06	0.945215
Owns agricultural land	1.27	0.788840	1.21	0.823940
Owns livestock	1.24	0.807705	1.10	0.905784
Has bank account	1.09	0.917921	1.02	0.984349
Receive TASAF benefits	1.03	0.966512		

IV. FINDINGS AND DISCUSSION

We analyzed the levels of deprivation in housing, sanitation, cooking fuel, drinking water, electricity, education and assets ownership. The analysis results show that households were more deprived in cooking fuel, whereas the majority (94.3 percent) of households in the general population were using unimproved cooking fuel. There was a slight increase in cooking fuel deprivation among TASAF beneficiaries with 98.5 percent of the households using non-environmental friendly cooking fuel like shrubs, firewood and charcoal. This shows that the large population in the country is using dirty cooking energy that endangers environmental sustainability. Nonetheless, even urban households are more utilizing the dirty cooking energy despite the widely available clean energy as gas and electricity (Alananga, 2024). However, no significant differences are noted among TASAF beneficiaries' households, confirming that cooking energy deprivation is experienced by a large population segment in a country regardless of the income disparities.

Significantly, the global multidimensional poverty index report of 2024 demarcated unimproved cooking fuel as among the major deprivations with more stress in rural areas (Pradhan et al., 2022). This has long term effects on air pollution that increases risks of respiratory infections which can lead to deaths (Nduka & Jimoh, 2024). Hence, more efforts to address clean energy to increase access to improved cooking fuels and electricity in both rural and urban areas are required. Likewise, households had limited access to electricity, whereby 63.8 percent of households in the general population have no access to electricity. The condition is worse for TASAF beneficiaries with only 17.8 percent of the households having access to electricity. The situation was similar to the findings of the study done by Eshetu et al. (2022) in Ethiopia whereby cooking fuel, electricity and housing were the main contributors to multidimensional poverty. Thus energy multidimensional poverty is the main challenge in poverty reduction strategies not only in Tanzania but in the Sub-Sahara Africa region as a whole.

Considerably more than 60 percent the households have unimproved sanitation whereby some have low quality toilets, few share toilets while others have no access to toilets at all. The situation was worse among TASAF beneficiaries whereby 78.1 percent of the households were having poor sanitation. This situation can affect peoples' health through spread of diseases like diarrhoea and cholera which can easily be transmitted due to poor sanitation. These results are justified in the global poverty and development initiative report which pointed at poor sanitation as among the major deprivations in many regions with more stress in rural areas. More advancement was observed in the housing indicator with more that 80 percent of the households living in improved houses. On the other hand, the results of the study indicated high access to clean and safe drinking water. More than 60 percent of the households in the general population and TASAF beneficiaries were not deprived in drinking water. These results indicate improvements in water access as a results of many water access projects.

Concurrently, the improvements in access to education has led to reduced education deprivation in Tanzania. However, the study results indicate that TASAF beneficiaries were more vulnerable to education deprivation (41.1 percent) than the general population (32.4 percent) (Table 3). These results signify the essence of poverty reduction strategies to focus on the multidimensional nature of poverty. Thus, for TASAF benefits to be effective in reducing poverty among vulnerable households it should address poverty reduction basing on its multidimensional nature.

Table 3

Basic Multidimensional Poverty Indicators' Deprivation in Tanzania

Indicators	General Population		TASAF Beneficiaries	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Housing				
Improved	66,408	90	6,608	84.9
Unimproved	7,366	10	1,179	15.1
Sanitation				
Improved	25,038	33.9	1,703	21.9
Unimproved	48,736	66.1	6,084	78.1
Cooking fuel				
Improved	4,226	5.7	118	1.5
Unimproved	69,548	94.3	7,669	98.5
Drinking water				
Improved	49,533	67.1	5,005	64.3
Unimproved	24,241	32.9	2,782	35.7
Has electricity				
Has electricity	26,668	36.2	1,387	17.8
Has no electricity	47,106	63.8	6,400	82.2
Assets ownership				
Own at least two assets	52,599	71.3	5,208	66.9
Own at most one assets	21,175	28.7	2,579	33.1
Education				
Not deprived	28,836	67.6	2,376	51.9
Deprived	13,813	32.4	2,201	48.1
Total	**73,774**	**100**	**7,787**	**100**

We analysed multidimensional poverty distribution per household characteristics in the general population and TASAF beneficiaries. The multidimensional poverty vulnerability was measured as a scale of deprivation in the three dimensions (health, education and living standard). The scale ranges from 0 to 1, indicating the increase in poverty vulnerability from non-deprived to total deprivation. Households with the multidimensional poverty index of 0 to 0.3333 were categorized as not vulnerable to multidimensional poverty, while those under the MPI of 0.6667 to 1 were categorized as vulnerable to multidimensional poverty. The results of the analysis indicate that all households' characteristics in the general population were statistically significant associated with multidimensional poverty vulnerability ($P<0.05$). Similar observation was observed for TASAF beneficiaries except livestock ownership which revealed insignificant results for TASAF beneficiaries ($P>0.05$). These results reflect that the selected indicators were important predictors of multidimensional poverty vulnerability. It was also revealed that, TASAF beneficiaries were more vulnerable to multidimensional poverty than the general population (Table 4). The results further indicate that rural households, households headed by old heads (65 years and above) and households with one to five members have high percentage of households vulnerable to multidimensional poverty.

Furthermore, households owning land usable for agriculture had higher percentages of multidimensional poverty vulnerability than those that do not own land, as shown in Table 4. On the other hand, slight differences were observed in livestock ownership. Households not owning livestock had a 1% higher number of multidimensional poverty-vulnerable households than those owning livestock. This indicates that livestock are important assets for reducing multidimensional poverty vulnerability. Likewise, the results of the analysis indicate multidimensional poverty levels were higher among households which do not own bank accounts.

Table 4

Determinants of Multidimensional Poverty in Tanzania

Household characteristics	General Population			TASAF Beneficiaries		
	Not vulnerable	Vulnerable	χ^2(P)	Not vulnerable	Vulnerable	χ^2(P)
Place of residence			**33.6*****			**36.9*****
Urban	19,550(89.0)	2,426(11.0)		1,233(79.6)	317(20.4)	
Rural	40,655(78.5)	11,143(21.5)		4,486(71.9)	1,751(28.1)	
Total						
Age category of head of household			**1300*****			**154.6*****
19-64 years	52,807(83.7)	10,250(16.3)		4,190(77.6)	1,211(22.4)	
65 and above	7,398(69.0)	3,319(31.0)		1,529(64.1)	857(35.9)	
Total						
Number of household members			**6.0***			**140.9*****
1 to 5	27,381(81.2)	6,329(18.8)		2,158(66.4)	1,091(33.6)	
More than 5	32,824(81.9)	7,240(18.1)		3,561(78.5)	977(21.5)	
Land usable for agriculture			**386.6*****			**24.4*****
Does not own	27,942(84.7)	5,037(15.3)		2,365(76.5)	727(23.5)	
Owns	32,263(79.1)	8,532(20.9)		3,354(71.4)	1,341(28.6)	
Livestock			**111.9***			**0.7**
Does not own	26,383(83.4)	5,271(16.6)		2,237(72.9)	830(27.1)	
Owns	33,822(80.3)	8,298(19.7)		3,482(73.8)	1,238(26.2)	
Bank account			**1300*****			**28.7*****
Does not own	46,980(79.1)	12,403(20.9)		5,045(72.5)	1,912(27.5)	
Owns	13,225(91.9)	1166(8.1)		674(81.2)	156(18.8)	
Total	**60,205(81.6)**	**13,569(18.4)**		**5,719(73.4)**	**2,068(26.6)**	

Key: *** $p < 0.001$ & * $p < 0.05$

We also performed the binary logistic regression analysis on the determinants of multidimensional poverty vulnerability in the whole population and TASAF beneficiaries as indicated in Table 5. The results indicate that there is a significant relationship between multidimensional poverty vulnerability and the place of residence. Residing in urban areas reduces the likelihood of being multidimensional poor (AOR=0.568, [0.5391-0.5987]. Similarly, Debebe and Wuletaw (2022) in Gamo Zone of Southern Ethiopia revealed high levels of multidimensional poverty in rural areas than urban counterparts. This is due to location disparities where urban residents enjoy quality services like clean and safe water, good housing and sanitation, access to health and education services as well as access to electricity. While the rural settings facilitate deprivation in electricity, clean and safe water, housing and sanitation facilities. Similar observation was made among TASAF beneficiaries despite the slight differences. The likelihood of reducing multidimensional poverty due to urban locality was reduced by 13% for TASAF beneficiaries compared to the general population (AOR=0.703, [0.6079-0.8125]). These results imply that other things remaining constant, TASAF beneficiaries are more vulnerable to multidimensional poverty. This is not by surprise as Eshetu et al. (2022) asserted that mostly rural areas are deprived of cooking fuel, electricity and housing which contribute a large share of multidimensional poverty for rural population. Thus increasing access to improved cooking fuel, electricity and housing can facilitate the reduction of rural multidimensional poverty.

The results also revealed a significant increase in multidimensional poverty vulnerability as the age of head of household increases from the labour force age (19-64 years) to old age (65 years and above). Households whose heads were aged 65 years and above were two times more likely to be multidimensional poor (AOR=2.167, [2.0654-2.2736]) than household headed by an individual in the labour force age (19-64 years). This is explained by the reduced ability to participate fully in the labour force at old age, the situation which reduces their aptitude to generate adequate income hence increased vulnerability to multiple deprivation. This observation is delineated by the study done by Peng et al. (2024) in Hong Kong which found that at old age, individuals are more vulnerable to poverty than at the age when they are energetic. Thus communicating important message that old headed households are more vulnerable to multidimensional poverty regardless of the regional differences hence requiring much attention of the social security schemes.

Likewise, the results of the analysis on the influence of the age of head of household among TASAF beneficiaries also indicated that household heads who are old aged (65 an above years) were more likely to be vulnerable to multidimensional poverty. Nonetheless, their vulnerability was reduced by 43 percent compared to the general population (AOR=1.734, [1.5543-1.9342]. Thus indicating the relevance of TASAF support in reducing multidimensional poverty to vulnerable households. These findings are in support of what was found by Athuman and Kashaga (2023) in Kilosa district, Morogoro region whereby, TASAF program had impact on economic empowerment of old recipients. Hence, more TASAF support should be directed to this group of households in the efforts to reduce multidimensional poverty vulnerability.

We also analysed the influence of household size on multidimensional poverty and revealed the surprising results. The results indicate statistically significant results with the reduced odds of being multidimensional poor for households with more than five members compared to those with one to five members (AOR=0.914, [0.8577-0.9355]). This draws attention as it is different from what was expected (Katoch, 2022). However, this situation can be influenced by the demographic characteristics of the population in the household whereby availability of large number of the labour force can have benefits on the income generation, hence reducing multidimensional poverty shocks in the household. Similar results were observed among TASAF members though there were reduction in the likelihood of being multidimensional poor by 29 percent compared to the general population (AOR=0.619, [0.5575-0.6882]. This signifies the role played by TASAF in multidimensional poverty reduction through various support offered to the most vulnerable households.

The analysis results of the general population indicate that ownership of land usable for agriculture significantly increases the households' multidimensional poverty vulnerability. Households not owning land usable for agriculture were less likely to be vulnerable compared to those owning farm land (AOR=0.896, [0.9994-1.0889]). Likewise, ownership of land usable for agriculture increased the likelihood of multidimensional poverty vulnerability among TASAF beneficiaries to some extent (AOR=0.912, [0.8119-1.0242]). This indicates that dependence on agriculture increases households' vulnerability to poverty. This can be explained by climate variability which has reduced agricultural land productivity hence exposing agricultural dependent households into poverty vulnerability.

On the other hand, not having livestock indicated a significant influence on households' multidimensional poverty vulnerability in the general population. Households not owning livestock were more likely to be multidimensional poor than those owning livestock (AOR=1.053, [1.0005-1.0902]). Despite non-statistically significant results among TASAF beneficiaries, livestock ownership was about four percent more likely to reduce multidimensional poverty compared to the general population. This implies that livestock are important assets in the strategies to reduce multidimensional poverty. The significance of household livestock ownership lies on its importance in enabling households to reduce food and financial shocks. Thus, livestock assets are so important for reducing households' multidimensional poverty vulnerability.

While it is a common practice to save through banks due to diverse benefits accrued from bank savings, ownership of bank accounts has indicated a significant effect on the reduction of multidimensional poverty vulnerability. Not having bank accounts increased the likelihood of the households being multidimensional poor. The study results in Table 5 indicate that, households without bank accounts were more than two times likely to be vulnerable to multidimensional poverty compared to those having bank accounts (AOR=2.490, [2.3332-2.6576]). This is a critical observation as the bank account ownership is a proxy indicator of savings which operates through offering an opportunity to quick access to financial resources hence reducing deprivation in various aspects. According to Wang et al. (2021) savings enhance financial capabilities which play a great role in the livelihood diversification through non-agricultural activities and reduce multidimensional poverty vulnerability.

The study also found that, there were an increase in the likelihood of being multidimensional poor for TASAF beneficiaries who are not owning bank accounts (AOR=1.514, [1.2573-1.8220]). However, there were reduced effect of not having bank account on multidimensional poverty vulnerability among TASAF beneficiaries compared to the general population. This implies that TASAF plays a great role in the reduction of financial shocks through its cash transfer program which facilitates entrepreneurial activities and hence increasing household income. Although the income generated might be inadequate in savings, but it plays a great role in increased access to basic needs among the beneficiaries (Athuman & Kashaga, 2023; Komba & Kitole, 2025; Mwaijande & Mwakalikamo, 2024; Njuga et al., 2022). The analysis of the general population revealed that there was significant relationship between TASAF benefits and multidimensional poverty vulnerability. Whereby, TASAF beneficiaries were about 33 percent more likely to be vulnerable to multidimensional poverty than the general population. These results bring insights that TASAF is really saving the most vulnerable groups in Tanzanian population.

Table 5

Regression Results of the Determinants of Multidimensional Poverty Vulnerability in Tanzania

Variable	Whole Population		TASAF Beneficiaries	
	AOR	CI (95%)	AOR	CI (95%)
Place of residence				
Rural (Reference)	1		1	
Urban	0.568*** (0.0151)	[0.5391-0.5987]	0.703*** (0.0520)	[0.6079-0.8125]
Age of the head of household				
19-64 years (Reference)	1		1	
65 years and above	2.167*** (0.0531)	[2.0654-2.2736]	1.734*** (0.0967)	[1.5543-1.9342]
Household size				
One to five members (Reference)	1		1	
More than five members	0.914*** (0.0198)	[0.8577-0.9355]	0.619*** (0.0333)	[0.5575-0.6882]
Land for agriculture				
Owns land	1		1	
Does not own land	0.896*** (0.019)	[0.9994-1.0889]	0.912 (0.0540)	[0.8119-1.0242]
Bank account				
Has bank account	1		1	
Has no bank account	2.490*** (0.0826)	[2.3332-2.6576]	1.5135*** (0.1432)	[1.2573-1.8220]
Owns livestock, herds or farm animals				
Owns	1		1	
Does not own	1.053 (0.0228)	[1.0005-1.0902]	1.0953 (0.0615)	[0.9812-1.2227]
TASAF others				
Non-beneficiary	1			
Beneficiary	1.325*** (0.0382)	[1.2525-1.4022]		

Key: *** p < 0.001

V. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusions

TASAF is regarded as Tanzania's most significant social protection programme and has been found to be one of the most effective policies for lowering poverty. In contrast to the general population, TASAF beneficiaries had greater deprivation in all aspects of multidimensional poverty. Significantly, the general population and TASAF beneficiaries were more impoverished in terms of electricity, cooking fuel, and sanitation, suggesting that measures for reducing poverty should prioritise increasing access to clean energy and improving sanitation. Further, it was found that multidimensional poverty vulnerability worsens as the head of the household grows older, signalling a decline in the household's capacity to create wealth. According to the findings, older heads of the households receiving TASAF benefits have a lower multidimensional poverty vulnerability, which is lessened by TASAF support. Similarly, households with savings in banks are less prone to multidimensional poverty, while households without bank accounts are more susceptible. There was reduced effects of lack of bank savings on multidimensional poverty among TASAF beneficiaries indicating the important role played by cash transfer support on reducing financial shocks to the vulnerable population. The study's conclusions support the social protection hypothesis, which acknowledges life cycle phenomena like ageing and a lack of savings as some of the factors that contribute to multidimensional poverty. Likewise, it provides a framework for assessing how TASAF reduces the effects of those life cycle phenomena on multidimensional poverty through improved access to health, education and reduced financial shocks among the vulnerable groups.

5.2 Recommendations

Deprivation in key human lives' aspects like sanitation, cooking fuel and electricity are cross-cutting across the general population and TASAF beneficiaries indicating a critical need to address this challenge. Therefore, government interventions in poverty reduction have to prioritise in improving access to clean energy for cooking, electricity and improved sanitation. Thus, the government should increase access to these important human lives' aspects through improved services delivery and cost reduction programmes. These programmes should be the top priority for government actions aimed at reducing poverty, with special emphasis paid to the most vulnerable groups, including TASAF beneficiaries. The fact that TASAF assistance has a favourable effect on reducing multidimensional poverty in households with elderly heads suggests that the assistance given to the most vulnerable households is particularly important. Therefore, the government should increase the budget to support a variety of multidimensional poverty vulnerable households, such as those headed by the elderly and other vulnerable groups who have few opportunities to earn money through employment. Likewise, to reduce multidimensional poverty vulnerability to the most vulnerable groups, social protection schemes TASAF in particular, should strengthen poverty vulnerability mapping strategies to reach a wide range of the most vulnerable households and individuals basing on poverty multidimensionality. Not only that but also those social security schemes TASAF inclusive should schedule adequate trainings in financial management and entrepreneurial skills to their beneficiaries as to improve their sources of income and enable them to save for the future, thereby reducing financial shocks.

REFERENCES

Alananga, S. S. (2024). Constrained cooking energy choices in Tanzania: Why urban dwellers cling on dirty even where clean energy alternatives are accessible? *International Journal of Energy Sector Management, 18*(6), 1670–1686. https://doi.org/10.1108/IJESM-08-2023-0018

Alkire, S., & Foster, J. (2011). Counting and multidimensional poverty measurement. *Journal of Public Economics, 95*(7–8), 476–487. https://doi.org/10.1016/j.jpubeco.2010.11.006

Athuman, S., & Kashaga, M. F. (2023). The effectiveness of Tanzania Social Action Fund (TASAF) social assistance on the care of elderly in Tanzania: A case of Kilosa District in Morogoro Region. *International Journal of Research in Humanities and Social Studies, 10*(2), 1–8. https://doi.org/10.22259/2394-6296.1002001

Banks, L. M., Pinilla-Roncancio, M., Walsham, M., Van Minh, H., Neupane, S., Mai, V. Q., Neupane, S., Blanchet, K., & Kuper, H. (2021). Does disability increase the risk of poverty 'in all its forms'? Comparing monetary and multidimensional poverty in Vietnam and Nepal. *Oxford Development Studies, 49*(4), 386–400. https://doi.org/10.1080/13600818.2021.1985988

Barrientos, A. (2023). Social assistance in low- and middle-income countries. In U. Wagle (Ed.), *Research handbook on poverty and inequality* (pp. 350–366). Edward Elgar Publishing. https://doi.org/10.4337/9781800882300.00027

Bujiku Sende, N., Saha, S., Ruganzu, L., & Kar, S. (2025). Prediction of multidimensional poverty status with machine learning classification at household level: Empirical evidence from Tanzania. *IEEE Access, 13*, 23461–23471. https://doi.org/10.1109/ACCESS.2025.3537807

Chan, J. Y.-L., Leow, S. M. H., Bea, K. T., Cheng, W. K., Phoong, S. W., Hong, Z.-W., & Chen, Y.-L. (2022). Mitigating the multicollinearity problem and its machine learning approach: A review. *Mathematics, 10*(8), 1283. https://doi.org/10.3390/math10081283

Charles, G., Otieno, S., Kimaro, M., Heriel, E., Mwakasisi, T., & Mganga, J. (2023a). Determinants of multidimensional poverty in rural Tanzania. *RPJ: Rural Planning Journal, 25*(1), 81–96. https://doi.org/10.59557/kavham44

De Salvo, P., & Vaquero Piñeiro, M. (Eds.). (2022). *Rural development—Education, sustainability, multifunctionality.* IntechOpen. https://doi.org/10.5772/intechopen.91068

Debebe, S., & Wuletaw, T. (2022). Comparative analysis of rural to urban multidimensional poverty and its correlates at household level in Gamo Zone of Southern Ethiopia. *Social Indicators Research, 162*(1), 107–121. https://doi.org/10.1007/s11205-021-02833-1

Díaz, Y., Hessel, P., Avendano, M., & Evans-Lacko, S. (2022). Multidimensional poverty and adolescent mental health: Unpacking the relationship. *Social Science & Medicine, 311*, 115324. https://doi.org/10.1016/j.socscimed.2022.115324

Diwakar, V., & Shepherd, A. (2022). Sustaining escapes from poverty. *World Development, 151*, 105611. https://doi.org/10.1016/j.worlddev.2021.105611

Eshetu, F., Haji, J., Ketema, M., & Mehare, A. (2022). Determinants of rural multidimensional poverty of households in Southern Ethiopia. *Cogent Social Sciences, 8*(1), 2123084. https://doi.org/10.1080/23311886.2022.2123084

Gakuru, E., & Yang, S. (2024). Misery index improvement: A review based on theoretical and empirical evidence. *Journal of the Knowledge Economy, 16*(1), 3970–3995. https://doi.org/10.1007/s13132-024-02052-2

Gidigbi, M. O. (2023). Assessing the impact of poverty alleviation programs on poverty reduction in Nigeria: Selected programs. *Poverty & Public Policy, 15*(1), 76–97. https://doi.org/10.1002/pop4.358

Haile, D., Seyoum, A., & Azmeraw, A. (2021). Does building the resilience of rural households reduce multidimensional poverty? Analysis of panel data in Ethiopia. *Scientific African, 12*, e00788. https://doi.org/10.1016/j.sciaf.2021.e00788

Hailu, A. G., & Amare, Z. Y. (2022). Impact of productive safety net program on food security of beneficiary households in western Ethiopia: A matching estimator approach. *PLOS ONE, 17*(1), e0260817. https://doi.org/10.1371/journal.pone.0260817

Hernández, J. E., & Zuluaga, B. (2022). Vulnerability to multidimensional poverty: An application to Colombian households. *Social Indicators Research, 164*(1), 345–371. https://doi.org/10.1007/s11205-022-02961-2

Kandikuppa, S. (2022). Class and vulnerability to debt in rural India: A statistical overview. *Rural Sociology, 87*(2), 454–488. https://doi.org/10.1111/ruso.12425

Katoch, O. R. (2022). Determinants of malnutrition among children: A systematic review. *Nutrition, 96*, 111565. https://doi.org/10.1016/j.nut.2021.111565

Komba, C., & Kitole, F. A. (2025). Impact of community-driven development programs on poverty reduction: Evidence from Tanzania's Social Action Fund (TASAF) in Babati District, Tanzania. *Discover Global Society, 3*(1), 69. https://doi.org/10.1007/s44282-025-00220-6

Luz, G., & Portugal, L. (2022). Understanding transport-related social exclusion through the lens of capabilities approach. *Transport Reviews, 42*(4), 503–525. https://doi.org/10.1080/01441647.2021.2005183

Mare, Y., Gecho, Y., & Mada, M. (2022). Determinants of multidimensional rural poverty in Burji and Konso area, Southern Ethiopia. *Cogent Social Sciences, 8*(1), 2068757. https://doi.org/10.1080/23311886.2022.2068757

Mwaijande, F., & Mwakalikamo, J. (2024). Potential of social protection policy interventions for breaking poverty cycle in Tanzania. *Journal of Social and Policy Issues*, 34–39. https://doi.org/10.58835/jspi.v4i1.306

Nduka, E., & Jimoh, M. (2024). Cooking energy, health, and happiness of women in Nigeria. *The Energy Journal, 45*(6), 79–106. https://doi.org/10.1177/01956574241283371

Njuga, O. G., Kazuzuru, B., & Warsanga, B. W. (2022). Impact of cash transfer on poverty reduction in Lindi District, Tanzania. *East African Journal of Education and Social Sciences, 3*(5). https://doi.org/10.46606/eajess2022v03i05.0220

Panda, B. K., & Mohanty, S. K. (2025). Multidimensional poverty among the elderly in India. In S. I. Rajan (Ed.), *Handbook of aging, health and public policy* (pp. 2985–3000). Springer Nature Singapore. https://doi.org/10.1007/978-981-99-7842-7_107

Patel-Campillo, A., & García, V. B. S. (2022). Breaking the poverty cycle? Conditional cash transfers and higher education attainment. *International Journal of Educational Development, 92*, 102612. https://doi.org/10.1016/j.ijedudev.2022.102612

Peng, C., Chang, Q., Wang, J. S., Yeung, C. Y., & Yip, P. S. F. (2024). Patterns and determinants of multidimensional poverty and welfare interventions: Towards evidence-based poverty-alleviation policies in Hong Kong. *International Journal of Social Welfare, 33*(4), 931–950. https://doi.org/10.1111/ijsw.12648

Pinilla-Roncancio, M., & Alkire, S. (2021). How poor are people with disabilities? Evidence based on the global multidimensional poverty index. *Journal of Disability Policy Studies, 31*(4), 206–216. https://doi.org/10.1177/1044207320919942

Pradhan, I., Kandapan, B., & Pradhan, J. (2022). Uneven burden of multidimensional poverty in India: A caste based analysis. *PLOS ONE, 17*(7), e0271806. https://doi.org/10.1371/journal.pone.0271806

Richterman, A., Millien, C., Bair, E. F., Jerome, G., Suffrin, J. C. D., Behrman, J. R., & Thirumurthy, H. (2023). The effects of cash transfers on adult and child mortality in low- and middle-income countries. *Nature, 618*(7965), 575–582. https://doi.org/10.1038/s41586-023-06116-2

Schüring, E., & Loewe, M. (Eds.). (2021). *Handbook on social protection systems*. Edward Elgar Publishing. https://doi.org/10.4337/9781839109119

Share, J. B. (1976). Review of drug treatment for Down's syndrome persons. *American Journal of Mental Deficiency, 80*(4), 388–393.

Sulaimon, M. D. (2022). Determinants of multidimensional poverty in Nigeria: A state level analysis. *International Journal of Sustainable Economy, 14*(2), 151. https://doi.org/10.1504/IJSE.2022.122100

Wang, C., Zeng, B., Luo, D., Wang, Y., Tian, Y., Chen, S., & He, X. (2021). Measurements and determinants of multidimensional poverty: Evidence from mountainous areas of southeast China. *Journal of Social Service Research, 47*(5), 743–761. https://doi.org/10.1080/01488376.2021.1914283

Wang, J. S.-H., Cai, Y., & Gao, Q. (2022). How effective are social safety net programs in reducing poverty risks? A comparative study of Taiwan and Southeast China. *Journal of Asian Public Policy, 15*(3), 338–373. https://doi.org/10.1080/17516234.2021.1920328

Zhao, X., & Wang, J. S.-H. (2025). Familisation and defamilisation processes of social safety net: Low-income families' welfare participation experiences in Shanghai and Taipei. *International Social Work, 68*(4), 681–695. https://doi.org/10.1177/00208728251319496

Zhou, Y., Huang, X., Shen, Y., & Tian, L. (2023). Does targeted poverty alleviation policy lead to happy life? Evidence from rural China. *China Economic Review, 81*, 102037. https://doi.org/10.1016/j.chieco.2023.102037