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COMPARATIVE ANALYSIS OF POST-COVID-19 FOOD SECURITY IN FARMING AND NON-FARMING RURAL HOUSEHOLDS: LESSONS FROM NTABANKULU AND UMZIMVUBU MUNICIPALITIES, SOUTH AFRICA

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ABSTRACT

During the COVID-19 pandemic, the food security status of farming and non-farming rural households changed significantly. This study aimed to analyze the food security status of farming and non-farming households in the post-COVID-19 era in Ntabankulu and Umzimvubu local municipalities. Primary data were collected from 311 households, comprising 178 farming households and 133 non-farming households, using mult-stage and random sampling strategies. Comparative statistical methods, including two sample t-tests for associations between variables and binary logistic regression, were employed to assess household food security using the Household Food Insecurity Scale (HFIS). The comparative analysis provided insights into the differences in food security levels between farming and non-farming households. The results indicated that farming households were significantly more food secure than non-farming households. This was evident from better access to healthy and nutritious food, a lower likelihood of skipping meals and greater dietary variety among farming households. In contrast, non-farming households faced higher risks of food insecurity due to their heavy reliance on market purchases and limited income generation opportunities. The study identified key factors influencing household participation in farming, including education level, employment status of the household head, access to land and the purpose of farming. Importantly, households with higher levels of education and formal employment were less likely to engage in farming; however, the COVID-19 pandemic caused widespread job losses and market disruptions that significantly affected the purchasing power and food access of these households. Households with access to land and subsistence farming goals were more involved in agricultural activities. The study also revealed inadequate support from government and private organizations for both farming and non-farming households across the study area, which hinders efforts to improve food security. To enhance food security, it is recommended to strengthen support for non-farming households to engage in farming while improving the resilience of farming households through better rural food supply chains. Additionally, educating employed and better-educated households on the economic and health benefits of farming, along with providing hands-on training and financial support, can encourage broader participation in farming and contribute to sustainable food security.

Key words: Food security, farming and non-farming, post-COVID-19 pandemic, well-being, HFIS, t-test



INTRODUCTION

Food security requires that every person must have safe, nutritious, affordable and sufficient food for their health, according to the personal preference of everyone [1]. The four pillars of food security—availability, accessibility, utilization and stability—underscore the importance of a consistent supply of affordable and accessible food to meet these needs. However, research has shown that many people struggle to afford even the minimum cost of a nutritious diet, largely due to the high cost of living and other socio-economic challenges [2]. Price and affordability remain critical barriers to obtaining safe and nutritious food for many population groups.

During the COVID-19 pandemic, many rural households were vulnerable to food insecurity exacerbated by the lockdown policy put in place to contain the spread of the virus [3]. The lockdown measures disrupted the food supply chains and left the majority unemployed resulting in a loss of income and thus limited purchasing power, particularly for food [4]. Since then to date, many rural households have begun to acknowledge farming as a means of livelihood to curb food insecurity. However, from time-to-time agricultural production is often challenged by the effects of climate change, which requires farming households to cope with shocks such as droughts, floods, and diseases [5]. Hence, the lack of social protection and insurance schemes likely influence other households to engage in non-farm activities as a means of livelihood [6].

A notable challenge to agricultural production is the lack of access to sufficient land, which limits households' ability to engage in farming. Additionally, the scarcity of alternative employment opportunities often drives households to pursue non-farm activities as a livelihood strategy [7]. The noted significance of non-farm activities is that they enable households to diversify their livelihood strategies to mitigate the risks of crop failure due to unforeseen circumstances [6]. Additionally, the seasonality and perishability nature of crops often result in seasonal income, thus, non-farming households are most likely to maintain a fair income distribution all year long. Hence, a comparative analysis of farming and non-farming rural households is likely to identify similarities and differences, best practices, and stimulate the development of innovations that are likely to combat food insecurity.

"Post-COVID" in this study refers to the period when households began recovering from the immediate impacts of the pandemic, with an emphasis on addressing food security challenges and adopting coping strategies in rural areas. This recovery phase is not uniform, and different communities may experience varying levels of recovery based on local circumstances.

It was, therefore, critical for this study to analyse the food security status of farming and non-farming households in the post-COVID-19 pandemic in Ntabankulu and Umzimvubu local municipalities.

MATERIALS AND METHODS

Study area

The study was conducted in Ntabankulu and Umzimvubu local municipalities, both located within the Alfred Nzo District Municipality (ANDM), a region highly vulnerable to food insecurity [8]. Alfred Nzo is situated in the north-eastern part of the Eastern Cape, bordering Lesotho to the north, Harry Gwala to the east, and Oliver Reginald Tambo to the south, beginning in the Drakensberg highlands [9]. This district is one of the most impoverished in South Africa, with 84.38% of the population living in poverty and 28.9% of rural households relying on subsistence farming [10, 11]. As the poorest district in the Eastern Cape, Alfred Nzo faces numerous socio-economic challenges, including limited employment opportunities, low income, inadequate education, slow business development, weak local markets and difficulties in securing financing for small businesses. While agriculture has potential as the district's primary economic activity, it remains constrained by subsistence farming practices, with commercial farming limited to the Cedarville area in the northeast [9].

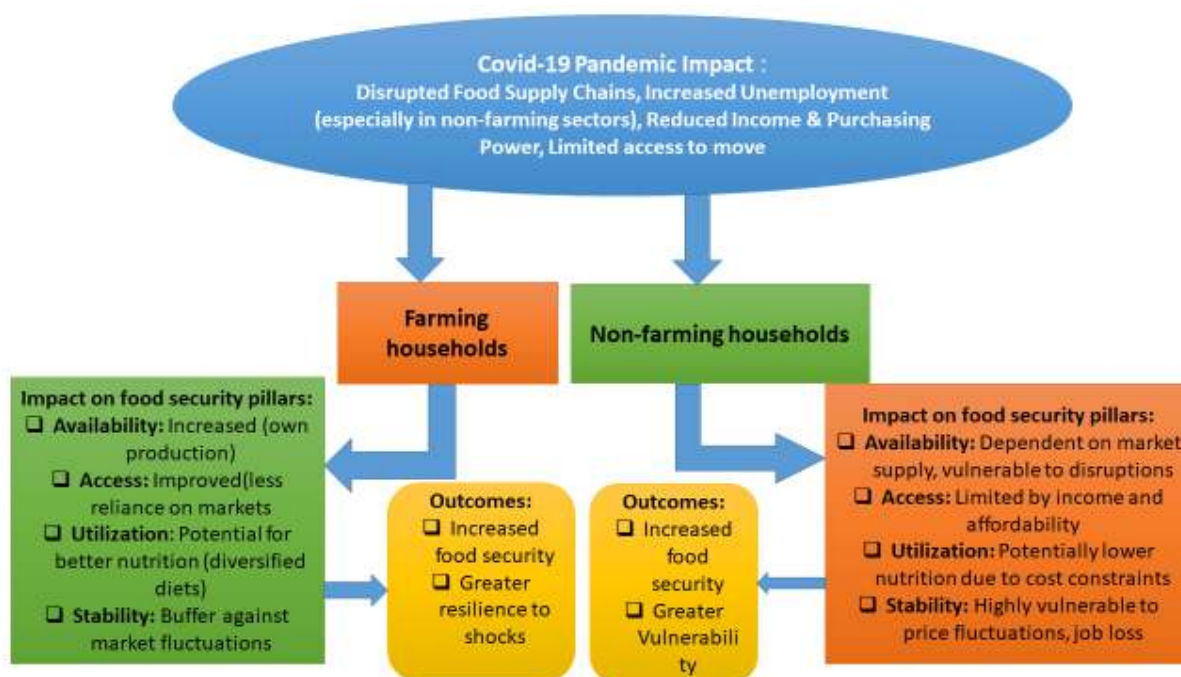


Figure 1: COVID-19 pandemic and Food Security Conceptual Framework

Source: Authors' compilation (2025)

This conceptual framework illustrates the impact of the COVID-19 pandemic on food security for farming and non-farming households. The idea of the framework is that

during the COVID-19 Pandemic all four pillars of food security, that is, food availability, access, utilization and stability were severely affected. The pandemic caused significant disruptions, including broken, unstable food supply chains, increased unemployment (especially in non-farming sectors), reduced income and purchasing power, and restricted mobility. These disruptions had differential effects on farming versus non-farming households. Farming households were able to leverage self-production to experience increased food availability, while simultaneously decreasing their reliance on markets, thus improving access. Diversified diets from their production contributed to better nutrition (utilization), and this self-sufficiency provided greater stability against market fluctuations. As a result, farming households demonstrated increased food security and greater resilience to external shocks.

In contrast, non-farming households faced heightened vulnerability due to their sole dependence on market supply, making such households more susceptible to disruptions. On the other hand, reduced income further limited households' access to food, and financial constraints thus affecting their diet quality. This reliance on market-based solutions also made non-farming households highly vulnerable to price fluctuations and job losses. Consequently, non-farming households experienced increased food insecurity and a diminished capacity to withstand economic and environmental shocks.

Research design and sampling technique

The study employed a quantitative research approach with a comparative cross-sectional design to examine the food security status of farming and non-farming households in the post-COVID-19 era. A multistage sampling technique was used to select 311 rural households from the Alfred Nzo District Municipality (ANDM) in the Eastern Cape, which was chosen due to its heightened vulnerability to food insecurity. The study area was first divided into local municipalities, from which Ntabankulu and Umzimvubu were selected based on their prominence in food insecurity within the district. In the third stage, the municipalities were further subdivided into rural and urban areas, with a focus on rural wards where food insecurity is most prevalent. Simple random sampling was then employed to select six villages from Umzimvubu and four from Ntabankulu, ensuring a representative sample of both farming and non-farming households. The sample size was calculated using Yamane's formula, with separate calculations for each municipality, yielding 155 households in Ntabankulu and 156 in Umzimvubu. A margin of error of 0.08 was chosen to balance precision and practicality.

The study's sample size was calculated using Yamane's formula, with separate computations for Ntabankulu and Umzimvubu municipalities as shown:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = Sample size

N = Population size (28,365 in Ntabankulu and 51,698 households in Umzimvubu) and

e = Margin of error (0.08)

i) Ntabankulu Local Municipality

$$n = \frac{N}{1 + N(e)^2} = \frac{28365}{1 + 28365(0.08)^2} = 155$$

ii) Umzimvubu Local Municipality

$$n = \frac{N}{1 + N(e)^2} = \frac{51698}{1 + 51698(0.08)^2} = 156$$

Thus, the overall sample size for the study comprised 311 households, including both farming and non-farming households.

Data collection

Data collection involved structured questionnaires with both closed and open-ended questions, administered through face-to-face interviews conducted in IsiXhosa, with responses later captured in English. Open-ended questions were coded and quantified based on common themes, ensuring consistency with the overall quantitative research approach. This methodology allowed for a thorough examination of food security dynamics across different household types in the study area.

Analytical tools

Descriptive analysis was used to profile the socioeconomic characteristics of farming and non-farming households in both local municipalities. A comparative statistic, specifically the two sampled tests for differences in means, was employed to assess the food security status of farming and non-farming households, using the Household Food Insecurity Scale (HFIS). The tests were based on experience-based responses, which were analyzed to identify observed differences in the food security status of both household types.

Additionally, a binary logistic regression model was applied to determine the socioeconomic factors influencing household participation in farming. This model was selected because it allowed for the prediction of the impact of independent variables (socioeconomic characteristics) on the dependent variable, which was household participation in farming (coded as 0 for farming and 1 for non-farming). Ten independent variables were regressed against the participation status. Finally,

descriptive analysis was used to identify and profile government and private sector structures that support farming among households, addressing one of the study's key objectives. The STATA software was used for empirical analysis.

Mathematical Expression of the Binary Logistic Model

Dependent variable Y_1 - (Farming status)	Dependent Variables outcomes $Y_1 = \begin{cases} 1, & \text{Not-farming} \\ 0, & \text{Farming} \end{cases}$	Logistic regression model $P() = \frac{1}{1 + e^{-(\beta_0 + \beta_1 X_1 + \dots + \beta_{10} X_{10})}}$
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Where:

- e is the base of the natural logarithm
- β_0 is the intercept and $\beta_1, \beta_0, \dots, \beta_{10}$ are the coefficients for predictor variables
- $X_1, \dots, X_{10}$, these are the coefficients representing the log odds of the event (dependent variable = 1) occurring

Ethics

Ethical clearance was obtained from the University of Fort Hare's Inter-Faculty Research Ethics Committee (Project number MAY001-23). The study involved human participants, therefore, ethical approval was required to ensure the participants' safety and protection. Informed consent was obtained from each participant after the research aim had been explained and what was required of them. Privacy and confidentiality were carefully maintained. After data was collected, administered questionnaires were kept in a secured cabinet and locked room to protect the participants' information.

RESULTS AND DISCUSSION

Socio-economic characteristics of the respondents

The average age of the respondents was 51 years. Households typically consisted of five (5) members, indicating a high dependency ratio. This aligns with Christian *et al.* [13] in a study conducted in the Eastern Cape that found that the average household size was five persons. A notable majority (66%) of respondents were women, pointing to gender-related influences on food production and access. These findings align with Mbewana and Kaseeram [14] study in the Alfred Nzo and King Cetshwayo Districts, where 66.4% of households were female headed.

Educational attainment was observed to be limited, with half of the respondents having completed secondary school and only 5% holding tertiary qualifications. This is in line with results from the Eastern Cape Social Economic Consultative Council, which revealed that only 2.2% of individuals in Alfred Nzo possess tertiary qualifications [10].

Majority of household heads were either married (39%) or single (36%). These findings are consistent with those of Mbewana and Kaseeram [14], which noted that many participants in the Alfred Nzo and King Cetshwayo Districts were married, and with the Eastern Cape study, where 62% of household heads were married [15].

Marital status appears to influence farming participation, with married household heads being more likely to engage in farming, potentially due to the benefits of improved food security and income. Employment levels were low, with 83% of household heads unemployed, and an average of three (3) unemployed members per household, highlighting significant economic difficulties. Additionally, disabilities were present in 7% of households, possibly affecting labour capacity for farming activities.

Almost all respondents (98%) reported having a source of income, and 93% had access to food markets, which could help alleviate food insecurity. However, only 8% of households had access to financial credit, the low proportion could potentially limit households' ability to invest in food production or other business opportunities. Many households (65%) had access to arable land, and 68% were engaged in farming, suggesting a strong reliance on subsistence farming, which may play a crucial role in food security. These findings are crucial in assessing the relative resilience of farming and non-farming households to food insecurity as they recover from the effects of the COVID-19 pandemic.

Household Food Security Status

A comparative statistical analysis (two sampled t-tests) was employed to examine household food insecurity experiences using the Household Food Insecurity Experience Scale (HFIES) standard questions. The analysis aimed to compare the food security status of farming and non-farming households. The results show that households engaged in farming were more likely to be food secure compared to non-farming households across the two municipalities.

a. Household concern about not having enough food to eat

As shown in Table 3, the mean value for farming households (0.342) was higher than that for non-farming households (0.157). These mean values represent the average response to the question about concerns regarding food scarcity, where higher values indicate a greater affirmative response. In this case, because the questions are scaled, with values likely ranging from 0 to 1 (or a similar defined range), the t-test for difference in means suggests that farming households reported fewer concerns about food scarcity compared to non-farming households, even though the value is higher (the scale is such that 1 means less concern). The P-value of 0.007 indicates that this difference is statistically significant. This finding aligns with previous studies by Shushu *et al.* [16], Mdiya and Mdoda [17] who

observed that household participation in farming improves food security. The results from the current and previous studies underscore the importance of farming, especially in enhancing food availability and accessibility.

b. Healthy and nutritious food

The mean value for farming households was 0.430, whereas for non-farming households it was 0.275, as presented in Table 3. These mean values represent the average response to the question about access to healthy and nutritious food, with a higher score indicating a greater affirmative response. Therefore, the higher mean value for farming households indicates that they reported a greater likelihood of consuming healthy and nutritious food compared to non-farming households. Given the P-value of 0.029, the T-Test difference in means suggests a significant contribution of household participation in farming, which could translate to greater food security. Conversely, non-farming households reported less access to healthy and nutritious food, a sign of food insecurity.

c. Food Variety

The mean value for consumption of various food varieties was higher among farming households (0.482) compared to non-farming households (0.294). Since a higher value indicates a greater variety of food consumed, this suggests that farming households had a lower likelihood of consuming limited food varieties compared to non-farming households, indicating better food security. The P-value of 0.012 confirms that this difference is statistically significant. In contrast, non-farming households reported a higher likelihood of consuming limited food varieties, indicating lower food security. These results concur with the findings of Sibhatu *et al.* [18] who observed that farming households are most likely to diversify production, which is, therefore, perceived as a useful approach to improving dietary diversity.

d. Skip a meal

According to Table 3, farming households (0.570) reported a higher mean value compared to non-farming households (0.490). Since the HFIES question is framed negatively (skipping meals), the higher score indicates less instances of this behavior. The difference indicates that farming households experienced lower levels of food insecurity and were less likely to skip meals. The P-value of 0.172 indicates the difference between them is statistically significant. This suggests that engaging in farming activities may provide a protective effect against food insecurity, potentially due to increased access to fresh produce and a more stable food supply.

e. Reduced food intake

Farming households with a mean value of 0.526 reported a higher value compared to non-farming households (mean value of 0.471). The higher value indicates fewer instances of reduced food intake. This higher number may be due to improved food

availability and accessibility through household food production. However, given the risks associated with production such as loss, Ifeoma and Agwu [19] recommend that farming households should engage in off-farm activities to increase household income to enhance food affordability and availability, thus, food security.

f. Food depletion

The findings reveal that farming households were significantly less likely to experience food runouts (mean value= 0.487) when compared to non-farming households (mean value= 0.314), indicating greater food security among farming households. A higher value indicates less incidents, and then higher number from farming households indicates a stronger likelihood that the farming household is secure. This is likely due to the household's ability to produce a substantial portion of their food. However, Ansah *et al.* [20] argue that the risks of shocks and their nature and duration are likely to affect the livelihood of farming households, thus, posing a probability of depleting households' assets to cope with. Consequently, it results in food depletion among farming households.

g. Unmet hunger

The mean value for farming households (0.588) was significantly higher than non-farming households with a mean value of 0.490, indicating that they were more likely to report food security due to the way the HFIES test works. This indicates that farming households are likely to experience less unmet hunger when compared to non-farming households.

h. Day without food

The incidence of households going without eating for a whole day due to a lack of money or other resources was lower among farming households (mean value of 0.667) and more common among non-farming households with a mean value of 0.549. This disparity suggests that farming households have a relatively more stable food security situation, likely due to their direct access to food production, compared to non-farming households who rely on market purchases and are more vulnerable to financial constraints.

Socioeconomic characteristics influencing households to participate in farming

Table 4 presents the factors influencing household participation in farming, which were analysed using a binary logistic regression model.

Household head employment status was negatively associated with farming participation, as indicated by an odds ratio of 0.214 ($p = 0.014$), meaning that households with employed heads were significantly less likely to engage in farming. These findings are like those of Siphesihle and Mdoda [21] in a study conducted in Nyandeni Local Municipality in the Eastern Cape, which found that the employment

status of the household head negatively influences subsistence farming. Households with employed heads are less likely to engage in farming, opting instead to purchase from the market. This is because employed individuals have limited time to dedicate to farming and prioritize their jobs. In contrast, unemployed individuals are more inclined to participate in farming, as they perceive it to be more cost-effective than buying from the market [17].

Access to land is positively associated with farming participation, as indicated by an odds ratio of 16.765 ($p = 0.050$), meaning that households with land access are much more likely to participate in farming. This aligns with the Food and Agriculture Organization [22], which asserts that the ownership of productive assets, such as land, forms the foundation for farming in rural communities.

The purpose for farming is strongly positively associated with farming participation, as indicated by an odds ratio of 97.460 ($p = 0.001$), meaning that households with a clear farming purpose are significantly more likely to engage in agricultural activities.

Support received from government and Private structures

The findings on support from government and private structures, as presented in Table 5, highlight a stark gap in the assistance provided to farming households. Descriptive results reveal that only a small proportion of households received support from either government or private entities.

•**Government Support:** Only 12% (37 households) of respondents reported receiving support from government structures, while 88% (274 households) did not receive any form of support. This significant gap suggests that government interventions in farming activities remain limited, potentially hindering the ability of households to sustain or expand their farming operations. The lack of government support is consistent with findings in other studies by Christian *et al.* [13], indicating challenges in accessing agricultural support services.

•**Private Support:** The situation for private sector support is even more concerning, with only 1% (3 households) of respondents reporting any form of support, and 99% (308 households) not receiving any support. The near-total absence of private sector assistance further underscores the lack of resources available to support farming households, which may affect their capacity to invest in or improve farming operations. The limited role of private support in smallholder agriculture is a common finding in rural studies [21].

These findings suggest that the limited support from both government and private entities could be a significant barrier to improving the productivity and sustainability of farming activities in the region, particularly in the context of post-COVID-19 recovery efforts. The lack of support may also exacerbate food insecurity, as

households may struggle to access the necessary resources and services to enhance agricultural production.

CONCLUSION AND RECOMMENDATIONS FOR DEVELOPMENT

In conclusion, this study highlights significant distinctions between farming and non-farming households in Ntabankulu and Umzimvubu local municipalities regarding their food security status, with a focus on the effects of the COVID-19 pandemic. The findings reveal that farming households are generally more food secure than non-farming households, as evidenced by better access to nutritious food, reduced meal skipping, and greater dietary diversity. Non-farming households, on the other hand, face heightened food insecurity due to their reliance on market purchases and limited income sources.

To address the higher food insecurity among non-farming households, it is recommended that targeted interventions be introduced to increase household resilience by encouraging and supporting their partial participation in farming activities. This can be achieved by providing access to arable land (perhaps through community gardens or shared plots), financial assistance for agricultural inputs, and practical training on sustainable farming techniques. Educational and awareness programs should be conducted to improve knowledge of farming as an economic and food security strategy, raising awareness about the nutritional benefits of homegrown food and sustainable farming practices. It is important to note that the aim is not to eliminate reliance on farmer markets, but rather to enhance household-level food security and resilience by enabling non-farming households to supplement their food needs through their own production. Additionally, strengthening social protection programs, such as food aid and income support initiatives, can help mitigate the risks faced by non-farming households. Facilitating better market access and livelihood diversification programs will also enable non-farming households to improve their food security through alternative income-generating activities.

Key determinants of farming participation include household head employment status, access to land, and the purpose of farming. To enhance farming participation, policies should focus on improving access to land through land reform initiatives and secure tenure arrangements. Additionally, incentives should be provided for unemployed and underemployed individuals to engage in farming by offering financial support, training programs, and access to farming inputs. Extension services should also promote diversified farming purposes, including both subsistence and market-oriented production, to encourage broader participation and ensure farming remains a viable livelihood strategy.

The study also underscores the significant gap in support from government and private institutions, which hinders farming households from realizing their full

potential in improving food security. Given the role of farming in enhancing food security, it is essential to address these challenges and create an enabling environment for both farming and non-farming households. To bridge the gap in support from government and private institutions, it is crucial to strengthen agricultural policies that provide targeted subsidies, grants and low-interest credit to farming households. Government agencies should enhance extension services, offering training and technical assistance to improve productivity and resilience. Additionally, partnerships with private institutions should be fostered to facilitate investment in rural infrastructure, market access and value chain development. Establishing cooperatives and farmer support networks can also empower smallholder farmers, ensuring they receive adequate resources and market opportunities to enhance food security.

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Authors' Contributions

Conceptualization, Anele Mayekiso, and Akhona Skhephu; Methodology, Akhona Skhephu, and Anele Mayekiso; Software, Ayabonga Toko and Akhona Skhephu; Validation, Agreement Khoza and Zimi Mphana; Formal Analysis, Akhona Skhephu and Ayabonga Toko; Investigation, Akhona Skhephu, Anele Mayekiso and Zimi Mphana; Resources, Anele Mayekiso; Data Curation, Akhona Skhephu,; Writing – Original Draft Preparation, Akhona Skhephu, Agreement Khoza, Ayabonga Toko, Zimi Mphana; Writing – Review & Editing, Anele Mayekiso; Visualization, Akhona Skhephu, Agreement Khoza and Ayabonga Toko; Supervision, Anele Mayekiso; Project Administration, Anele Mayekiso and Akhona Skhephu; Funding Acquisition, Anele Mayekiso.

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Data Availability Statement

The data for the study is available upon request.



Table 1: Description of independent variables, measurements and their anticipated outcome

Explanatory variable	Variable measurement	Expected outcome
Age of the household head	Actual age (Years)	+/-
Gender	0 = male; 1 = female (dummy)	+
Marital status	0 = Single; 1 = Married; 2 = divorced. 3 =Widowed; 4 = Separated; 5 = living together (Categorical).	+
Level of education	0 = no education; 1 = primary; 2 = secondary; 3 = tertiary; 4 = other; (Categorical)	+/-
Household size	Number of household members (Count variable)	-
Household head employment status	0 = employed; 1 = Unemployed (Dummy)	+
Number of unemployed household members	The exact number (Count variable)	-
Access to arable land	0 = have access; 1 = do not have access (dummy)	+
Purpose for farming	0= Subsistence; 1=Markets; 2=Both (categorical)	+
Food expenditure	The exact amount (ZAR)	+/-

Source: Own compilation (2024)

Table 2: Socioeconomic characteristics of respondents

Quantitative Variables	Mean	Standard deviation
Age	51	18
Household size	5	3
Categorical Variables	Frequency	Percentage (%)
Gender		
Male	106	34
Female	205	66
Education		
No education	46	15
Primary	93	30
Secondary	156	50
Tertiary	16	5
Household head		
Yes	218	70
No	93	30
Marital Status		
Single	112	36
Married	121	39
Divorced	19	6
Widowed	53	17
Separated	3	1
Living together	3	1
Employment of the household head		
Yes	53	17
No	258	83
Quantitative Variables	Mean	Standard deviation
No. employed members	1	1
No. unemployed members	3	2
No. members <18 years	2	2
Categorical Variables	Frequency	Percentage (%)
Any disability		
Yes	22	7
No	289	93
Source of income		
Yes	305	98
No	6	2
Access to markets		
Yes	289	93
No	22	7
Access to financial credit		
Yes	25	8
No	286	92
Access to arable land		
Yes	202	65
No	109	35
Participate in farming		
Yes	211	68
No	100	32

Source: Survey Results (2024)

Table 3: Results of the t-test for difference of mean

HFIES (Response)	Farming Households (Mean)	Non-farming Households (Mean)	Two-sample t-test Significance
Q1 ~ Food Scarcity	.342	.157	t Stat = 2.466 P (T > t) = 0.007
Q2 ~ Lack of healthy and nutritious food	.430	.275	t Stat = 1.907 P (T > t) = 0.029
Q3 ~ Limited food variety	.482	.294	t Stat = 2.284 P (T > t) = 0.012
Q4 ~ Skipped meals	.570	.490	t Stat = 0.950 P (T > t) = 0.172
Q5 ~ Reduced food intake	.526	.471	t Stat = 0.659 P (T > t) = 0.256
Q6 ~ Food run out	.487	.314	t Stat = 2.033 P (T > t) = 0.022
Q7 ~ Unmet hunger	.588	.490	t Stat = 1.085 P (T > t) = 0.140
Q8 ~ Day without food	.667	.549	t Stat = 1.447 P (T > t) = 0.075

Source: Survey Results (2024)

Table 4: Factors that influence households to participate in farming

Variables	Odds ratio	Std. Error	z	P-value
Age	1.050023	.043478	1.18	0.238
Gender	.8177487	1.297162	-0.13	0.899
Marital status	.5953026	.3066096	-1.01	0.314
Level of education	.1306334	.1567933	-1.70	0.090*
Household size	.6745089	.2369601	-1.12	0.262
Household head employment status	.2143523	.134829	-2.45	0.014*
Number of unemployed members	1.800852	.8905725	1.19	0.234
Access to land	16.76502	24.08742	1.96	0.050**
Purpose for farming	97.46039	124.0036	3.60	0.000***
Food expenditure	.9995894	.0006624	-0.62	0.535
Constant	.0004815	.0017627	-2.09	0.037

Notes: *statistically significant $p < 0.1$, **statistically significant $p < 0.05$, *** statistically significant $p < 0.001$
Number of observations = 311
Likelihood ratio Chi-square (10) = 175.43 [p = 0.0000]
Log Likelihood: -14.316929
Pseudo R-Squared = 0.8597

Source: Survey Results (2024)

Table 5: The support received from government and private structures post-COVID-19 pandemic

Support received from government structures		
Response	Frequency	Percentage (%)
Yes	37	12
No	274	88
Support received from private structures		
Yes	3	1
No	308	99

Source: Survey Results (2024)

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