

Social Determinants of Household Food Security among Rural Families in Kismayo District of Jubaland, Somalia

Abdi Omar Diriye^{1*} and Maurice Sakwa²

¹Department of Development Studies, Jomo Kenyatta University of Agriculture and Technology.

²Professor, Jomo Kenyatta University of Agriculture and Technology.

*Corresponding Author

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ABSTRACT

Food security issues and concerns are very prevalent in Somalia. A significant part of the population face food insecurity in the entire country. Even though global evidence shows that this menace affects mostly the illiterate, families headed by females, poor families, and those households headed by old members of the family, there is dearth of these literature for the case of Somalia. Thus, this study sought to establish family characteristics which influences food security among rural families in Kismayo District of Jubaland State of Somalia. Specifically, the study sought to find out the influence of family income sources, family gender characteristics, family asset diversification and family head background characteristics in determining food security. Cross-sectional design was adopted with a sample of 400 households drawn from five main villages in Kismayo District, namely Abdidhore, Gobweyn, Yontooy, Yaqshinile, and Madhawa using systematic random sampling technique. Primary data was gathered using a structured questionnaire. Descriptive and regression techniques were deployed to analyze data with the aid of SPSS version 20.0. The study has established that family income, age of the household head, gender, and family asset diversification have a statistically significant influence on family food security. Additionally, education of the household head influences family food security. The study recommends that the relevant authorities should create gainful employment for residence of Kismayo District so as to ensure food security. In addition, families should be sensitized on the importance of having diverse assets and, family heads be educated and equipped with basic skills that can help them guide the family toward food security.

Keywords: Food security, social determinants, Jubaland Somalia, Rural families.

INTRODUCTION

Food security, an issue as old as humanity itself, has been a persistent concern, with efforts to combat poverty and malnutrition at the forefront of global priorities. Initially, methods such as hunting and gathering were prevalent, but with the advent of agriculture and increasing prosperity, societies transitioned towards modern methods of food acquisition. The transition has been marked by changes in technological innovation, changes in demographic trends and steady social transformation in parts of the world further pushing many households into situation of food insecurity (Fanzo, 2023). Food security has been defined by Food and Agricultural Organization (FAO) as a situation when all people at all times have physical and economic access to enough, safe and nutritious food which meets their dietary needs (FAD, 2012). Among

key factors exacerbating food insecurity include drought, conflicts, poverty, and rapid population growth (ibid).

Globally, between 691 and 783 million people faced hunger in 2022, representing an increase of 122 million people compared to 2019 (FAO, 2023). Apart from hunger, the report also highlights that 2.4 billion people experienced moderate or severe food insecurity and 900 million people faced severe food insecurity. Over 3.1 billion people could not afford a healthy diet. Many children under five suffer from malnutrition. Despite worldwide efforts to promote food security, global hunger is on the rise, driven by natural resource shortages, climate change, and armed conflicts. According to FAO (2023), every night, 828 million people around the world go to bed hungry. The “Global Report on Food Crisis” stated that 258 million people worldwide are suffering from acute food insecurity.

Africa bears a significant burden of food insecurity. According to World Economic Forum (WEF) (2022), around 20% of people in Africa are facing chronic hunger, compared with only 10% globally. The situation is worst in Somalia, and ‘very serious in seven other countries. About 278 million people in Africa suffer from chronic hunger (ibid). This corresponds to 20 percent of the continent’s population. By comparison, ten percent are affected when looked at globally. The main drivers of hunger include wars, climate change and the Covid-19 pandemic (Armstrong, 2022). The growing urbanization and population growth results into a need for increased quantities of food to feed millions of families. Due to the nature of relatively low agricultural development, majority of the countries in Sub-Sahara Africa rely significantly on food imports. Nevertheless, according to the policy paper by World Bank (2019), soaring food prices due to the import-reliant economic, affect food availability and food access.

Food insecurity is the biggest challenge facing Somalia where an estimated 70% of her population are at danger of starvation (ReliefWeb, 2024). This situation increases the risk of mortality and especially among the infants. Even though many parts of the World experiences increased agricultural production due to enhanced irrigation and supportive policy, things are different in Kismayo as a result of insecurity. Although Juba land is known to be an agricultural hub, it continues to experience acute food shortage because of insecurity (starvation (ReliefWeb, 2024).). The region’s agricultural and pastoral economies, traditionally the backbone of its livelihoods, face significant threats from recurring droughts and erratic rainfall patterns, leading to depleted food stocks and diminished livestock herds among rural households (FSNAU, 2016). Despite widespread recognition of food insecurity in South Central Somalia, there remains a notable gap in understanding the specific household-level dynamics contributing to this crisis. While international awareness of the issue has increased, many proposed solutions lack empirical grounding, relying instead on anecdotal evidence or internal evaluations conducted by humanitarian organizations (The Elimination of Food Insecurity in the Horn of Africa –Summary Report. Rome: Food and Agriculture Organization, 2006). Against this backdrop, this study investigated the social determinants of food security within rural households in the Kismayo District of Jubaland State, Somalia. By examining these factors, the study sought to uncover the underlying family characteristics directly impacting food security and inform targeted interventions aimed at improving food access and resilience among vulnerable communities in Jubaland state.

METHODOLOGY

The study’s conceptual frame work presents the connection between the dependent and the independent variables that have direct influence on family food security in Somalia. For the purpose of this study, four variables were singled out as the main determinants of family food security. These variables include family income sources, family head background, family gender mix and family asset diversification. Figure 1 below illustrates the variables and the hypothesized relation.

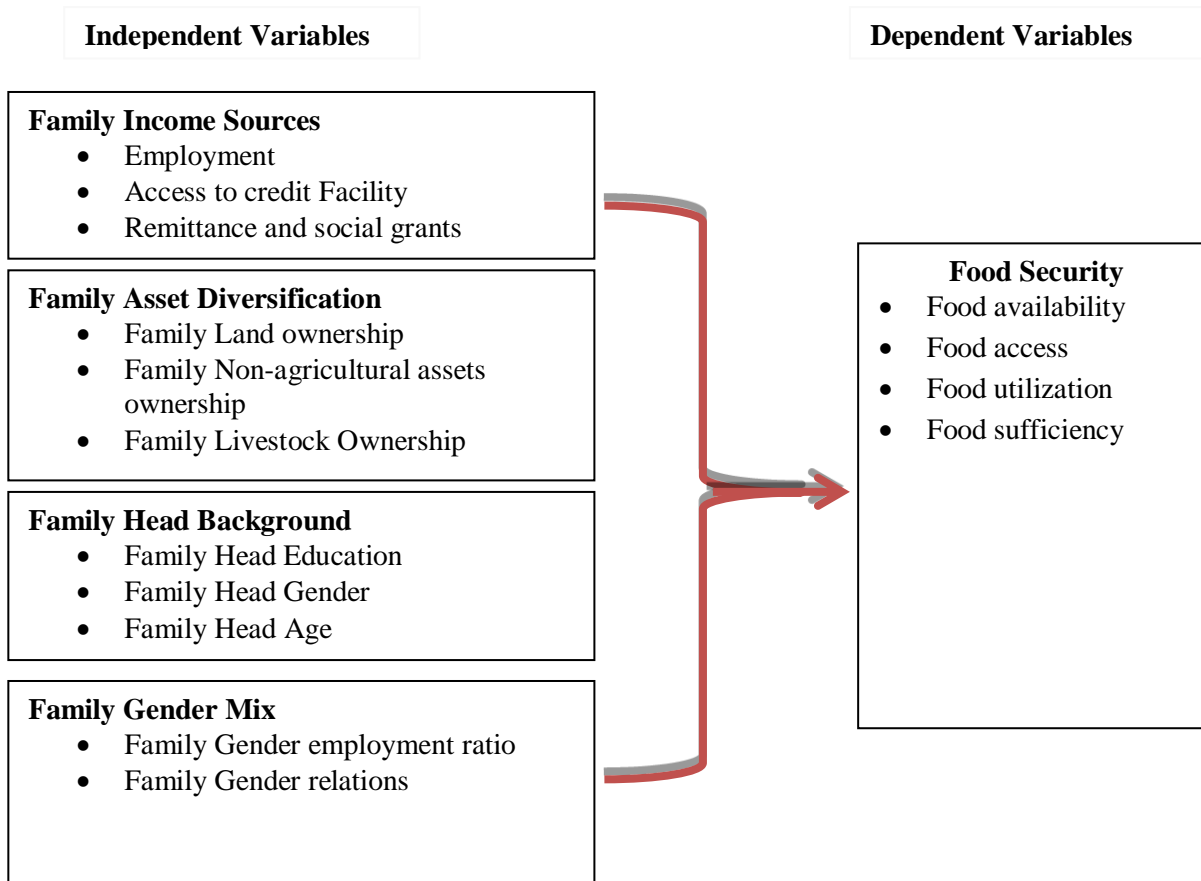


Figure 1: Conceptual Framework

This research study adopted cross-sectional research design to investigate household characteristics influencing food security. The target population in this study included rural households in Kismayo district of Jubaland State of Somalia. Kismayo is the most populous district in the entire Jubaland State. Although, Kismayo is a major food basket zone in Juba land and the entire country, of late, the district has been ranked as one of the areas facing food crisis in the country. The study targeted three main livelihoods sub-clusters such as rain fed and riverine agro-pastoralists, households depending on fishing and livestock dependent households. The subjects of the study were drawn from five main villages in Kismayo district namely Abdidhore, Gobweyn, Yontooy, Yaqshinile and Madhawa. The five villages have a combined household population of 9,760.

Yamane Taro's (1967) formulae was used to determine the sample size:

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

N = sample size,

N = population size, and

e = Margin of error = 0.05

Thus, $n = 9,760 / (1 + 9,761(0.05)^2)$

n=400

This study adopted a systematic random sampling which involved drawing every k^{th} household in the population starting with a randomly chosen household in each of the villages in the five villages. The respondents were heads of the households or any available adult in the household. Systematic sampling relies on arranging the study population according to some ordering scheme and then selecting elements at regular intervals through that ordered list. Systematic sampling involved a random start and then proceeds with the selection of every k^{th} element from then onwards. In this case, $k = (\text{population size}/\text{sample size})$.

We used questionnaires after pre-testing and piloting, to collect primary data for the study. The use of questionnaires ensured faster structured collection of data and higher return rate. The researcher administered the questionnaires by asking direct questions to the respondent and the answer recorded. Quantitative data from the field was cleaned, coded and entered into the Statistical Package for Social Sciences (SPSS version 20.0) for analysis. Summary statistics were computed and presented using percentages, means and standard deviation. Subsequent analysis involving assessing the relationship between the factors influencing food security was achieved through regression analysis.

FINDINGS

This section presents the results of the study on social determinants on household food security in rural families in Kismayo district. Alongside the results are discussions and interpretations of the findings. Specifically, the section presents the study response rate, demographic characteristics of the respondents and findings based on the study objectives. With the target of 400 households, we reached out to 380 households representing 95% of the target sample size. Any response rate more than 50% is sufficient for analysis and drawing valid conclusions (Mugenda & Mugenda, 2003).

Demographics

This section presents the demographic information of respondents consisting of their gender, household status, marital status, education level occupation and age (see Table 1).

Table 1: Demographic characteristics of the respondents

Variable	Description	Frequency	Percent
Gender	Male	224	59%
	Female	156	41%
Education level	Koranic	11	3%
	Primary	91	24%
	Secondary	167	44%
	Higher	61	16%
	Degree	46	12%
	Post graduate	4	1%
Age	26-30 years	53	14%
	31-35 years	110	29%
	36-40 years	76	20%
	41-45 years	65	17%
	46-50 years	38	10%
	Above 50 years	38	10%
Occupation	Pastoralist	136	36%

	Business person	114	30%
	Civil servant	48	13%
	Farmer	34	9%
	Fisherman	31	8%
	Community leader	17	4%

In terms of gender, 59% respondents were male while the rest were female (41%). Gender has a significant influence on food security because women are crucial in the food and nutritional security for their households. Women are generally responsible for food selection and preparation and for the care and feeding of children. Women are the key to food security for their households (Niankara, 2018). This findings shows that the community in Kismayo still operate under patriarchal system.

On education level, the study found that most of the respondents (44%) had achieved secondary level representing an average literate population with at least 13% having achieved university degree level. According to United Nations report (2005), basic education is important-can enable one to read and understand the world around him. This means that majority of the respondents could understand and respond to the questions appropriately. Many studies have revealed that the level of education helps the household head to use production information efficiently as a more educated person acquires more information, he/she becomes a better producer (Nicholson, Stephens, Kopainsky et al., 2021). On the age of the respondents, the study found that those with 26 – 30years represents 14%, 31 – 35years represents 29%, 36 – 40years represents 20%, 41 – 45 years represents 17% while those at 46 – 50 and above 50 years representing 10% each. This shows that most of the respondents were young enough to contribute to food production. Young people are stronger and are expected to cultivate larger-size farm than older respondents and this may result in reducing the food security status of the household.

Determinants of Household Food Security among Rural Families in Kismayo District

In this sub-section, findings, discussion and interpretation based on the study objectives are presented. To start with, Table 2 presents results with respect to the dependent variable of the study where respondents were asked two questions associated with food security.

Table 2: Food Security in Kismayo District

Question	Yes	No
During the last seven days have you faced a situation where you did not have enough food to feed the household	58.7%	41.3%
In your opinion would you term your household as food secure?	75.3%	24.7%

Findings in Table 2 indicate that 58.7% of the households had faced incidences of food insecurity at one point in the last seven days. Nonetheless, the study has shown that only 24.7% of the households contacted experience food insecurity. This means, most families in the surveyed areas are food secure. Having analyzed the food security situation, the next sub-section presents descriptive findings on the family characteristics influencing food security.

Influence of family income on food security

The first specific objective of this study was to establish the influence of household income characteristics on food security in Kismayo district, Somalia. This variable was measured using three sub-variables which

include employment, access to credit facility, and remittance and social grants. Under this, several questions were asked and the statistical responses are summarized in the Table 3 below.

Table 3: Household Sources of Income

		Percent
At any time over the past 6months have you or any member of your household engaged in any form of gainful employment	Yes	82.9
	No	17.1
	Total	100.0
At any time of the last 6months have you or any member of your household accessed credit facility for household use	No	1.6
	Yes	49.2
	No	49.2
	Total	100.0
During the last six month have you received remittance from members of family in diaspora?	Yes	43.7
	No	56.3
	Total	100.0
During the past 12 months, have you or any member of your household received any in kind support e.g. Zakat, food loan, cash loan, free labor, cash gift?	Yes	48.2
	No	51.8
	Total	100.0
During the past one month have you or any member of your household received any cash support from the UN/NGOS and other humanitarian agencies e.g. food for work, cash for work, free cash, and food aid?	Yes	55.5
	No	44.5
	Total	100.0
Has your household been engaged in any other business/enterprise or sale of farm produce over the last six months?	Yes	58.7
	No	41.3
	Total	100.0
In the past six months, what was the main source of household income?	No	1.3
	Agriculture	20.8
	Family business	41.8
	Remittance from abroad	4.7
	Private sector wage or salary	27.4
	Transfers and social assistance	3.9
	Total	100.0
What is the amount spent on food consumed by the household members during the past seven days	Less than 25000	72.9
	25,000 to 50,000	22.9
	50,001 to 75,000	4.2
	Total	100.0

From the table above, the study established that 82.9% of households that had at least a member engaged in gainful employment in the past 6 months considered their households' food secure. The household average combined monthly net take home included credit facilities, remittances, income from business and humanitarian support from development agencies was less than 25,000. The study revealed that only 4.2% of the households had net income more than 50,000 per month. Most household revealed that despite gainful

employment in the past six months, their main source of income for the family was fetched from family businesses (41.8%) including enterprise or sale of farm produce, this is closely followed by wage earnings from the private sector with remittance from members of family in Diaspora/ friends as the least sourced income. It is worth noting that 51% of the households in Kismayo had received income from other sources outside their primary supplies which included donations/ grants from friends, remittances and international agencies (NGOs) as a buffer to household income that aided food security as shown in the table above.

Influence of Family asset diversification on food security

The second objective was to establish the influence of family asset diversification on food security. The study revealed low levels of durables ownership with higher mentions of mobile phones in that category with few instances of gas cookers, ploughs and machetes. Almost all respondents 96.6% confirmed that they rear livestock with majority keeping goats, chicken, cattle and camel. The study further established that majority of the households’ 85.3% accessed land for farming with the most accessed land being family land 51.3% followed by leased land 27.6% (See Table 4).

Table 4: Family asset diversification

Question		Percent
Do you rear any livestock?	Yes	96.6
	No	3.4
	Total	100.0
Do you access land for farming?	Yes	85.3
	No	14.7
	Total	100.0
What type of land access as a household?	None	9.5
	Community land	11.6
	Leased land	27.6
	Family land	51.3
	Total	100.0
Are you currently engaged in any agricultural produce?	Yes	60.8
	No	39.2
	Total	100.0

In terms of production, more than half the households sampled (60.8%) were involved in agricultural production. Own food production offered primary subsidies to the food basket and recipe for food security. Majority of the households were using 2 hectares on average for agricultural production. Maize beans sorghum, groundnuts were the main crops cultivated. The study further sought to find out whether the households were engaging the social enterprises such as communal asset creation programs as members and active participants with the objective of improving household resilience to food insecurity and improved food productivity/ stock for their families (Table 5). The study revealed that majority of the households were aware of such programs with at least half of the households having a member actively involved in the programs.

Table 5: Communal asset creation programs

Status of household’s involvement in communal asset creation programs	Yes	No
Aware of communal asset creation programs	82%	18%

Ever participated in communal asset creation programs	71%	29%
Whether the communal asset creation programs have improved household food security	70%	30%

Most vulnerable and food insecure households in Kismayo live in fragile, resource-scarce and degraded environments, in areas that are prone to climate disasters and exposed to frequent shocks. Communal asset creation programs promote the building or rehabilitation of assets that will improve long-term food security and resilience. These activities aim to create healthier natural environments, reduce the risks and impact of climate shocks, increase food productivity, and strengthen resilience to natural disasters over time. The programs bring many of hectares of degraded land back into productive use, and households trained in livelihood and agricultural practices. The programs work to empower vulnerable communities/ households to move away from dependency on food assistance and lead in the creation of assets that increase their resilience to future food security shocks. Practically, communal asset creation programs is a way to establish and rehabilitate community infrastructure including small dams, dip tanks for livestock hygiene and access roads as a way to ensure that communities have access to food, even during lean agricultural seasons thereby ensuring improved household food productivity and stock at the family.

Influence of family headed background on food security

The third objective of this study was to establish the influence of household income characteristics on food security in Kismayo district, Somalia. The researcher sought to assess the effect of family head background on food security. Findings reveal that majority (65%) of the respondents feel that the gender of the head of household influences food security in the household (see Table 6). Additionally, 73.9% of the respondents argued that the age of the household head determines food security.

Table 6: Family head background

Question		Percent
In your opinion do you feel that the gender of the head of household influences food security in the households in this area?	Yes	65.5
	No	34.5
	Total	100.0
In your opinion do you feel that the age of the head of household affects food security in the households in this area	Yes	73.9
	No	26.1
	Total	100.0
What is the marital status of the head of household?	Married polygamous	15.5
	Married monogamous	52.9
	Widowed	15.8
	Divorced/Separated	6.8
	Single	8.9
	Total	100.0

Influence of Family Gender Mix on Food Security

The fourth objective of this study was to establish the influence of household income characteristics on food security in Kismayo district, Somalia. The study established a higher population at the base of the age pyramid within the households with majority of the members being below 18years old. An increase in the number of children in male and female decision-making households significantly decreases the probability of these households being positioned in the food-secure category while increasing the probability of them falling into the food-insecure category. This result is linked to the number of dependent family members in

the household. The dependency burden within the household is a strong predictor of household-level food security status (Bishokarma, 2016). It increases the need for household food consumption, putting more pressure on the household to fall into food-insecurity.

Table 7; Gender characteristic of decision makers and influence on household food security

Who makes the decisions on food production/storage/consumption in the household?	During the last seven days have you faced a situation where you did not have enough food to feed the household?	
	Yes	No
Head of household	60%	40%
Member of household but not head	40%	60%
Mother/wife/woman as head of household	75%	25%
Mother /wife/woman though not as head of household	38%	62%
Father/husband/man as head of household	50%	50%

As shown in the table above on Gender of decision makers and influence on household food security, subgroup analysis revealed that female-headed households were (75%) are more likely to be food insecure than male-headed households (25%). Highest incidence (75%) of households facing a situation where they did not have enough food to feed the household was recorded by Mother/wife/woman as head of household making the decisions on food production/storage/consumption in the household. It's also worth noting that a comparative analysis of hunger incidences in households where the decisions on food production/storage/consumption in the household are made by member of household but not head was noted to be lower than instances where the head of the household is the decision maker, suggesting that household food security has a positive leaning towards the type of decisions made at various levels of the household organization structure. Further, although there exist a clear departure on the roles of the adult members of the household with regards to household food expenditure and or household food security including; planning meal consumption, providing household income, preserving food, ensuring proper storage, plan expenditure, cultivating land, herding etc., the study established that Kismayo records low number of adults in households that are currently gainfully employed and contributes directly to household food expenditure, indicating increased levels of dependency and strain on household food security.

The Probit model estimates on the effects of family characteristics on food security status of households in Kismayo is presented in Table 8. The Chi-square estimate of 103.59 with the p-value of 0.0000 indicates that the model is statistically significant at 1% level. The independent variables used in the model were found to be significant in determining the food security status of the agro-pastoral households. The variables are household size ($p < 0.01$), age of household head ($p < 0.10$), off farm family income of household head ($p < 0.05$), output of rearing of livestock (camels, goats, sheep, donkeys, cattle and chicken) ($p < 0.05$), output of crop production (maize, beans, cow peas, sorghum, tomatoes etc.) ($p < 0.05$), access to land for farming ($p < 0.01$), household involvement in communal asset creation programs ($p < 0.01$), household type ($p < 0.05$), family gender mix ($p < 0.01$) and education level of head of household ($p < 0.01$). Income enables the households to modernize their production by buying the necessary inputs, and reduce the risk of food shortage during periods of unexpected crop failures through purchases. Similar observations were made by Ali, Mutundu & Ngare (2016) who argued that household income enables households to achieve food security. Additionally, Hashmi, Sial, Akram & Hashmi (2019) established that families who participate in farming usually end up having enough food for their consumption.

The results further indicates the predicted probability of binary outcome changes with change in

independent variables or risk factors to food security. The overall interpretation under each variable influence is attributed to the marginal effect value as a significant determinant of the food security status of household. For instance, marginal effect value of household size at -0.19 means that a unit increase in household size will reduce the probability of household being food secure by 0.19. Hence, increase in household size would lead to decrease in the food security status of the household. This result is expected because increase in the member of household means more people are eating from the same resource base, hence, the household members may not be able to access enough food when compared with situation of smaller household size, thus decreasing the probability of the household to be food secure. This result is in harmony with the rest of the independent variables and their effect on food security. With respect to output of rearing of livestock (camels, goats, sheep, donkeys, cattle and chicken) and output of crop production (maize, beans, cow peas, sorghum, tomatoes etc.), a unit increases in the respective outputs increases the probability of household to be food secure by 0.00025 and 0.00028 respectively. This could be attributed to the fact that increases in outputs are likely to be tantamount to the availability of more food. In terms of the impact that off farm family income on household food security status, findings showed that a unit increase in family income increases the probability of household to be food secure by 0.0087. This will enable household generate more income available for the use of the household to buy food anytime they wish and hence would make the household more food secure.

Table 8: Probit estimates on the determinants of food security in Kismayo

Variable	Coefficient	P-values	Marginal effect
Household size	-0.5875073***	0.0000	0.1974913
Age of household head	-0.0001918*	0.078	0.0000743
Off farm family income (combined)	0.0227175**	0.029	0.0087966
Output of rearing of livestock (Camels, goats, sheep, donkeys, cattle and chicken)	0.0005361***	0.004	0.0002476
Output of crop production (Maize, Beans, cow peas, sorghum, tomatoes etc.)	0.0002244**	0.046	0.0002869
Access to land for farming	0.0012633***	0	0.0004892
Household involvement in communal asset creation programs	-0.0000273	0.001	0.0000106
Household type	-0.0990328	0.042	0.0383469
Family gender mix	-0.0027279	0.012	0.0003742
Education level of head of household	0.2755418	0.004	0.1066938
Constant	1.284657	0.17	
Chi-square	103.59		
Log likelihood	-83.783742		
p-value	0.000		

*** Significant at 1%, ** significant at 5%, * significant at 10%

CONCLUSION AND RECOMMENDATIONS

The study examined the influence of household income source, family gender characteristics, family asset diversification and household head background characteristics on food security in rural families in Kismayu District. From the results, several conclusions are drawn. First, we can note that family income sources had a positive and significant influence on food security. The study therefore concludes that gainful employment

will lead to increased availability of food to many households in Kismayo District. Secondly, findings demonstrate that gender of the household head has a significant influence on household food security. Thus, family gender mix play a key role in ensuring that households stay food secure. Thirdly, the study has established that family asset diversification had a significant influence on household food security in Kismayo District. It is therefore concluded that households' ability to be food secure is directly linked the diversity of household's assets. Fourth, we conclude that educated household heads always better chance of making their households food secure.

Arising from these results, we recommend that, the relevant authorities should create gainful employment for residence of Kismayo district so as to ensure food security. Additionally, we suggest that all families be sensitized on the importance of having diverse assets. Finally, the study recommends that all family heads be educated and equipped with basic skills that can help them guide the family toward food security. This is due to the fact that skills and knowledge makes it possible for informed decision making and implementation of advanced agricultural technologies.

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