

Socio-Economic Factors that Influence Household Food Security in West Pokot County, Kenya

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Research Article

Keywords: Socio-Economic, Influence, Household, Food Security

Posted Date: September 22nd, 2020

DOI: <https://doi.org/10.21203/rs.3.rs-82001/v1>

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Abstract

Socio-economic activities of smallholder farmers have been shown to have either negative or positive contribution towards achieving food security. The aim of this study was to investigate the influence of socio-economic factors on household food security in West pokot County, Kenya. The study was carried out using pluralistic approaches where pragmatism drawing from both qualitative and quantitative research approaches was used. Multi stage and systematic random sampling techniques were used to determine a sample size of respondents in respective locations. This study adopted an explanatory research design and employed mixed methods approach. The researcher also drew philosophical inspiration from pragmatic worldview that is problem centred and more focused on real world issues. The target population comprised of 78,946 smallholder households in West Pokot County with a sample size of 297 respondents. Questionnaires, interview schedules and observations were used for collecting data. The collected data was analysed using both and inferential statistics. Qualitative content was achieved through content analysis. The study found out that socio-economic factors including household income, education level, land ownership and household decision making had significant positive influence on the household food security with $r^2= 0.349$. The study therefore concluded that socio-economic factors influenced positively household food security. The study recommended that approaches that would ensure smallholder farmers are able to access credit and financial support so as to invest in farming needs to be availed.

1. Introduction

There is a continuing debate on the implication of socio-economic factors to food security amongst policy makers, social scientists, development workers and local people involved in promoting food security in developing countries (FAO, 2014). It has been shown that socio-economic activities of smallholder farmers have a negative or positive contribution towards achieving food security (Yahya & Xiaohui, 2014).

Food Security and development are now familiar concepts to a majority of researchers throughout the world, particularly among the developing countries, such as Kenya. Within the developing world, Africa, particularly Sub-Saharan Africa, is classified as one of the poorest regions associated with escalating food security problems. As long as a society is deficient in all its food needs, poverty is inevitable, since food insecurity is viewed as both a cause and a consequence of poverty (Sanchez, *et al.*, 2005). In order to adequately address development, it would be simpler to deal with food insecurity, as food is just one of the basic needs required by an individual for a minimum healthy life.

The eradication of hunger requires Sustainable Development Goal-2 targets and indicators aligned with the four pillars of food security: availability, access, utilization and stability (FAO 2008). In the developed countries, the primary causes of food insecurity are poverty, high illiteracy levels, poor health status, and certain disabilities that increase the risk of food insecurity for individuals and households for instance in the United States. In developing countries, the root causes of food insecurity include: poverty, war and

civil conflict, corruption, national policies that do not promote equal access to food for all, environmental degradation, barriers to trade, insufficient agricultural development, population growth, high illiteracy levels, social and gender inequality, poor health status, cultural insensitivity, and natural disasters (FAO, 2002). All these factors contribute to either insufficient national food availability or insufficient access to food by households and individuals (IFPRI, 2002; FAO, 2011, 2012).

A majority of sub-Saharan Africa's population live in rural areas where poverty and deprivation are the most severe. Since almost all rural households depend directly or indirectly on agriculture, and given the sector's large contribution to the overall economy, it might seem obvious that agriculture should be a key sector in development. However, while agriculture-led growth has played an important role in reducing poverty and transforming the economies of many Asian countries, the strategy has not yet worked in Africa. Most African countries have failed to meet the requirements for a successful agricultural revolution, and productivity in African agriculture lags far behind the rest of the world. This has recently led to renewed debate within the international development community concerning the role of agriculture, particularly small farms, in African development.

In Kenya, food insecurity is a monumental crisis affecting many, particularly in the rural areas and ASAL areas. According to the Global Hunger Index Report 2015 (GHI, 2015), Kenya was rated among 30 countries with the least food security index in the world. According to statistics from the Republic of Kenya (2016), only about a third of the Kenyan population can be said to be chronically food insecure. West Pokot County is one of the food deficient and food insecure Counties in Kenya (GOK, 2015). In agro-pastoral regions like West Pokot County in Kenya, smallholder farmers have negatively been affected by climate change and variability through its adverse impacts. Smallholder farmers in agro-pastoral rural areas have been experiencing low agricultural productivity, crop failure, human disease outbreak, pest and diseases, lack of water, shortages of agricultural-based food items at a household level and food insecurities (Mutekwa, 2007). These impacts have posed a huge threat to food security and livelihoods of most smallholder farmers compromising their well-being, as most of them depend on natural climatic sensitive resources such as agriculture for their livelihoods (Debela *et al.*, 2015). The current research therefore investigated the socio-economic factors that influence household food security in West Pokot County, Kenya.

2. Literature Review

Studies conducted in Limpopo, South Africa revealed that although smallholder farmers are engaged in household food production, usually they are left with food deficits to carry them to the next harvest and would require off-farm income to buy food for the household (Aliber & Hart, 2009). In addition, those off-farm income are essentially part of being a smallholder farmer in South Africa since they help to diversify their incomes and hence their livelihood sources. Various studies have explored the relationship between household power dynamics, agricultural production and food security in developing countries. Rao (2006) explored the conceptual linkages between the issues of land rights for women, with household food security on the one hand and gender equality on the other. Rao (2006) found that men have been able to

access the better paid, non-farm jobs, while leaving women behind to manage agricultural production. Rao (2006) argued that while a right to land for women is a positive development, it appears also to be leading to an enhancement of work burdens, without much change in terms of status or decision-making authority.

Njuki *et al.*, (2011) used data from Malawi and Uganda to analyze the influences of income distribution between men and women. The results indicate that commodities generating lower average revenues are more likely to be controlled by women, whereas men control commodities that are high revenue generators, often sold in formal markets. Another study by Ismail, Rajeani, Idris and Akoge (2015) in Nigeria highlighted the role of gender in decision making. The results show that although men generally wielded greater decision-making power at the household level, women exploited their social spaces and gender roles to (re)negotiate significant roles in decision-making in urban gardening. Nonetheless, there were notable gender differences in terms of the initial decision to farm, choice of crops to cultivate, and use of crop products and income.

Copeland and Guertin (2013) assert that women produce fifty per cent of the world's agricultural output, but own approximately two per cent of its land. It is true that food security cannot be achieved without women but they encounter many obstacles due to limited land rights which make it difficult for them to improve food security conditions for their families and their communities. Copeland and Guertin, (2013) also claim that the right to own, control and access land is fundamental to both food security and gender equality. Ownership, control and access to land can ensure that land is used to produce food for household consumption while the surplus can be sold to provide additional income that can be used to purchase food, or meet healthcare and other livelihood needs. Citing the World Bank, Copeland and Guertin (2013), state that property ownership for women increases their bargaining rights, improves family stability and boosts household economies. Most international statutes and national constitutions protect gender equality, especially with regard to land and other property rights, as well as education and general food security but this does not always translate into practice due to traditions and social norms that regard men as the owners and custodians of family land.

Education is typically seen as a means of improving people's welfare. Studies indicate that inequality declines as the average level of educational attainment increases, with secondary education producing the greatest payoff (Cornia & Court, 2001). There is considerable evidence that even in settings where people are deprived of other essential services like sanitation or clean water, children of educated mothers have much better prospects of survival than do the children of uneducated mothers. Education is therefore typically viewed as a powerful factor in levelling the field of opportunity as it provides individuals with the capacity to obtain a higher income and standard of living. By learning to read and write and acquiring technical or professional skills, people increase their chances of obtaining decent, better-paying jobs (KNBS & SID 2013).

Lack of education is the main cause of poor agricultural productivity in Kenya. It is a known fact that education contributes significantly to sustained rural income growth since education increases the ability

of farmers to allocate their resources more efficiently and know the nutritional value of the foods they consume. Furthermore, education will help the smallholders to develop the skills needed to participate in knowledge intensive agriculture, adopt new technology and participate in marketing activities. Gender inequality and discrimination at the household level prevent women from getting education which, in turn, has a negative impact on their decision making, production and marketing skills and contributing even more to food inequality in their households (AWSC & KNBS, 2014).

3. Methodology

The study was carried out in West Pokot County of Kenya using pluralistic approaches where pragmatism drawing from both qualitative and quantitative research approaches was used. The study embraced mixed methods because mixing qualitative and quantitative data during collection and analysis provided deeper insights and a more complete picture of the phenomenon and triangulated research yielded results that were more comprehensive and reliable than those generated through single methods (Creswell & Plano Clark, 2017). This approach also helped in triangulation of the research findings. This study adopted explanatory research design which aimed at establishing causal relationship between variables.

The target population in this study was 78,946 households in West Pokot County (KNBS, 2013). These households were clustered into sub counties which included West Pokot Sub County with 26,660 household, Pokot Cental with 14,840 households, North Pokot with 15,338 households and Pokot south with 22,108 households.

A sample size of 282 households was achieved using the following formula;

$$\text{Sample size } n = [(z^2 * p * q) + ME^2] / [ME^2 + z^2 * p * q / N]$$

n =sample size, z =critical standard score, p = population proportion, $q = 1 - p$, ME = margin of error, N =size of the population

$$n = [((1.96)^2 * 0.90 * 0.10) + (0.035)^2] / [(0.035)^2 + (1.96)^2 * 0.90 * 0.10 / 78,946] = 282.2309954 \text{ which is } \mathbf{282} \text{ households}$$

Study sites were selected with regard to the land classification types largely based on food (crop) production potential. According to Obwocha (2015), the Pokot themselves utilize their land largely on the basis of altitude, rainfall and agricultural potential. First, West Pokot County was purposively sampled based on the geographical location, diversity in agro ecological zones and proneness to food insecurity. A list of administrative sub counties in the three land classification types were considered from which one sub county was selected randomly as a representative whereby West Pokot Sub County, South Pokot and North Pokot County was selected. From the randomly selected sub counties, the division within the sub

county was listed and purposively categorised on the basis of the land classification in the area, climatic conditions experienced in the specific locations and accessibility/security whereby one division per Sub County was selected thus Kapenguria, Chepareria and Kacheliba were sampled. Further from each division, two locations were randomly sampled to bring the total number of locations to 6. From each location, two sub locations were randomly sampled bring the total number of sub location to be twelve. From each sub location, the study sampled two villages making the total number of villages in this study to be 24. From each village, the study selected between 11 and 12 households using systematic random sampling where each 2nd household was sampled to achieve a sample size of 282.

The local administration leaders that included chiefs and village elders helped the researcher to identify farmers and make the necessary appointments. The study also used Key informants comprising of 6 chiefs and 6 agricultural extension officers for both livestock and crop production each from the 6 locations and 3 representatives of Non-Governmental Organizations working on Food security in the study area.

A Questionnaire and interview guides were used in data collection. Orodho (2005) observes that questionnaires have a major advantage of time efficiency and anonymity. Creswell and Plano Clark (2017) argues that the questionnaire is a suitable tool for collecting data given a large sample size. Based on these advantages, the current study preferred to use the questionnaire and interview guide for key informants over other tools of data collection. In this study, questionnaires were used to collect data from smallholder farmers. On the other hand, an interview guide was used to solicit for in-depth data from key informants and farmers' organizations in the county. These instruments were used to collect primary data.

The validity of the data collection instruments that were used to collect data were measured by deriving all the questions from the study's objectives, and checking each question to determine its contribution to the objectives (Check & Schutt, 2012). To test internal consistency of the items listed on the instrument used, the Cronbach alpha coefficient was computed. The statistic coefficient value between 0 and 1 was used to rate the reliability of an instrument such as a questionnaire ranges.

The study used both quantitative and qualitative data analysis. The data that was obtained through questionnaires was edited and coded through a predetermined coding scheme. Editing of data is a process of examining the raw data (especially in surveys) to detect errors and omissions and to correct these errors where possible (Kothari, 2004). Quantitative data was analysed in SPSS and at descriptive level and more soundly statistics of empirical facts, the statistical summaries were derived and presented in the form of frequency tables, percentages, cross-tabulations, means and standard deviations. Inferential statistics were used to determine the relationships between smallholder farming, farmers associations and household food security as well as testing the hypotheses. Qualitative data was mostly applied in triangulation of the quantitative data as presented by the respondents in West Pokot County to improve validity and reliability of all variables associated with household food security in the study area.

The researcher followed all codes of ethical issues while conducting this study. Informed consent was sought from smallholder farmers and key informants before administering the questionnaires and conducting interviews respectively. Privacy and confidentiality was practiced during data collection and with data handling.

4. Results And Discussions

The aim of the study was to examine the role of socio-economic factors on smallholder farmer's contribution to household food security in West Pokot County. The findings indicated majority of the sampled farmers earned less than Ksh. 20,000 with 41.5% earning less than 10,000 and 37.8% earning between Ksh 10,000 and 20,000. It was further revealed that majority of the respondents 61.8% spent less than 10,000 in farming with 31.1% spending less than Ksh. 5,000 and 30.7% spending between Ksh. 5001 and 10,000. The results revealed that on average, household in West Pokot spent 50.1% of their income on farming although there were extreme cases where some household spent 5.0% and other spent 100% of their income. Most of the household income was spent on tilling/Ploughing of land while least percentage was used in marketing. Some household did not use any percentage of their income on marketing, input purchase, storage, harvesting and planting. The respondents were of the view that their household income was less adequate in relation to their farming requirement and therefore, not all aspect of household farming received adequate capital requirement. There was significant relationship between household income and amount spent on farming as indicate by correlation coefficient of 0.588 implying that increase in household income would results to increase in the amount of money spent on farming.

It can be deduced that smallholder farmers in West Pokot County are unable to participate fully in farming activities due to inadequacy of financial resources. Inability to get adequate fund to purchase farming input has a bearing in agricultural productivity. This is in agreement with WB (2009) which indicated that in Muranga and Meru found that lack of cash kept smallholder farmers from using more fertilisers, seed and other inputs. Yahya and Xiaohui (2014) also asserted that inability to access to resources such as land and capital constrain smallholder farmers effort towards ensuring food security at households. Abu and Soom (2016) also found that income of households head had a positive impact on household food security. Constraints such as lack of access to credits were identified as some of the factors militating against the achievement of food security in Nigeria.

Another aspect of socio-economic factor was education which was conceptualized in terms of knowledge and skills applied in farming. In this regard, the findings established that few of the sample respondents have indeed participated in training and capacity building. The agricultural knowledge was found between low to moderate with majority of them indicating that they depend on their neighbors and relative to get information on agricultural production. Few training undertaken concentrated on nutrition and farming practices with few of them offering training and capacity building on climate adaptations. Level of education of the head of household is vital since they are the decision makers in matters

concerning household expenditure. Education is expected to have positive influence on household food security.

As the level of education increases, the percentage of food secure households increases. This is expected because with increase in the level of education, individuals will be able to adopt more modern farm technologies on their farms thus improving their productivity. Level of formal education attained helps farmers to use production information efficiently, as a more educated person acquires more information and, to that extent, is a better producer (Abdulkadyrova et al., 2016; Mutisya, Ngware, Kabiru, & Kandala, 2016). In addition, Enyedi and Volgyes, (2016) urges that education is important in agricultural transformation where it enhance the farmers' ability to receive, decode, and understand information. The level of farmers 'education is believed to influence the use of improved technology in agriculture and, hence, farm productivity. The more the head of household is educated the more the household is likely to access enough food.

Educational attainment by the household head could lead to awareness of the possible advantages of modernizing agriculture by means of technological inputs; enable them to read instructions on fertilizer packs and diversification of household incomes which, in turn, would enhance households' food supply (Najafi, 2003). Amaza, Abdoulaye, Kwaghe and Tegbaru (2009) indicated that education helps the household head to use production information efficiently as a more educated person acquires more information he becomes a better producer. The level of education is believed to influence the use of improved technology in agriculture and, hence, farm productivity. The level of education determines the level of opportunities available to improve livelihood strategies, enhance food security, and reduce the level of poverty

The last aspect of socio-economic effect was land ownership and household decision related to farming practices. As in other African culture and more so pastoralist communities, land in West Pokot is patriarchal owned. Therefore, the decision on land use is based on household head. The findings indicated that to a large extent, land ownership and household decision making model affect household food security in West Pokot County as indicated by over 60% of sampled respondents. Most of respondents indicated that men as compared to female headed household preferred livestock farming although female headed household compared crop farming.

From the findings, it can be postulated household decision making on the use of available resources has an influence on household food security. Most of the African societies have assets and resources such as land, tree, livestock which can be used to enhance food security at household level. Copeland and Guertin, (2013) claimed that the right to own, control and access land is fundamental to both food security and gender equality. Ownership, control and access to land can ensure that land is used to produce food for household consumption while the surplus can be sold to provide additional income that can be used to purchase food, or meet healthcare and other livelihood needs. The findings are also supported by a study done in Kakamega County; husbands were willing to allow their wives to seek credit if neither land nor

family property was pledged as security, which effectively eliminated formal credit for women. Moreover, women could not seek credit without their husband's permission, (WB, 2009).

The quantitative data collected was later subjected to regression analysis thereby test the first model of the study. The purpose was to test the hypothesis which posited that H_{01} : There is no significant relationship between smallholder farmer's socio-economic factors and household food security in West Pokot County. Using simple regression analysis, the results indicated that socio-economic factors which comprised of household income, education level, land ownership and household decision has significant positive influence on the household food security in West Pokot Sub County as indicated by R square of 0.349. This implies that up to 32.9% of change in household food security in West Pokot Sub County is significantly influence by socio-economic factors. In regard to the first model of the study, the unstandardized B-coefficient yielded a value $B=.699$ which was significant at $p=.000$ implying that a unit change in socio-economic factors would result to significant change in household food security by 0.699 units. This finding agree with Rose, Gundersen and Oliveira (2008) who found out that in the United States, households with higher incomes, homeowners, households headed by a high school graduate, and elderly households were less likely to be food insufficient. Holding other factors constant, those in low SES were over 3.5 times more likely to be food insufficient.

The findings were also supported by multiple linear regressions where socio-economic factors had a unique significant contribution to the model was the value for socio-economic factors ($B=.288, p=.000$). This implies that, when other variable in the model are controlled, a unit change in social economic factors would result to significant change in household food security in West Pokot County by 0.288 units in the same direction. These finding concurs with Musemwa, Zhou and Aghdasi (2013) who indicated that access to enough food was affected by gender of head of household, household size, education level of household head, agricultural training, poultry production and monthly total income of ordinary South Africans. Similar results were obtained in Tanzania by Mavole, Sitawa and Stella (2016) who found that socio-cultural and economic factors influence rural household food security in Bukoba District. The specific socio-cultural factors influencing rural household food security included household size and perception of the residents on banana. Access to credit was a problem to most of the farmers in Bukoba since there were few credit institutions. Ali, Mutundu and Ngare (2016) also found that socioeconomic factors were significant determinants of food insecurity in Somalia. The study concludes that the main socioeconomic factors that influence food insecurity among households are the gender of the household head, age, marital status, and households' weak income base.

In Turkey, Esturk and Oren (2014) found out that among the socio-economic variables, the income level was the most decisive variable for food security. The gender of household head, employment status, education level and household count were the other variables affecting food security. Asghar and Muhammad (2013) indicated that socio-economic factors such as education of household head, annual income and agricultural income are some of the most important factors influencing the household's food insecurity status in Pakistan.

5. Conclusions And Recommendations

The study concluded that socio-economic factors which comprised of household income, education level, land ownership and household decision has significant positive influence on the household food security in West Pokot Sub County. In particular, it was established that improvement in socio-economic factors results to increase in household food security in the county. The study recommended that approaches that would ensure smallholder farmers are able to access credit and financial support so as to invest in farming needs to be availed. This can be achieved through microfinance support specially targeting smallholder farmers. The study also recommends that, there is need to increase extension services in the county as these services would increase farmers' knowledge and skills in agricultural production.

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