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Nexus between Participation in Agriculture and Youth Welfare in Bomet County, Kenya

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Abstract

Kenya's youth unemployment rate stands at 39 percent, forming the largest group of the unemployed in the country. The cohort possesses innovative behavior, minimal risk aversion, less fear of failure, less conservativeness, greater physical strength and greater knowledge acquisition propensity. The agriculture sector offers a huge opportunity for the creation of employment for the youth in the country. Despite the vital role the agricultural sector plays in the economy of Kenya, youth are yet to fully exploit its potential. Like in other countries, literature posits that youth participation in agriculture is low and major determinants of participation in agriculture are; education level, access to land, access to finance, household size and access to market. Youth perceive agriculture as a career of last resort that has low monetary benefits. The study sought to establish participation in agriculture and its effects on the welfare of the youth in Bomet County. A sample of 399 youths were picked as a representative sample. The study employed frequencies and percentages in analyzing the descriptive statistics of the study. Logistic regression was adopted in estimating the model. The study undertook various diagnostic tests before estimating the models to ensure that the model is fit in determining the relationship of study variables. The predicted probabilities for youth to participate in agricultural activities was 32.0 percent. The results from the study also showed that participating in agriculture improved welfare majorly through increased income and food. Model results established that marital status, university education, land size, financial access, access to ICT infrastructure, market distance, household size and agricultural training significantly influenced welfare of youth practicing agriculture. The study recommends that the government creates financial credit specifically tailored for majority of the youth who do not have the required collateral. There is also a need for the government to build more agricultural training institutes so that youth can learn diverse agricultural productions.

Keywords: *Youth Welfare, Participation in Agriculture and Bomet County*

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1. Introduction

Agriculture remains the backbone of Kenya's economy directly contributing 30 percent of the annual GDP and another 27 percent indirect contribution (ASDS, 2010 – 2020). The sector has also proved to be saving grace for the unemployed in the country contributing more than 18 percent of formal employment and 70 percent of informal employment (FAO, 2019). The Agricultural sector in Kenya compose of food crops, industrial crops, horticulture, livestock and fisheries, and uses such factors of production as land, labor and capital (MoALF, 2020). In Kenya, the sector establishes the industrialization framework through supplying raw materials to industries and offering ready market for industrial goods, thereby ensuring increased employment in the country. Agriculture also supply food constantly thus, saves the country funds that would have otherwise been used in the importation of food from other countries. The sector as such ensures surplus money to invest in other areas of the economy such as social amenities, roads, hospitals, and schools. Through all this multiplier effects agriculture is perceived to be an engine of Kenyan economy.

In most African countries, inheritance is still the common system with which youths get to own land. World Bank (2019) projects world population to reach 9.3 billion by 2050, the vigorously growing population will put pressure on land and as a result land will be subdivided into small unproductive units, the problem is even more serious for youths with many siblings. Decisions to use land in places where land is owned by community lies squarely on elders, adding more hurdle for youth to participate in agriculture. Tradition in most countries in North Africa and, Middle East view division of inherited land as a taboo leading to joint farming where individuals work with their coheirs, (Cotula, 2011). Access to land especially through inheritance by female is even harder. Report by FAO (2017) showing state gender disparities in land ownership showed that less than 20 percent of available land in the world is owned by women. The report further confirmed that land rights in many communities are managed by customary and statutory laws. Customary laws in Kenya disadvantage women when it comes to land ownership. Women gain land user rights from their husbands (FAO, 2017).

Youth perception on agriculture has a bearing on their participation. Despite the immense contribution of agriculture compounded by increased government support, the current trend of youths seems not to be interested in the activity as they perceive it as a sector of intense labor, not profitable and unable to support their livelihood compared to what white collar jobs offer (Youth in Farming, 2016). Agriculture is seen as a less worthwhile subject or as a last resort for under-achievers hence influencing rural youth aspirations in a negative way; while urban students see agriculture as a 'dirty job' (Njeru *et al.*, 2015).

Despite the ever expanding local and international markets for agricultural produce in most parts of Kenya. Youths are yet to tap this markets (Leavy & Hossain 2014). The marketing chains are long, non-transparent, inefficient, slow and unresponsive to the needs of producers who are predominantly youth. They are often characterized by low value addition, which translates to low prices, fewer job opportunities and low incomes (World Bank, 2019). The situation is worse for perishable products such as milk and horticultural products. Common problems in the value chains include lack of direct market access by producers, low farm gate prices and high transportation

and other transaction costs, fragmented, value chain for smallholders that are mainly based on contract farming and often skewed against small scale producers (Emana *et al.,* 2017).

Increasing urbanization in Kenya fueled by mass rural urban migration mainly by youth who go to urban areas in search of jobs has resulted in an increasing gap between food production and consumption that has threatened food security in the country. This mass migration by youth has also resulted in increased crimes, overstretched social amenities and development of informal urban settlements since majority of this youth cannot be absorbed by limited job opportunities in the urban areas. (Kenya Youth Agribusiness Strategy, 2017-2021). Njeru and Gichuru (2014) also found that many youths in Kenya struggle to find employment or are lowly remunerated. This extends their dependency on their parents and increases frustrations which increases the likelihood of crimes and conflicts.

The ministry of Youth, Sports and Gender in Partnership with Ministry of Agriculture is responsible for finding better ways to support and improve level of youth participation in agriculture. The partnership has yielded programs and projects tailored to address youth unemployment issue, youth participation in agriculture being the central focus area in addressing the issue. Kenya's government through this inter-ministry partnership supports youth participation in agriculture through coming up with funding tools such as Youth Enterprise Development Fund (YEDF) and Uwezo fund which describes itself as "flagship program for vision 2030 aimed at enabling women, youth and persons living with disability in gaining access to finances to promote businesses and enterprises at constituency level". The main goal of YEDF in Kenya is to promote the idea of self-employment for young people through entrepreneurship activities thereby shunning the idea of job seeking which has proved to be a killer of many young people's success dreams.it does this through provision of cheap and easy credit services to youth who are keen on expanding or starting business ventures including agriculture.

Agriculture Sector Development Strategy (ASDS) 2010-2020 sought to sensitize youth on profitable enterprises. The Strategy also suggests collaboration between the Ministry of Public Service Youth and Gender Affairs and the agricultural sector be established to offer incentives to the youth in farming either though the YEDF, CDF, Innovation Fund for Agriculture and Agribusiness. The strategy underscores the need to develop and prudently manage our factors of production such as land, water, inputs, and financial resources so that the cost of production is within international standards

The Ministry's Strategic Plan (2013-2017) in tackling low youth participation in agriculture encourage youth to take up agriculture as a business and a form of gainful employment. Specific measures have been taken to empower youth through: Capacity building under technical and vocational training and farming including Agriculture Technical Vocational Education and Training Program (AVET) aims at integrating agriculture education and training in vocational and tertiary intuitions; introduction of new farming technologies (Green houses, drip kits, fish ponds and water harvesting facilities) that reduce drudgery; increase productivity and returns to labor; and facilitating access to modern technology information through demonstration sites, print media, periodicals and electronic media targeting the youth.

Bomet County Integrated Development Plan (CIDPs) 2018-2022 have prioritized Agricultural sector and youth empowerment issues. The CIDPs emphasize on employment creation, capacity building and promotion of agribusiness for the youth through provision of finance and agricultural training for youth to effectively participate in agriculture. The county has fertile arable land and favourable climate condition that can sustain agriculture. Despite favorable condition, majority of the youth still consider other economic activities such as *bodaboda* business and brick making lucrative than agriculture with widespread cases of youth selling their inherited portion of land to join ventures like motorcycle business (*bodaboda*). (National Adolescent and Youth Survey, 2015). Bomet County also has 36.2 percent of households categorized to be food insecure which is high considering that the county has abundance of resources for agriculture (International Center for Tropical Agriculture, 2015). This could be attributed to youth who are endowed but do not choose to participate in agriculture.

2. Statement of the Problem

Agriculture is an important sector in the economy, it contributes up to 30 percent of the total Gross Domestic Product and make up to 65 percent of Kenya's total exports. The sector provides food as well as contributing more than 18 percent of formal employment and 70 percent of informal employment in the rural areas (FAO, 2017), therefore, greater percentage of youth participation in agriculture will translate to reduced unemployment rate and food secure society not just in Bomet County but in the whole country.

Despite the contribution of agriculture and major investment by both County and National government in provision of funds and capacity building support services to youth in Kenya, the number of youth participating in Agriculture is quite low, approximately 10 percent (Kenya Youth Agribusiness Strategy, 2017-2021). There are numerous cases in Bomet County where youth have not been able to effectively utilize their land to earn income and to some, the land is sold or leased in order to join other ventures (National Adolescent and Youth Survey, 2015).

Empirical literature has identified several determinants of youth participation in agriculture as well as effect of agriculture on welfare (Maina & Maina, 2012; Kimaro, 2015; Adesina & Eforuoku, 2016; Mwendwa, 2016; Ankrah, 2019; Teka & Lee, 2020). Given the political, economic and geographical disparities from study areas above, it is important to establish the specific determinants of youth participation as well as effect of participation in agriculture on youth welfare in Kenya and specifically Bomet County. From the foregoing, the study used random sample of youth in Bomet County to establish the specific determinants of youth participation in agriculture and evaluate the effect of participation on youth welfare.

3. Theoretical Framework

The study was guided by utility maximum theory developed in 19th century by utilitarian philosophers such as Jeremy Bentham and Neo-classical economists such as Adam Smith. Economists were working on refining an economic system based on self-interest while utilitarian philosophers were seeking scientific explanations on policies that obtain the greater good through utility index. The utility maximization theory states that a rational consumer want to maximize utility derived from consumption of a good or service. In 1987 Stigler integrated this theory in rational maximization hypothesis and came up with three characteristics of a rational consumer

namely; rational consumer taste is consistent, rational consumer make choices that maximizes their own utility and that his cost calculations are correct. The theory assumes that all consumers are rational and they always strife to get the highest value in commodities they choose to consume. Since resources are limited the theory assumes that consumers are faced with budget constraint and hence consumer have to choose commodities that maximizes their utility at highest point of budget constraint. The theory also assumes that consumers have a clear preference on commodities they want to consume. This preference has consistence and transitivity properties.

The theory however is limited in scenarios where individuals suffer from spend thriftiness. Expenditure of such consumers is not guided by principle of rationality, budget constraint and utility maximization. These individuals make random choices and sometimes spend on a good or service with less utility

In relation to this study, assuming two choices to participate or not to participate in agriculture, Choice A and B respectively. If utility derived from A (U_A) is greater than utility of B (U_B) then the youth chooses alternative A which is to participate. The youths in this study will be assumed to be rational and perhaps choose to either participate or not to participate in agriculture depending on the choice that maximizes utility. Youth choice to either participate or not to participate in agriculture was examined and probability of utilizing one of the alternatives as influenced by a number of characteristics estimated.

4. Empirical Review

Ali *et al.* (2016**)** noted that there was a positive impact of ICTs on agricultural productivity. The impact of television on productivity was positive and statistically significant. In addition, productivity of farmers in the age group of 25-40 years was higher due to use of more ICTs. Adesina and Eforuoku (2016) remarked that inadequate training facilities was the most severe constraint to participation youth programs relating with agriculture. Kising'u (2016) observed that economic factors such as land and capital limited youth participation in agricultural value chain projects. Mwendwa (2016) noted that access to land was the most limiting factor since many youth had difficulty in accessing land. According to Muthomi (2017) youth perceived agriculture to be cool practice which may not be prioritized. On the other hand, Ankrah et al (2019) concluded that youth perception of farm inputs price, youth level of education, access to credit, access to land, youth course of study at the tertiary institution, gender composition of the youth and youth perception of farm income significantly contributed to participation in agriculture. Moreover, Ogunjimi, et al, (2023) noted that marital status, parental financial level, study of agriculture significantly affected youth perception toward agriculture. Further, Teka and Lee, (2020) noted that consumption expenditure, income, and asset per capita of the households increased across as result of participating in agriculture.

Utility maximization theory posits that each individual youth makes a choice either to participate in agriculture or not. The choice made depends on individuals' attributes and preferences. Youths have different attributes which vary across gender. This attributes include education level, age, sex, etc. Schultz and Johnston Mellor theory argues that participation in agriculture by youth improves wellbeing of participants through increased income and food provision and thus economic growth in the country.

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Empirical literature that has been reviewed has used different methods to analyze data [mostly descriptive] and the most probable variables associated with coefficients are; education level, access to land, access to finance, household size and access to market. However, most of these studies again do not reflect most upcountry areas due to diversity of factors that vary from political, economic and sociocultural realities and geographical disparities between study areas. So these few literatures cannot be substantially reliable, be entirely reflective or based upon for policy decision and implementation in County government of Bomet, therefore a need to study Determinants of youth participation in agriculture and its effect on youth welfare in Bomet County, Kenya.

5. Methodology

The study used non-experimental study design. Unlike experimental study design, this design does not enable the researcher to manipulate collected data. Data source is primary and was collected by use of structured questionnaires. Youth participation in agriculture is modeled within the theory of Utility maximization framework, in this framework youths choose to either participate or not to participate in agriculture, meaning that participation is binary.

The decision maker is assumed to be rational and when faced with alternatives he/she chooses alternative that maximize utility (Greene, 2018). The decision of youth to participate in agriculture is made when perceived utility from participating greatly outweighs the utility of choosing not to participate. Though utility cannot be directly observed, the actions of youths are observable through choices they make.
This can be captured by utility function expressed as:

$$U = f(X,Z) \quad \text{Equation (1)}$$

Where: X and Z represents observable and non-observable individual youth attributes respectively.
Equation 1 can also be represented as:

$$U_{ij}(X_{ij}; Z_{ij}) = V_j(X_{ij}; \beta),\ i = 1,2\ldots,N,\ j = 1, 2\ldots,M \quad \text{Equation (2)}$$

Where: i represents individuals while j represents participation in agriculture choice, U_{ij} represents the utility derived by individual i from choice of alternative j, X_{ij} represents the observed characteristics of individual i and alternative j chosen, Z_{ij} represents the unobserved characteristics of individual i and alternative j chosen, and Vj denotes the deterministic component of the utility function.

$$P(Y=1 \mid X)=\beta_0+\beta_1 AGE+\beta_2 GDR+\beta_3 MAR+\beta_4 ED+\beta_5 ALD+\beta_6 AFC+\beta_7 AIT+\beta_8 AMT+\beta_9 KWA+\beta_{10} HH+\varepsilon_i \quad \text{Equation (3)}$$

P(Y=1/X); the probability that a youth participates in agriculture; β_0 to β_{13} are the parameters to be estimated and εi is the error term of the model.

To establish the effect of participation in agriculture on welfare, the study employed two step Heckman estimation method. The procedure first estimates the binary equation (3) using Maximum likelihood estimation and then proceeds to estimate equation 4 with predicted probabilities from 3.

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Welfare=F(AGE,GDR,MAR, ED,ALD,AFC,AIT,AMT,KWA,HH, PRD) (4)

Linear model with the predicted values can be expressed as;

$$Welfare=\beta_0+\beta_1AGE+\beta_2GDR+\beta_3MAR+\beta_4ED+\beta_5ALD+\beta_6AFC+\beta_7AIT+\beta_8AMT+\beta_9KWA+\beta_{10}HH+\varepsilon_i$$ ……..Equation (5)

Welfare- is a continuous variable indicating difference in income levels before and after participating in agriculture; β_0=constant; $\beta 1$-β_{10}=Regression coefficients; AGE=Age (years); =GDR; MAR= Marital status; ED= education; HH-Household size; KWA=Agricultural training; GPR=General perception about agriculture; ALD=access to land; AFC= access to finance; AIT=access to ICT infrastructure for youth participation, PRD=predicted probabilities for youth participation equation. The study variables and how is measured is illustrated in Table 1.

Table 1: Description and measurement of variables

Dependent Variable	**Description**	**Unit of measurement**
Youth Welfare	difference in income levels before and after participating in agriculture	Value in Ksh.
Explanatory variables		
Age	Age of an individual in years	Number of years from date of birth
Gender	Gender of the respondent	Categorical variable; 1-male 0 –female
Marital status	State of having or not having a spouse.	Categorical variable 1-married 0-single
Education	Highest level of basic education attained	Categorical variable 4-University, 3-Secondary, 2-Primary 1-No education
Land	Size of land which youth can access in acres	Acres
Finance	Amount of credit a youth can access	Categorical(Ksh) 50000 and above-5 40001-50000-4 30001-40000-3 20001-30000-2 Below 20000-1
Access to ICT infrastructure	Difficulty in accessing internet	Dummy(if yes=1, otherwise=0)
market	Distance from the agricultural produce market in kilometers	Kilometers
Agricultural training	If the youth has any agricultural training.	Dummy (if yes=1, otherwise=0)
Household size	Number of persons sharing the same roof	Number of persons
Predicted probabilities	Predicted probabilities from youth participation in estimated equation	Probabilities

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Target population

The study population consist of youth between the ages of 18 and 35 residing in Bomet County. The sample size was obtained by considering a population of 279220 persons who are residents of Bomet County, sampling error of 5 percent at 95 percent confidence level and using the formula proposed by Yamane (1967);

$$n = \frac{N}{1+N[e^2]}$$

N-sample size, N=target population and e is the sampling error

$$n = \frac{279220}{1+279220[0.05^2]} = 399$$

Probability sampling method was used in this study. Random sampling was utilized to pick 399 youths to act as respondents for the study. Data was collected by use of questionnaires comprising of both open ended and closed ended questions.

The researcher sought permission from relevant authorities to carry out the study. The research team comprised of the researcher and two research assistant, who before the beginning of interview briefed the respondents concerning the study objectives and assure them of utmost confidentiality. The researcher coordinated the data collection exercise of filling the questionnaires. The valid questionnaires were administered by the research assistants to avoid misinterpretation of questions.

The analyses involved the use of descriptive statistics that include percentages, frequencies, means and standard deviations. The study also employed inferential statistics that included multivariate binary logistic regressions. The results multivariate binary logistic regressions were interpreted at 0.05 level of significance. In addition, endogeneity, multicollinearity and heteroscedasticity were carried out.

Test of endogeneity

Durbin-Wu-Hausman was employed to tests. The null hypothesis was that;

H_o: Variables are exogenous

The calculated p-value >0.05 mean data does not suffer from endogeneity problems while p-value <0.05 means data is suffering from endogeneity problems. The endogeneity test results is shown in Table 2.

Table 2: Test of endogeneity

Test of endogeneity		
Durbin (score) chi2(1)=	1.911	(p = 0.167
Wu-Hausman F(1,283) =	1.899	(p = 0.169

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The test for test of endogeneity using Durbin (score) of p = 0.167>0.05. Likewise, the test for test of endogeneity using Wu-Hausman was 0.169>0.05. Thus, the data did not suffer from endogeneity problems. The data was fit for regression modelling.

Heteroscedasticity test

Heteroscedasticity indicates of the tests on whether the variance of the errors in the repressors is dependent on the outcome variable. To check for Heteroscedasticity, the Breusch-Pagan test was adopted. Huge Chi square values is an indication of Heteroscedasticity. Table 3 presents the heteroscedasticity output.

Table 3: Heteroscedasticity test results.

Heteroscedasticity Results
Ho: Constant variance
Variables: fitted values of Welfare
chi2(1) = 3.87
Prob > chi2 = 0.0613

Source: Authors computation from survey data (July,2023)

From the results presented in Table 3, with a Chi square of 1.84, then the results imply that heteroscedasticity is not present. We fail to reject the null hypothesis of constant variance. The null hypothesis was accepted justifying the absence of heteroscedasticity in the data as indicated by Poi and Wiggins (2001).

Multicollinearity

Severer Multicollinearity magnifies standard errors of the model resulting to incorrect model coefficients (Belsley *et al.*, 1980). Variance inflation factors was adopted to check of collinearity in dataset. To test multicollinearity of this study, the study employed VIF. Values greater than 5 indicates the presence of Multicollinearity (Field, 2009). Table 4 presents the multicollinearity results of the study.

Table 4: Multicollinearity Results

Variable	VIF	1/VIF
Age	1.86	0.536822
Gender	1.84	0.542963
Marital Status	1.69	0.593158
Education	1.48	0.675666
Land	1.39	0.718791
Finance	1.05	0.952053
Access to ICT infrastructure	1.65	0.606061
Market	1.42	0.704225
Agricultural training	1.85	0.540541
Household Size	1.94	0.515464
Mean VIF	1.61	

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The results presented in Table 4 show the absence of multicollinearity within the study variables. The variance inflation factor figures are less than 10 (1.86 < 10, 1.84< 10, 1.69<10, 1.48 < 10, 1.39< 10, 1.05<10,1.65< 10, 1.42<10, 1.85 < 10,1.94<10, 1.61 < 10).

6. Results

This section presents the findings of the study and further discussion.

6.1 Participation in Agriculture

Kenya has witnessed increased urbanization in the recent years as more youthful population migrate from rural areas that are known for huge agricultural potential in research of white collar jobs deemed more rewarding. This has reduced the level of youth participation in agriculture and the study examined what percentage of youth participating in agricultural activities in earning livelihoods. The finding is presented in figure 1.

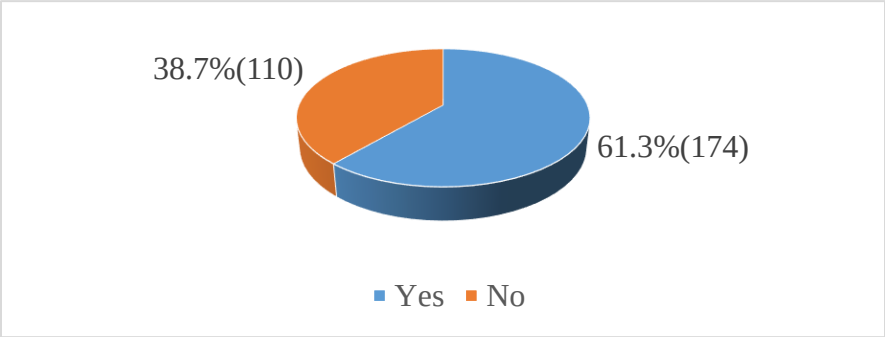

Figure 1 Youth Participation in Agriculture

The finding of the study revealed that 61.3% of the youth are directly involved in agriculture activities while 38.7% of the respondents are involved in non- agricultural activities in Bomet County. Agriculture is main source of employment in many parts of rural areas thus making majority of the youth to venture in the activity so as to sustain their basic needs. Bomet County has vast arable land intertwined with favorable agricultural conditions making it possible for many youths to practice agriculture as the means of earning a living in the County.

Youth not participating in agriculture cited several challenges encountered when commencing agricultural activities. Modern agriculture is driven by adequate financing because many components of modern farming have been commercialized. Majority of the youth lack the financial capacity to develop a modern farm that can sustain their livelihoods in the long run. Access to financing is characterized by several credit conditions that are impediment to financial access. Credit requirements only favor the established ventures, unlike youth who lack these credit requirements. In some areas some youth could not find adequate land to practice agriculture while others feared losses associated with price volatility associated with agricultural product markets.

Agricultural activities which youth actively participated was assessed using frequencies in percentages and results are presented in figure 2.

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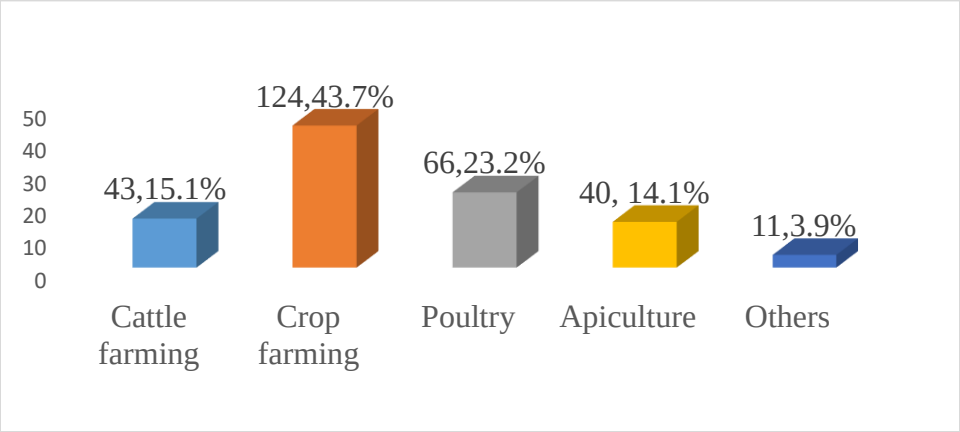

Figure 2 Main Agricultural Activities Being Undertaken by the Youth

The outcome of the study deduced that 43.7% of respondents are engaged in crop farming while 23.2% of the respondents practice poultry farming. Moreover, 15.1% of the youth are engaged in cattle farming while 14.1% of the respondents practice apiculture as a source of livelihoods. Additionally, the finding of the study revealed that 3.9% of the respondents are involved in other agricultural activities not classified in this study such as aquaculture among others. This signify that main agricultural activity engaged by youth is crop farming in Bomet County. Crop farming in many areas especially rural places is easier to start. It does not require a huge a startup capital as long as availability of land question does not emerge. Crop farming enjoy readily available market. Increased population coupled with increased food insecurity has created readily market for youth who are involved in crop farming. Reasonable number of youth have also resorted to poultry farming, in the recent years capital startup for poultry is modest making some cluster of youth afford. Poultry products have been experiencing high demand fetching high farm gate prices motivating more youth to practice poultry.

One of the key challenge facing youth in agriculture is availability of adequate land ideal for agricultural activities. Land size has been diminishing with population growing over years making youth venturing into agriculture embrace alternative strategies in maximizing output in the existing land. The study sought to establish size of land in acreage owned by youth practicing agriculture and the finding is presented in table 5.

Table 5: Land Size in acres

Landholders	Land size (in acreage)
Minimum	0.25
Maximum	8.5
Average	1.98

The results of the study established that 8.5 acres of land is the maximum acreage under agricultural practices while 0.25 acres is the minimum acreage that is put under agricultural activities by the youthful population. Further, 1.98 acres was the average size of land under agricultural activities steered by the youth. This imply that majority of the youth engage in small scale agriculture to sustain their daily livelihoods. This is also a clear indication that availability

of adequate land that can support large scale agriculture is not certain or cannot be guaranteed. Meaningful agriculture practices require a large scale where a farmer can enjoy economies of scale as they maximize profits. Small scale agriculture can only be a short term solution to the rising cases of unemployment among youth but may not be a viable solution in the long run. Diminishing marginal returns in small scale farming in the long run is likely to consume all the profits generated by a small scale farmer thus making it uncompetitive. Competitiveness is critical for any player to survive in a modern market where liberalization of prices across the globe is a cornerstone to any form of production and agriculture is not an exception.

Sustainability and commercialization of agricultural activities require certain drastic measures to be undertaken in order to enjoy success. Information has proven to be power in every aspect of economic sphere and agriculture is also part of it. Sharing of information regarding the best practices that can be undertaken in agricultural activities is mostly disseminated in various capacity building programs that include training among others. The study sought opinion of youthful farmers regarding their exposure on various training programs geared towards increasing agricultural yields/earnings on aggregate and finding is examined in figure 3.

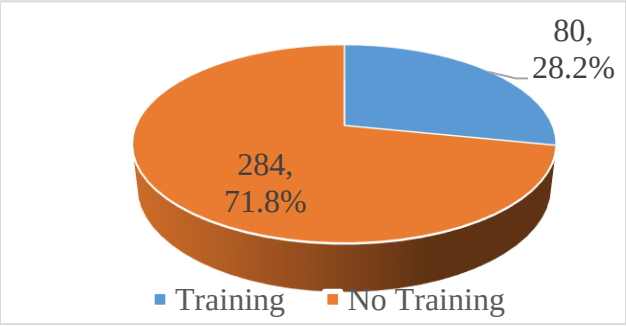

Figure 3: Training on Farming

The study noted that 71.8% of the respondents were of the view that there are no training programs tailored towards helping youth to embrace best farming practices. On the other hand, 28.2% of the respondents agreed that there are training programs relating to agricultural best practices targeting farmers in improving their yields turnover. This signify that training opportunities available are inadequate for the youthful population that are in dire need for these training services to foster their agricultural activities. Inadequate training is evident by significant chunk of youth who have not embraced agriculture.

Training is essential in building capacity among youth through employing modern practices to maximize agricultural yields and enhancing livelihoods. Training is also vital by allowing youth venturing in agricultural practices to embrace agricultural methods and techniques that are productive in the long term unlike those ones which can generate favorable results in short term but have adverse effects on agricultural yields in the long run. Youth who underwent training were sponsored by county government, non-governmental organizations and few decided finance their trainings. Some of the training were virtual while others were physical. Physical training involved farmers commuting to a central training place where extension agricultural officer rendered training services. Trainings of farmers by respective experts have been occasional and many farmers are targeted during the eve of planting season. Training farmers before planting is

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considered ideal because when a farmer get it right during planting there is likelihood that rest of the operations can be easily be managed.

4.3 Effect of Youth Participation in Agriculture on Welfare of Youth

The objective of the study was to determine the effect of participation in agriculture on youth welfare in Bomet County, Kenya. Youth participation is indicated by the form of farming being practiced, size of land under agricultural practice and level of training that farmers undergo. The welfare of youth was defined by difference in levels of incomes before and after participating in agriculture which is now the dependent variable. The study used robust regression in estimating the model.

Table 6: Effect of Participation in Agriculture on Welfare of Youth

	Coefficient	Delta-method Std. Err.	t	P>t
Age (years)	23.568	19.104	1.234	0.421
Gender				
Male	.027	.843	0.032	0.344
Marital status				
Married	0.109	0.048	2.271	0.016
Education attainment				
Primary	0.003	0.026	0.110	0.911
Secondary	0.016	0.026	0.620	0.538
University	-0.176	0.075	-2.349	0.027
Land size	.463	.201	2.292	0.024
Access to Finance				
20001-30000	425.734	671.390	0.630	0.527
30001-40000	350.293	140.203	2.498	0.029
40001--50000	1019.405	513.893	1.984	0.044
Above 50,000	1407.252	700.126	2.009	0.037
Access to ICT				
Yes	0.111	0.028	4.007	0.002
Distance to market	-17.906	6.467	-2.769	0.018
Agricultural training				
Yes	0.424	0.108	3.926	0.013
Household size				
3 members	-1.008	.163	-6.184	0.000
4 members and above	-2.598	.272	-9.551	0.000
PRD	0.320	0.159	2.01	0.026

Table 6 illustrates the model coefficients of youth participation in agriculture and youth welfare of youth. The finding of the study revealed that coefficient of age has a positive and insignificant influence on youth welfare participating in agriculture ($p=0.421>0.05$). This implied that biological accumulated age is not much influential on welfare of youth engaging in agriculture. Age has to be tied to experience in training or years in agricultural practice for it to have a meaning in agricultural activities. A youth aged 34 years with zero agricultural experience cannot match a 25-year-old youth with five years' experience in agricultural sector both at training and practice. However, the results do not agree with Daudu *et al.* (2023) that age is positive and significantly associated with youth participation in farming programs.

The results of the model established that coefficient gender of respondents positively but insignificantly affected welfare of those youth practicing agriculture ($p=0.344>0.05$). This indicated that gender factor has a positive attribute to welfare youth practicing agriculture. Most of the agricultural activities can be performed by both genders thus no gender enjoys more advantage over the other in terms of skills. In many parts of the rural areas both genders actively participate in agricultural activities to the extent where there is division of labour on roles. Female are left to take charge of crop growing while male counterparts focus on apiculture, dairy and aquiculture.

The finding of the study established that coefficient of marital status positively and significantly influenced welfare of youth participating in agriculture ($p=0.016<0.05$). This showed that married people accrued more benefits by practicing in agriculture. In marriage people tend to share common aspirations coupled with combined efforts thriving agricultural activities to higher levels thus earning more income which improve welfare. Marriage is an institution full of responsibilities unlike the unmarried cluster of youth with lesser responsibilities. The responsibilities that are characterized in marriages demand financial needs. The demand for financial needs occasioned by marriage make people to work extra hard to earner more living in agricultural activities in rural areas. The results concur with Bahta and Myeki (2022) that married people are more engaged in agriculture, possibly because married household heads can make better decisions during agricultural drought with the assistance of their partners. However, the results contrast a study by Ngeywo et al. (2015) that marital status is not a significant predictor of youth participation in agriculture and welfare derived from.

The results of the model showed that the coefficient of university education had a negative and significant influence on welfare of youth participating in agriculture ($p=0.027<0.05$). This signified that many of the youth who have university education does not involve themselves in farming activities because of the negative perception endeared to them over the nature of agricultural jobs. University education in Kenya has been tailored towards white collar jobs and lack of technical skills imparted to learners on how to mechanize and improve agricultural processes. Education curriculum in many universities is more theoretical and translating it into practical implementation is quite immense thus forcing more youth not to participate in agriculture.

Model finding noted that the coefficient of size of the land has a positive and significant effect on the welfare of youth participating in agricultural activities ($p=0.024<0.05$). It signified that adequate size of land is crucial for agricultural activities that are source of livelihoods to many youths engaged in farming activities. One of essential component of agriculture is availability of

land, lack of adequate land deny youth an opportunity to be involved in agriculture. It is extremely impossible to practice agriculture without land. Land is the primary factor of production in agricultural activities. In a study by Emongo (2015), land size is significantly related to agriculture participation and welfare derived from the activities.

Agricultural activities such as planting crops require more land for enhancing more yields and maximizing economies of scale. Rural areas of Bomet where crops such as maize and tea does well require more land acreage to have reasonable yields in harvest. Dairy farming and Beef farming require substantial amount of land to grow fodder and other reasonable feeds thus increased acreage of land is likely to increase yields that will fetch more income thus improve welfare.

The finding of the study revealed that the coefficient of access to financial credit above kshs. 20001 and above is statistically significant and positively influence welfare of the youth participating in agriculture. This showed that access of more financing credit is likely to increase number of youth practicing agriculture thus earn livelihoods which improve their welfare. Commercial agriculture requires adequate financing to sustain its activities and generate desirable returns. Access to reasonable amount of financial credit is essential in purchasing farm inputs and acquiring extension services that are important in fostering agricultural productivity. The findings concur with Teka and Lee (2020) that access to finances to finance agricultural activities improve the welfare of rural small holder farmers in Ethiopia.

The outcome of the study revealed that the coefficient of access to ICT infrastructure has a positive and significant effect on welfare of youth participation in agriculture ($p=0.002<0.05$). This showed that access to ICT enhanced welfare of youth practicing agriculture. The ICT platform avail essential information that foster farming practices. ICT is an important tool that can help young farmers to market their produce virtually to different destinations across the globe and the region. ICT is an enabler of sharing crucial information entailing good practices that can sustain farming and receive a descent returns. Latest agricultural innovations that are helpful in improving farming can be obtained through the ICT infrastructure at a lower cost as compared to physically outsourcing them from the areas of origin.

The finding of the study established that market distance negatively and significantly influenced welfare of youth practicing agriculture ($p=0.018<0.05$). This implied that more distance from the market adversely affected welfare of youth doing farming. Long distance from the market amount to spending extra cost on transportation which take more from actual revenues that would have induced extra benefit as welfare. It also subjects the farmer to incur storage cost because long distances at times make it difficult to ferry farm produce to reach market within a shorter period of time.

Further, the finding of the study noted that the coefficient agricultural training had a positive and significant effect on welfare of youth participating in agriculture ($p=0.013<0.05$). This indicated more exposure to modern training related with agricultural activities imparted more skills and knowledge on how to undertake agricultural activities efficiently and effectively. Training on combining the optimum inputs and using appropriate techniques is instrumental in maximizing agricultural produce. Application of the modern innovation in farming has proved productive in

developed economies unlike developing economies that is still lagging behind and one of the enabler to adoption of innovation in agriculture is training. Training is essential in imparting new skills that can aid productive methods which increases yields that fetch more income thus enhances welfare. Training is vital is embracing innovation and technological advancement in farming. Innovation and technology is crucial in eliminating challenges brought by pests and diseases that are hampers agricultural production.

Finally, the finding of the study revealed that the coefficient of household size had a negative and significant effect on the welfare of youth practicing agriculture. This implied that an extra head on a household decreases welfare on average of member of the household. More heads in a household is considered burden in maintaining their lifestyle. The income generated through venturing in agricultural activities will be divided among many heads thus declining the actual amount previous members of the household would have derived without additional heads into the household. The results concur with Obisesan (2019) that household size influence agriculture participation and value from it.

The predicted probabilities of youth in participating agriculture was positive and statistically significant (0.026<0.05). However, the predicted probabilities for youth to participate in agricultural activities are low (.320) that is 32.0 percent. The results are in tandem with Chipfupa and Tagwi (2021) that 31.8% of youth are employed and earn their livelihood by engaging in agricultural activities in rural South Africa. This is also in consistent with past studies that confirm that participation of youth in agricultural activities is deemed not sustainable career. It is also perceived to be not decent activities especially with believe that as an educated youth they must be employed in white collar jobs in offices and organization and not engaging in agricultural activities. In studies by Njeru (2017) and Udemezue (2019) most youth do not consider agriculture as a lifelong career that can sustain their lifestyle but view it as a poor man's activity or one that is reserved for those who are not educated or failed in education.

7. Conclusion and Implication

The study concludes that marital status, university education, land size, financial access, access to ICT infrastructure, market distance, household size and agricultural training significantly influenced welfare of youth practicing agriculture. Household size and university education adversely affected the welfare of youth participating in agriculture. Access to training and financial literacy is essential in improving welfare of those youth participating in agriculture.

Training of youth on best farming practices is essential in changing the perception of significant number of youth who still perceive agriculture as activity for low ranked individuals in the society. The study recommend collaboration of all stakeholders offering training to youth on agricultural related activities. Collaboration of all stakeholders will help in identify training gaps existing and bridge them. Training is essential in imparting new knowledge and skills that will not only improve productivity in agriculture but also enhance a rational decision making.

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