Original Article

Analysis of Factors Influencing Agricultural Commercialisation Among Youth Group in Agricultural Output Market: Empirical Evidence from Mwanza City and Ukerewe Districts, Tanzania

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ABSTRACT

Although agriculture has great potential for Sub-Saharan Africa particularly in the creation of decent jobs for youth, the youth are less attracted and reluctant to pursue agriculture as both a career and activity for livelihood due to several aspects. For this reason, the study examined the Agricultural Commercialisation among youth groups in the agricultural Output Market in the Mwanza region, Tanzania. The cross-sectional study used a quantitative and qualitative approach and included ninety-three (93) youth groups from two selected Districts (Mwanza City and Ukerewe District) Data were analyzed with the Commercialisation Index and Tobit Regression Model with the aid of statistical tools for analysis which were R-Software (Ri3863.6.1) and SPSS version 20. The results showed that the commercialisation index for this study is about 79.4 %, then empowered youth groups were highly participating in the agricultural output market for both Mwanza City and Ukerewe District. This justifies the assumption of the Commercialisation Index (CI) when CI is greater than 50% of farmers are considered they be commercial oriented which in other words they participate in agricultural output markets. Moreover, the degree of participation in agricultural output among empowered youth groups was also influenced by market experience, market arrangement and market infrastructure. The participation of empowered youth groups from both agricultural output markets seemed also to be determined by the education level of group leaders. Youth groups in which their leaders had attained diploma education level had less participation in the agricultural output market as compared to groups with leaders who attained primary school education level.

APA CITATION

Kilamlya, J., Mhina, J. A. & Regnard, I. J. (2024). Analysis of Factors Influencing Agricultural Commercialisation Among Youth Group in Agricultural Output Market: Empirical Evidence from Mwanza City and Ukerewe Districts, Tanzania. *East African Journal of Agriculture and Biotechnology*, 7(2), 157-166. https://doi.org/10.37284/eajab.7.2.2406

CHICAGO CITATION

Kilamlya, Jacob, Juma Almasi Mhina and Irene Joseph Regnard. 2024. "Analysis of Factors Influencing Agricultural Commercialisation Among Youth Group in Agricultural Output Market: Empirical Evidence from Mwanza City and Ukerewe Districts, Tanzania". *East African Journal of Agriculture and Biotechnology* 7 (2), 157-166. https://doi.org/10.37284/eajab.7.2.2406

INTRODUCTION

Youth involvement in agricultural commercialisation is particularly important given the demographic trends and the need to harness the potential of the young population in driving agricultural transformation. According to the World Bank (2019) youth and kids population, account for about 40% of the global population, and is the greatest age group in human history Nearly 90% of young people live in less developed nations; the 10 youngest nations worldwide are all in Africa, and two-thirds of young people originate from households that engage in small-scale farming (World Bank, 2014). The Food and Agriculture Organization (FAO) projected in 2019 that by 2050, there will be 16 million young people living in Sub-Saharan Africa, making it the continent with the largest youth population overall. According to estimates, if Sub-Saharan Africa capitalizes on the demographic dividend, their economies might grow by as much as $500 million a year (Osotimetin, 2015).

Furthermore, according to World Bank projections, Africa's youth population will contribute between 11 and 15 percent of the continent's GDP between 2011 and 2030. These estimates are intended for countries that will seize the opportunity and offer their young citizens access to sufficient employment, education, and training opportunities (Word Bank, 2014). Due to its advantages as the single largest source of respectable employment in the developing world, the profitable, competitive, and dynamic small-scale agriculture industry is primarily predicted to grow economically (White, 2012; Singinga and IITA, 2015).

Studies have shown that youth are less drawn to and hesitant to pursue agriculture as a career and activity for livelihood due to a number of factors, despite the fact that it has great potential for Sub-Saharan Africa, particularly in the creation of decent jobs for youth (White, 2012; Melvin et al., 2013; Mothui, 2019). There are two main categories of problems that influence young people to choose occupations outside of agriculture, according to USAID (2020). The former are observable and frequently referred to as genuine issues, whilst the latter are thought of as obstacles that are typically brought about by societal attitudes and policies toward young people working in agriculture.

According to the United Republic of Tanzania (URT, 2017), agriculture provides over 70% of the country's livelihoods (supporting 15% of the people directly and the remaining 55% indirectly) and accounts for 28.6% of the GDP (NBS, 2020; Mungunasi, 2019). The Ministry of Agriculture, Livestock, and Fisheries (MALF) by then developed the National Strategy for Youth Involvement in Agriculture (NSYIA), which aimed to empower youth to participate in the agricultural sector, based on its potentiality to the country and to effectively utilise the underutilised youth labour force to realise the goals of the National Vision 2025 (URT, 2016; USAID, 2020). Many steps have been made in order to realize the aforementioned goal and plan. The majority of them focus on addressing unemployment and integrating young people into

the agricultural industry, which is a push sector to an industrial economy.

According to Orioja et al. (2012), agricultural output markets impact both the amount and quality of produce while also producing revenue. Furthermore, by absorbing the workforce entering the labour market each year, the sustainable agricultural output market offers assurance for youth in developing countries to be pulled out of poverty (ANSAF, 2019; Barrett, 2008). The primary obstacle, as per the World Bank (2014) and Ktanyinga (2013), is the continued involvement of young people in agricultural output markets. The issue has a significant impact on the sector's instability because young people are more likely to enter and leave the agricultural industry (Kafle et al., 2019).

Tanzanian Local Government Authorities (LGAs) devote 4% of their internal revenue to providing youth with soft loans and land for agricultural practice; while there is extensive research on agricultural commercialisation and its impact on rural development, there is limited understanding of agricultural commercialisation among youth group in agricultural output market (Tafesse et al., 2020; Yeboah et al., 2020) This gap limits the formulation of policies that could support the effective engagement of youth in agricultural output markets. Understanding agricultural commercialisation among youth groups in the agricultural output market offers several key benefits. It helps identify how young farmers contribute to and are affected by market dynamics, such as access to markets, pricing, and value chains. By studying this, policymakers and development organizations can design targeted interventions to enhance youth participation, entrepreneurship, and innovation in agriculture. It also highlights challenges like access to credit, land, and resources, which may disproportionately affect youth. Ultimately, this understanding can drive economic growth, reduce unemployment, and promote sustainable agricultural development by empowering the next generation of farmers.

Tanzania's Mwanza region is home to the greatest number of youth groups—242 empowered youth groups operating on 106 hectares of land, engaged in agricultural activities. However, during the previous five years, over half (56%) of youth groups with higher authority who were involved in agriculture sought to switch to other non-agricultural activities in place of their agricultural ones (Mwanza Region Five Year Implementation Report, 2020). Consequently, the state and underlying causes of low accessibility to and involvement in agricultural output markets were evaluated in this study. Orioja et al. (2012) claim that these variables contribute to the sector's instability because young people have a tendency to enter and exit the agricultural industry. Barrett (2008) and ANSAF (2019) predicted that this industry would take in the young labour force when it enters the job market annually. This study analysed the factors influencing agricultural commercialisation among youth groups in the agricultural output market: Empirical Evidence from Mwanza City and Ukerewe Districts, Tanzania.

DATA AND METHODS

Data

Both quantitative and qualitative data types were used in this study. Document reviews, questionnaires, interviews, and key informant interviews were used to gather primary and secondary data. Primary data were gathered from Mwanza City and Ukerewe District-empowered youth groups. Secondary data on youth engagement in Tanzania's agricultural markets were gathered from a variety of public and unpublished reports. Local government representatives, officials, traders, and other agriculture industry participants were among the key informants.

Methods

Commercialisation of Index (CI)

The Commercialisation Index was used to analyse the extent to which empowered youth groups participate in agricultural output markets. The study used the Commercialisation Index to

examine the extent to which empowered youth groups participate in agricultural output markets. According to Bekele et al. (2011), Strasberg et al. (1999), and Braun and Kennedy (1994) as cited by Mpogole *et al.* (2012), when the commercialisation Index is closer to 100 percent the higher the market participation.

Thus, empowered youth group's participation in agricultural output production is defined as follows;

Quantity of Agricultural output Sold   **100%*

Commercialisation of Index (CI)   *Quantity of Agricultural Output Produced*

Tobit Regression Model

The Tobit model was used to analyse the degree of participation among empowered youth groups in agricultural output markets. This method was used to quantify the magnitude of the level of participation in agricultural output markets among empowered youth groups.

The Tobit model was adapted for this objective due to censoring. The researcher aimed to determine the extent of participation for youth groups which supply at least 1000kg of products to the agricultural output market. Hence, the model included left censoring at the value of quantity supplied equal to 1000Kg.

Tobit model which is censored from left as adapted from Tobin (1958) may look like this:-

$$y^*_i = x'_i \beta + \varepsilon_i$$
$$y_i = \begin{cases} 0 \ if \, y^*_i \leq 1000 \\ y^*_i \, if \, y^*_i > 1000 \end{cases}$$

 Where:

The subscript i=1, N indicates the number of observations, y^*_i is un-observed ("latent") variable,

x_i is a vector of explanatory variables, β is a vector of unknown parameters and

ε_i is a disturbance term.

The formula used for left-censored Tobit regression:

$$QntyS = \beta_0 + age \, \beta_1 + exper \, \beta_2 + educ \, \beta_3 \\ + size\beta_4 + makArr\beta_5 \\ + Acfacil\beta_6 + inf \, r \, as\beta_7 \\ + outlets\beta_8 + mak \, exp \, \beta_9 \\ + qprod\beta_{10} + age^2\beta_{11} + \varepsilon$$

Where:

QntyS is the dependent variable quantity of products sold to the market

Age is the years of establishment of the youth group

Infra is the situation of the market infrastructures

Educ refers to the highest level of education attained by a group leader

Size is the number of group members in a youth group

Cost is the variable cost of transporting products to market.

Acfacil refers to access to market facilities.

MakArr refers to a formal market used to sell products

Infras refers to a dummy variable, good infrastructures

Makexp refers to marketing experience

Qprod refers to a variable, challenge of poor-quality products

Outlets refer to market outlets where youth groups sell their products

ε   is the error term

Table 1: Variables and Measurements

Variable	Variable Name	Variable Type	Variable Measurement	Expected Sign
Dependent Variables				
VSAO	Extent of participation	Continuous	Quantity of sales of agricultural output in kilograms (Kg)	NA
Explanatory Variables				
Cost	Transportation Cost	Continuous	Cost in Tanzanian Shillings per 100kg	-
Information	Access to Market Information	Categorical	1 for access to market information 0 otherwise	+
Experience	Market Experience	Continuous	Number of years engaged in selling agriculture output	+
Facilities	Market facilities	Categorical	1 for good market facilities, 0 otherwise	+
Quantity	Quantity sold	Continuous	Quantity of agricultural Output sold in (TSH)	+
Price	Selling Price	Continuous	Price per kg kilogram of agriculture output	+
Quantity	Quantity Produced	Continuous	Production of agriculture output in kilogram	+
Poor price	Poor price of produce	Continuous	Price per kg in Tshs	-
Arrangement	Market Arrangement	Categorical	1 for formal and 0 for informal	+
Quality	Poor quality of quantity produce	Categorical	1 for good and o for otherwise	-
Capital available	Capital to purchase input	Continuous	Amount of money available to purchase agricultural input	+
Size	Group Size	Continuous	Number of group members	-
Age	Group age	Continuous	Number of years in operation	+
Education	Level of education	Categorical	1 for college and 0 otherwise	+
Distance	Distance to market	Continuous	Distance in Kilometer (Km)	-

Source: Research Data-(2023)

RESULTS AND DISCUSSION

The Extent of Market Participation among Empowered Youth Groups in Agricultural Output Markets

Commercialisation Index was used to analyse the extent to which empowered youth groups to participate in agricultural output markets. The results in Table 2 highlight that the commercialisation index for this study is about 79.4 %, then empowered youth groups were highly participating in the agricultural output market for both Mwanza City and Ukerewe District.

Table 2: Extent of Participation (Commercialisation Index) in Agricultural Output Markets for empowered youth groups in Mwanza city and Ukerewe district

Districts/City	Total Output Produced in kg		Total Output Sold in kg		Commercialisation Index (*CI*)	
	Mean	**Std. dev**	**Mean**	**Std. dev**	**Mean**	**Std. dev**
Mwanza	3266.2	433.8	2644.4	364.1	0.8096	0.0222
Ukerewe	3085.81	497.08	2403.9	382.15	0.7790	0.0331
Total	3175.9	465.44	2524.2	373.12	0.7943	0.027

Significance Codes If the Commercialisation Index is greater than 50% it considers their degree of participation in the Agricultural Output Market among the empowered youth group

The findings revealed that CI for empowered youth groups was 80.9% in Mwanza City and 77.9% in Ukerewe District (Table 2). On average, 79.4% of all agricultural produce was being sold. The remaining output was either consumed or stored. The CI of 79.4 % was found to be high in this current study. According to Bekele et al. (2011) as cited by Mpogole et al. (2012) when the commercialisation index is greater than 50% farmers are considered commercial-oriented in other words they participate in agricultural output markets.

Thus, since the commercialisation index for this study is about 79.4 %, the empowered youth groups were highly participating in the agricultural output market for both Mwanza City and Ukerewe District.

Factors that Influence the Extent of Participation of Empowered Youth Groups in Agricultural Output Market

The Tobit model was used to analyse the extent of participation in agricultural output markets among empowered youth groups'. Tobit Model findings (Table 3) show a likelihood of -178.6949 which indicates that percent variability in the market participation was accounted for by independent variables. The estimated log sigma from the Tobit model was 6.9498 and a p-value approximated to 0.000. The estimate was statistically significant at a 1% level. The results (Table 3) imply that the Tobit model significantly reduced the standard error of the dependent variable (quantity of produce supplied to the market) as compared to resulted standard error in case the study could have used a multiple linear model.

Table 3: Tobit Result for Factors that Determine the Extent of Participation of Empowered Youth Group in Agricultural Output Market

Variables	Coefficient	Std. Error	t Values	Pr(>P > |t|)
Age	5196.8973	1431.3121	3.631	0.000282 ***
Size	-527.0419	212.7559	-2.477	0.013241 *
Educsec	-1169.7585	1050.9989	-1.113	0.265710
Educcert	156.7644	1542.0232	0.102	0.919025
Educdipl	-3980.1313	1446.9438	-2.751	0.005947 **
Educbachel	-2382.0820	1405.6351	-1.695	0.090139
Market Arr	3029.1125	721.6166	4.198	2.70e-05 ***
Acfacil	930.9090	819.4147	1.136	0.255929
Infras	3346.2903	640.6767	5.223	1.76e-07 ***
Outletsrural assemblers	-2070.0266	754.2249	-2.745	0.006059 **
Outlets brokers makexp	-1915.9994	1033.6904	-1.854	0.063803.
	3238.8857	878.1361	3.688	000226***
Qprod	-2072.8622	876.9790	-2.364	0.018096 *
I(age^2)	-523.8749	876.9790	-2.462	0.013797 *
(Intercept)	-2763.7642	2386.4994	-1.158	0.246830
log Sigma	6.9498	0.1568	44.312	< 2e-16 ***

Newton-Raphsonmaximization, 43 iterations

Return code 8: successive function values within relative tolerance limit (reltol)

Log-likelihood: -178.6949 on 17 Df

Significance. Codes. *** = 1% significance level, ** = 5%, and * = 10% significance level

Age of Empowered Youth Groups

The results from the significant estimated coefficient of the age of empowered youth groups (age) positively and significantly determined the level of participation by empowered youth groups in agricultural output markets. The Tobit model findings imply that a one-year increase in years of establishment of youth groups participating in agricultural output market (age) results in 5196.8973 units increase in predicted values of quantities supplied by empowered youth groups to agricultural output markets.

These findings (Table 3) were similar to findings by Selowa, Lefophane, and Belete (2015) which

used a logistic regression model and revealed that farming experience positively determined the likelihood of farmers participating in agricultural output markets.

Market Experience

In terms of marketing experience (Markexp) of the youth groups, the Tobit results (Table 10) show that marketing experience positively influenced a high level of participation in agricultural outputs markets as the study findings (Table 3) revealed that empower youth groups with marketing experience had 3239 more units of predicted value of quantities supplied relative to those with no marketing experience.

These findings are in line with the study findings by Njekela and Sanga (2015) which revealed that the level of youth participation in agricultural output markets was affected by bad infrastructures which pushed them away from participating in agricultural output markets as it was termed as transaction cost.

Moreover, the age variable was reported to have a positive coefficient and statistical significance at 1% and this implies that a One-year increase in years of establishment of youth groups participating in the agricultural output market (age) results in 5196.8973 units increase in predicted values of quantities supplied The findings were in line with findings by Kyaw et al. (2018) which found that households with many years were more likely to participate in agricultural output markets.

Number of group's Members

According to the Tobit Model (Table 3), the number of the empowered youth group's members (size) has a negative coefficient and significantly at a 10% level, determined the likelihood of empowered youth groups to participate in agricultural markets. This implies that one group member increase in the size of youth groups which participated in the agricultural output market (size) had 527 units decrease in predicted values of quantities supplied.

These findings are contrary to study findings by Kyaw et al (2018) which studied factors influencing market participation among smallholder rice farmers in the Magway region in Myanmar and found that the level of participation in the agricultural output market was determined by the household size.

Empowered Youth Group's Leader Education Level

The Tobit analysis findings (Table 3) revealed that the high education level of empowered youth group leaders was negatively affecting the youth to participate in agricultural output markets. It means that youth groups with group leaders with diploma education level had 3980 less units of the predicted value of quantities supplied to output markets compared to those groups whose leaders have just attained primary school education level.

Likewise, for those empowered youth groups leaders who have attained bachelor's degree education level indicated 2382 less units of the predicted value of quantities supplied as compared to those groups whose leaders have just attained primary school education level. However, these findings were statistically significant at 5% level. These findings are opposite to Selowa, Lefophane and Belete's (2015) study findings which found that the level of education is positively affecting youth to participate in agricultural output market among small-scale tomato producers in Limpopo Province in South Africa.

Produce Point of Sell

First, to understand where empowered youth groups were selling their agricultural output, the study asked respondents to indicate whether they had formal market arrangements or otherwise to sell their output. The findings (Table 3) based on the variable of formal markets arrangements variable (makarr) were positively and statistically significant at 1%. This implies that youth groups which sell their produce to formal markets had 3029.11kgs more sold per year than empowered youth groups which sold their produce to informal markets.

Moreover, Tobit Model results (Table 3) revealed that youth groups which reported selling their products to rural assemblers (outlets-rural assemblers) and brokers (outlets-brokers) indicated 2070 and 1916 less units of predicted value of quantities supplied respectively relative to those groups which sell their produce to wholesalers and the variable was negative and statically significant at 5% level. This implies that youth groups' participation level in agricultural output markets was determined with produce selling points whereby wholesalers' point sales positively influenced high participation in agricultural output markets, whilst rural assemblers and outlets-brokers negatively influenced youth groups to participate in agricultural output markets.

These findings were similar to findings by Huong, Cuong, and Lebailly (2015) who studied factors which affect small-scale fish farmers to access output markets and revealed that 84% of the aquaculture produced in the fish market was being sold to the wholesale market.

Access to Market Facilities

The empowered youth groups which participate in agricultural output markets were asked if they had access to market facilities which include market building, drying produce area, weighting machines, and other market infrastructures. The variable (AcFacil) had a positive coefficient and was statistically insignificant. The findings imply that empowered youth groups which had access to market facilities had 930kgs more sold annually than groups which didn't have access to market facilities.

Access to Infrastructures

The respondents were asked to describe the state of the infrastructures from their production areas to markets. The findings (Table 3) indicated that the presence of good infrastructures (infra) from their production areas positively determined the level to which groups participated in agricultural output markets as the variable was statistically significant at a 1% level.

The findings (Table 10) have shown that empowered youth groups in areas with good infrastructures sold 3346 kg more produce annually to agricultural output markets than empowered youth groups whose production areas had poor infrastructures.

Quality of Quantity Produced

To determine the level of participation in agricultural output markets, empowered youth groups \890were asked to indicate the challenge facing them to participate in the agricultural output market among them was the poor quality of quantity produced. The Tobit results (Table 3) revealed a variable (qprod) that had a negative coefficient and was statistically significant at a 10% level. This implies that in 2072 fewer units of predicted value of quantities were supplied relative to those groups which experienced no poor-quality problem.

CONCLUSIONS

In conclusion, the analysis revealed that empowered youth groups in Mwanza City and Ukerewe District exhibit a high level of participation in agricultural output markets, with a commercialisation index of 79.4%. This suggests that a majority of the produce generated by these groups is sold in the market, emphasizing their strong engagement in commercial agriculture. Factors influencing their market participation include age, marketing experience, market arrangement, and access to infrastructure. Notably, youth groups that sold to formal markets, and those with better infrastructure access, had higher levels of market participation. However, the size of the groups and the education level of their leaders negatively affected their participation.

The study recommends that there is a need to improve access to formal markets and enhance infrastructure to sustain and possibly increase youth engagement in agricultural markets. Policies should also focus on supporting smaller youth groups and tailoring education programs that foster market-oriented agricultural practices. Additionally, providing training in marketing

skills and experience, as well as addressing the challenges related to product quality, can help ensure higher productivity and marketability of their produce. These efforts will likely enhance commercialisation and improve the economic outcomes for these youth groups.

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