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Assessing the Venturing of Rural and Peri-Urban Youth into Micro- and Small-Sized Agricultural Enterprises in the Eastern Cape Province, South Africa

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Abstract: This study aimed to empirically assess the venturing by rural and peri-urban youth into micro- and small-sized agricultural enterprises in the Eastern Cape Province, South Africa. The aim of the study was achieved by focusing on the following specific objectives: analyzing youth involvement in agricultural enterprises; estimating the factors that influence youth participation in micro- and small-sized agricultural enterprises; and identifying constraints and opportunities for youth involvement in micro- and small-sized agricultural enterprises in the Eastern Cape Province. The study used multi-stage and snowballing sampling to select the respondents, and cross-sectional primary data were collected from 120 youths who ventured into micro- and small-sized agricultural enterprises. Only 70 youths from the sample participated in agricultural enterprises. The study was geared toward proposing a funding framework aligned with the characteristics of small- and micro-sized enterprises (SMEs) which can be used by both development finance institutions (DFIs) and commercial banks to assess applications for funding SMEs.

Keywords: agricultural enterprise; Eastern Cape Province; youth participation

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1. Introduction

Economic growth, increased food security, the abolition of poverty, and rural development depend on agriculture. Agriculture is the primary source of income for 2.5 billion people in the developing world [1], with an average estimated gross domestic share of 35% [2]. Moreover, agriculture helps provide different agricultural opportunities for labourers, growers, and consumers [3]. Thus, youth participation in agriculture allows a nation to expand its agricultural sector [4]. However, with the low participation of youth in agricultural production, the agricultural industry's future could be better. The agricultural sector in many developing countries needs to improve, because youth, who have generally developed a promising and positive perception of agriculture, represent a crucial resource in agriculture and rural economies through their roles as farmers, laborers, and entrepreneurs [5].

In South Africa, young people in rural areas are the most marginalized in terms of access to business-development-support services [6]. Most South African youths live in rural areas and have limited opportunities for gainful employment [7]. To address this challenge, the National Youth Development Agency (NYDA) dedicated a program on rural development (RD) [6]. Rural development discourse in sub-Saharan Africa (SSA) (including South Africa) often places entrepreneurship at the center of policy discussions. Small agricultural enterprises in South Africa establish income-generating activities that

meet their communities' needs, which further contributes to a growth in the number of self-employed individuals and an increasing recognition of the importance of small enterprises [8]. For instance, according to [9], the future of farming is synonymous with the prospect of rural entrepreneurship, and there is proven but untapped entrepreneurial potential among small stakeholders in South Africa.

In South Africa, the National Small Business Act of 1996 defines a small business as a separate, distinct business entity managed by one or more owners, a definition that includes cooperative enterprises and non-governmental organizations. The classification of small businesses includes micro-, very-small-, small-, and medium-sized enterprises that satisfy the Act's criteria. Small- and micro-sized enterprises (SMEs) contribute to job creation and income generation. Since significant employment challenges exist, promoting SMEs has been a critical intervention area in recent years [10]. Therefore, many government organizations have facilitated the setting up of programs that encourage the development of small- to medium-scale businesses, especially those headed by youth [11].

The South African National Development Plan (NDP) highlighted the opportunity for the creation of an additional one million jobs in the agricultural sector, and the National Youth Policy (NYP) calls for a focused approach toward addressing the current youth-skills crisis through legislative frameworks that focus on youth [12]. In a rural province such as the Eastern Cape, the role of small- and micro-sized enterprises (SMEs) is even more significant, because they are the only viable forms of business, due to the small markets in rural towns and villages. The promotion and development of SMEs in the Eastern Cape are crucial for two main reasons: first, the province has the highest youth unemployment rate in the country; second, the Eastern Cape is the poorest province in the country, in terms of GDP per capita.

Entrepreneurship can help to cure South Africa's problems, such as unemployment, inequality, low productivity, and disconnect from global value chains [10]. According to [7], youth have an untapped potential to transform the agricultural sector through innovation and entrepreneurship. Moreover, young people generally have a great interest in starting a business [10], and many of them are willing to undertake the risks and challenges of entrepreneurship. However, youth involvement in agriculture has been declining nationally, especially in rural areas [4].

The Eastern Cape Socio-Economic Consultative Council (ECSECC) noted that young people are less likely to become entrepreneurs, mainly because they need more assets, greater experience, and networks for success. Non-competitive salaries, the physical nature of the work, and a lack of information on the various jobs within the industry are some of the reasons and constraints that result in youth not participating in agriculture [13]. Given the potential benefits of SMEs, as highlighted by previous studies about SMEs in peri-urban and rural economics, it is important to assess youth involvement in these forms of business enterprises. Youths are regarded as potential agents for driving economies, based on the agricultural skills, knowledge, and experience they have obtained from government initiatives, colleges, universities, etc. The previous studies were not quite up to date about youth involvement in venturing into micro- and small-sized agricultural enterprises, especially in the context of Eastern Cape Province, South Africa. There is an increasing need to study youth involvement in micro- and small-sized agricultural enterprises.

Therefore, this study analyzes youth involvement in agricultural enterprises, estimates the factors that influence youth participation in micro- and small-sized agricultural enterprises, and identifies the constraints and opportunities for youths' involvement in micro- and small-sized agricultural enterprises in the Eastern Cape Province.

2. Theoretical Framework

Youth development is one of the important visions the world should focus on, especially youth development in the agricultural sector. The first thing that institutions should understand about the development of youth is an understanding of different individuals and their aspirations, as well as the social, economic, and institutional factors that play a

key role in their behavior and decision-making. This study adopted the theory of planned behavior (TPB), the human capital theory (HCT), and the psychological capital theory (PCT) to understand the differences in youth aspirations in venturing into agricultural enterprises in rural–urban areas. These theories assisted in understanding youth interests—especially their behavior and aspirations.

The theory of planned behavior (TPB) was developed by Ajzen in 1991 as a source of the theory of reasoned action proposed by [14]. The TPB's focus is on understanding the behavior of an individual. This theory fits well with this study, as it underpins youth behavior in decision-making, especially in venturing into an agricultural enterprise [15]. Assessing how youths' beliefs influence their decisions and behavior is very important in understanding their decisions in participating in agricultural enterprises. The theory further indicates that the intentions of youth in their actions are the immediate determinant of their behavior. This implies that the TPB assumes that the stronger a youth's intention of engaging in a behavior, the more likely his or her performance of that behavior will be. This theory stipulates that the performance of youth who participate in an agricultural enterprise depends solely on their intentions when they have decided, voluntarily, to participate or not to participate in agriculture, and that their performance will be strongly dependent on their behavior. Additionally, apparent behavioral control has a great influence on youths' willingness to venture into agricultural enterprises [16]. Under the TPB, youths' intentions become a weighted function of their attitudes, subjective norms, and their perceived control of their decision-making. Perceived control and intention also explain youths' attitude toward participating in agricultural enterprises. This study is underpinned by the TPB in explaining youths' interests and behavioral intentions in venturing into agricultural enterprises. Youths' decisions to participate in an agricultural enterprise are explained by their perceived control (personal efficacy and perceived resources in order to provide inclusive information and enlightenment about intention), their attitudes (disintegrated into perceived usefulness, perceived ease of operation, and perceived compatibility), and normative issues (such as proxy factors for information, innovation, and uncertainty), as they all explain their intentions.

The study also makes use of the human capital theory (HCT) to understand youth decision-making in engaging in agricultural enterprises. This human capital theory strictly classifies the importance of skills, knowledge, and abilities in career choices, especially in choosing to participate in agricultural enterprises. This theory allows for changes in the actions and the outcome(s) of individuals who venture into agricultural enterprises. Under the HCT, skill is associated with the capability and the capacity of youth to act, and may be demanded only when it is employed in practice [17]. The level of a youth's entrepreneurial skills is linked to the youth's relative economic independence. It may also reflect the youth's ability to respond to developments in agricultural policy and regulation and to be more approachable to markets. The theory stimulates and activates entrepreneurship learning among youth, as agricultural enterprises require continuous learning—mistakes, as such, enhance knowledge and skills in agribusiness. This theory indicates that knowledge provides individuals, including youths, with growth in their intelligence capabilities, leading to more productive and more efficient potential agricultural activities. The theory assumes that there are better and new opportunities for new economic activities for youth in agribusiness, so individuals with greater human capital would be better at detecting outcomes.

Skill and knowledge enable youth to be constructive in their decision-making and motivate them to make value judgments about the perceived probability and severity of threats in an agricultural enterprise [18]. The human capital theory emphasizes that youths' decision-making depends on their entrepreneurial drive (skill, knowledge, and abilities) and their asset endowment in determining the range of available livelihood opportunities they can recognize and, hence, the possibility of venturing into agricultural enterprises. According to [19], the success of a youth's venturing into an agricultural enterprise solely depends on how the youth develops and maintains exceptional competencies to take

advantage of opportunities and neutralize risk in agribusiness. Agricultural enterprises require individuals who possess new skills, who advance and embrace new knowledge, and who demonstrate capabilities to take agricultural enterprise businesses to new heights.

Finally, this study adopted the psychological capital theory (PCT) to understand youths' decision-making. This theory is mainly concerned with widening the understanding of the transformations in rural youths' aspirations to participate in and integrate into agricultural enterprises. This theory indicates that youth decision-making is centered on psychological capital, which conditions the way people think, act, and react, regardless of the ecological and circumstantial situations they face at a particular time. To be involved in agribusiness or to participate in an agricultural enterprise, youths must be better endowed with positive psychological capital [20]. This is necessary because it allows youths to be able to survive amid challenges and to be able to rebound from the challenges associated with agricultural enterprises. Youth or other individuals who possess this type of capital can develop the persistence that is essential to undergoing the process of agricultural enterprises as a business [19]. This means that youth with a high positive psychological capital endowment are expected to have elevated levels of motivation and effort in an agricultural enterprise. As a result, this leads to a well-established agricultural enterprise with more livelihood assets, leading to a high positive behavior of youth, who will exert greater effort to attain set goals. The theory simply means that when youth show positive psychological capital and livelihood assets, it is likely that their propensity to achieve required livelihood outcomes from agricultural enterprises also rises.

This study was developed and built around these three theories as a basis for understanding youths' aspirations and the key factors that play a role in their decision-making about whether or not to participate in agricultural enterprises.

3. Methodology

3.1. Description of the Study

This study was carried out in the O.R. Tambo and Amatole District Municipalities in the Eastern Cape Province. These district municipalities are large, and they rely on agricultural activities such as crops, livestock, and vegetables for survival, as poverty is very high in these district municipalities. Many households in these districts are actively involved in farming, and many of their individuals are government workers. The study sites were also chosen based on their favorable climatic conditions, which best suit practicing agricultural activities. These municipalities have high summer rainfall and moderate temperatures that could be beneficial for agricultural production. As a result, those individuals who practice farming in these municipalities are practicing it in micro- and small-sized agricultural enterprises, due to limited resources.

The study was conducted in these districts as a strategy to motivate youth to be involved in agricultural enterprises, given the availability of arable land that is widely used for farming purposes. Engaging youth in agricultural enterprises can be seen as a strategy to enhance opportunities for youth in farming, through job creation, increasing agricultural productivity, alleviating poverty, and reducing youth immigration to big cities, as well as to contribute to the GDP of these district municipalities. The study focused on these two districts because of their potential to enhance agricultural enterprises. The study made use of a cross-sectional design, as the data were collected at a point in time.

3.2. Sampling Procedure and Sample Size

The Eastern Cape Province was intentionally selected, due to its leading status as the province with the largest number of youths engaging in agricultural enterprises in South Africa. The study included rural and peri-urban regions, as these regions contain youth who participate in both micro- and small-sized agricultural enterprises for livelihood purposes. The study made use of two district municipalities that have both rural and peri-urban youth engaged in agricultural enterprises. The study made use of multi-stage and snowballing sampling to select the study's respondents. The first stage involved

selecting OR Tambo and Amatole district municipalities, as they contain youth from rural and peri-urban regions who are engaged in agricultural enterprises. The youth in these two districts are active and they are working in micro- and small-sized agricultural enterprises. The second stage was selecting 8 municipalities that comprise rural and peri-urban regions with youth who are engaged in agricultural enterprises.

During this second stage, stratification was employed to group youth farmers into strata for selection purposes. The farmers were divided into elderly farmers (farmers aged 51 years and above), middle-aged farmers (aged 37 years to 50 years), and youth farmers (aged 18 years to 36 years). The study was required to separate these farmers through stratification to select the required ages, as there was no available data base for young farmers. Therefore, after a stratified sampling was employed, only youth farmers between 18 to 36 years were considered for the purpose of the study.

The last stage involved selecting respondents to form part of the sample size through snowballing, since youth farmers know each other. The sample size of the study was 120 youth venturing into micro- and small-sized agricultural enterprises. Finally, out of the total sampled youth participating in agricultural enterprises, 73 were involved in agricultural enterprises, while 47 did not participate in agricultural enterprises in the study area.

3.3. Data Collection

The study used primary data. The primary data were collected using self-administered structured questionnaires. The study made use of structured questionnaires to obtain data on youth characteristics, their reasons for engaging in agricultural enterprises, the challenges they faced, and the factors that influenced their decisions to venture into agricultural enterprises. The questionnaire was pre-tested prior to data collection to check its appropriateness and reliability. The researchers engaged experienced scholars and extension officers to validate the questionnaire that was used to gather information. The pre-testing of the questionnaire was also used to train the enumerators who were engaged to administer the questionnaires. The pre-testing was also carried out to detect errors in the questionnaires and challenges based on how enumerators asked questions and whether potential respondents were unclear about certain questions. One local municipality from the O.R. Tambo district was used to pre-test the questionnaire on 25 respondents, who were randomly selected. The pre-test data were not included during analysis; however, the responses were used to rectify the questionnaire in the event of any unclear questions identified by the enumerators or the respondents. The pre-testing was carried out in May 2022, while the actual data were collected between June and July 2022.

3.4. Data Analysis

The data were coded in Excel 16 and transferred into SPSS version 28 and STATA 15 for analysis. The study made use of both descriptive and econometric analysis. Descriptive statistics were used to estimate farm characteristics and challenges faced by farmers, using frequencies, percentages, mean, t-tests and Chi-square tests. An econometric model in the form of the logit model was used to estimate the factors that influence youth in venturing into micro- and small-sized agricultural enterprises.

3.5. Analytical Analysis

The study made use of logit regression to estimate the factors that influence youth participation in micro- and small-sized agricultural enterprises in the Eastern Cape Province. The logit model is the best model for estimatint factors when a decision is binary in nature. The use of logit denotes log-likelihoods, which accept the likelihood of diminishing interest in 1 of 2 sets on the clear flexible of concentration [21]. Logit regression is a standard analysis method when the outcome variable is dichotomously measured. For this study, youth participation in agricultural enterprises (Yes or No) had a dependent variable with a

value of 1 or 0, where 1 = participating in agricultural enterprises and 0 = not participating in agricultural enterprises.

Logit regression is beneficial because it evaluates the dichotomous conclusion variables, which are more forthright and flexible to achieve results that are more eloquent for explanation [22]. This model was employed because it accommodated two categories in the dependent variable. Ref. [23] specified that logit is the best fit for such studies of dichotomous conclusion variables because of its mathematical convenience. It can resolve the heteroscedasticity problem, and it satisfies the collective normal probability distribution. The logit model was chosen because of its size in restoring answers to the main research questions and because of the data and sample features. Furthermore, the substantial descriptive variables did not have the same level of influence on the agricultural enterprise decisions of youth.

The logit regression model was more appropriate for an extensive assortment of exploration circumstances than for discriminant scrutiny. The logit model was preferred to a probit model because of its authoritative and reasonable mathematical easiness [21]. The comparative effect of a given numerical instructive variable on the participation decision was measured by examining participation elasticity, which was why the logit model was the most appropriate model, as other regressions do not provide such information. The variables that were assumed to influence youth participation decisions for micro- and small-sized agricultural enterprises were tested for multicollinearity. The logit model was used because it automatically determined the likelihood of saving the predicted variables that were used to estimate the drivers of youth participation. The regression scrutiny included two discrete alternatives and, in this case, youth participation in micro- and small-sized agricultural enterprises was a quantitative dependent variable with the binary values of 0 and 1: the dependence on the variable was 0 when youth participated in agricultural enterprises and 1 when youth did not participate in agricultural enterprises.

Logit regression resolved the heteroscedasticity problem and satisfied the collective normal probability distribution. Hence, the logit model was selected for this study. Let πi be the probability of success. Additionally, consider x = (x1, x2, …, xn) as a set of explanatory variables that can be discrete, continuous, or a combination of both discrete and continuous. Then, the logistic function for πi is provided by Equation (1):

$$Logit\ \pi_i = log\left(\frac{\pi_i}{1-\pi_i}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots + \beta_n X_{i,\,n} \quad (1)$$

where:

$$\pi_i = \frac{exp\ (\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots + \beta_n X_{i,\,n})}{1 + exp\ (\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots + \beta_n X_{i,\,n})} = \frac{exp\ (x_i'\beta)}{1 + exp\ (x_i'\beta)} = \wedge(x_i'\beta) \quad (2)$$

where:

πi denotes the probability that a sample is in each category of the dichotomous response variable, commonly called as the "success probability" and, clearly, $0 \leq \pi i \leq 1$. Λ(.) is the logistic cdf, with λ(z) = e z/(1 + e − z) = 1/(1 + e − z), and β represents a vector of the parameters to be estimated. The expression $\left(\frac{\pi_i}{1-\pi_i}\right)$ is called the odds ratio.

3.6. Estimation and Likelihood Ratio Test

The maximum likelihood is the preferred method to estimate β, since it has better statistical assets, although a researcher can use the least-squares method. Consider the following logit model with the single predictor variable X provided by the logistic function of the following equation:

$$\pi\ (X) = \frac{exp\ (x_i'\beta)}{1 + exp\ (x_i'\beta)} \quad (3)$$

The study aimed to find the estimates so that plugging βˆ into the model for π(X) yielded a number close to 1 for all youth who participated in an agricultural enterprise and 0 for all youth who did not participate in an agricultural enterprise. Mathematically, the likelihood function is provided by Equation (4):

$$L\ (\beta_0,\ \beta_1) = \prod_{i:Yi=1}\ \pi(xi)\ \prod_{i\prime:Yi\prime=1}\ (1-\ \pi(xi\ 0)) \quad (4)$$

The estimates of βˆ were chosen to maximize this likelihood function. The study considered the logarithm on both sides to calculate and use the log-likelihood function for the estimation purpose. The study used the likelihood ratio to test whether any subset of estimates β was zero. Suppose that p and r represent the number of β in the full model and the reduced model, respectively. The likelihood ratio test statistic is, therefore:

$$\wedge * = 2\ [l\left(\beta^{(0)}\right) - l(\beta) \quad (5)$$

where

l(βˆ) and l(βˆ(0)) are the log likelihoods of the full model and the reduced model, respectively, evaluated at the maximum likelihood estimation (MLE) of that reduced and $\Lambda * \sim \chi^2$ n − r; n and r are the number of parameters in the full and the reduced models, respectively.

3.7. Data

This section below in Table 1 shows the data that were used in the econometric model.

Table 1. Description of the variables used.

Variable	Description	Measuring Type	Expected Priori
Gender	The sex of the youth farmer (male/female)	Dummy	+/−
Age	Age of the farmer in years	Continuous	+/−
Family size	Number of the family household of the farmer	Continuous	+
Farm size	Land area under cultivation by the farmer	Continuous	+
Occupation	Is farming the main occupation for the farm (self-employed, employed by the government)?	Dummy	+/−
Education	Number of years spent in school by the farmer	Continuous	+
Marital status	The marriage status of the farmer (married/single/window)	Dummy	+/−
Household monthly income	This is the household monthly income in ZAR (farm income, grants, and remittances)	Continuous	+
Mode of acquisition of land	The mode of acquisition	Dummy	+
Total labour intensity	Number of persons employed	Continuous	+
Family labour intensity	Family members working per unit of land cultivated	Continuous	+
Input used	The agronomic practices used by the farmer	Dummy	+
Total revenue	Total amount realized from sales of output	Continuous	+
Total variable costs	Total amount from the inputs used in the farm	Continuous	+
Value of output	Market value of physical agricultural output	Continuous	
Access to extension	Frequency visits of extension agents	Continuous	+
Access to credit	Availability of accessible credit (yes/no)	Dummy	+/−
Member of farm organization	Is the farmer a member of a farm organization?	Dummy	+

4. Findings and Discussions

This section is divided into two subsections, due to the different methods of analysis that were used in this study. The study used descriptive and inferential statistics to estimate the characteristics of youth who were involved in agricultural enterprises, the contribution of agricultural enterprises, and the challenges faced by youth in venturing into agricultural enterprises. Econometric analysis was used to estimate the factors the influence youth in venturing into agricultural enterprises.

4.1. Descriptive Statistics

Table 2 illustrates the characteristics of youth who venture into agricultural enterprises. Agriculture in the Eastern Cape Province of South Africa is viewed as the most important sector that can be used to reduce food insecurity, the high rate of unemployment, and poverty, which are on the rise in the province. Youth in the province are faced with the high unemployment rate, as explained in the study description, and agriculture is the only weapon available to them to reduce that unemployment rate. The study results revealed that the majority of youth engaged in agricultural enterprises were males (68%). Youth engaged in agricultural enterprises comprised 28% of the study's participants, while youths who did not engage in agricultural enterprises comprised 58% of the study's participants. These results implied that males dominated the agricultural enterprises in the study area, due to the physical nature of farming and the cultural norms that are common. These results were in accord with [24–27], which indicated that youth participating in agricultural enterprises were dominant because most of the agricultural activities were performed by males, who made quicker decisions than females—who needed some time to make decisions.

Table 2. Characteristics of the youth venturing in agricultural enterprises.

Variable	Participating in Agricultural Enterprises (*n* = 73)	Non-Participating in Agricultural Enterprises (*n* = 47)	Overall (*n* = 120)	*t*-Test
Sex (male)	0.72	0.64	0.68	0.003 ***
Occupation (Sslf-employed)	0.65	0.54		0.321
Access to extension services (Yes)	0.43	0.36	0.39	0.143
Member of farm organization (Yes)	0.56	0.32	0.49	0.028 **
Engaged in non-agricultural enterprises	0.28	0.58	0.43	0.401
Access to credit (Yes)	0.26	0.28	0.27	0.005 ***
Variable	**Participating in Agricultural Enterprises (*n* = 73)**	**Non-Participating in Agricultural Enterprises (*n* = 47)**	**Overall (*n* = 127)**	**Chi-Square**
Age (years)	32.13	32.01	32.07	0.015 **
Family size (count)	3.54	2.13	3.34	0.021 **
Farm size (Ha)	2.24	0.01	1.13	0.165
Years spent in school (years)	13.43	11.65	12.54	0.007 ***
Distanced travelled to market center (kilometers)	14.30	14.21	14.25	0.002 ***
Household monthly income (ZAR)	1547.12	3 458.79	2 502.96	0.004 ***

Note: significant at ** $p \leq 0.05$, and *** $p \leq 0.001$, respectively.

The average age of youth engaged in agricultural enterprises was 32 years, which was the same average age as that of non-participant. This meant that the youth venturing into agricultural enterprises were energized, knew the farming requirements, and were prepared to use their physiques where possible, given that agriculture requires physical strength. The *t*-test result revealed that there was a substantial age difference between participating and non-participatingt youth in agricultural enterprises. These results were accord with [25], which indicated that youth venturing into agriculture were young and determined, with clear objectives for agricultural enterprises. This was because of the early age at which youth might have more extensive planning prospects and participation, compared with those individuals who were older. The average years spent in school was 12 years, which implied that most of the youth were literate. The average years for those venturing into the agricultural enterprise was found to be 13 years, compared to 11 years for non-participants, which meant that youth involved in agricultural enterprises were more knowledgeable, as they had received secondary and tertiary education. This was further demonstrated by the significant differences in the t-test between participants and non-participants, in terms of the level of school attained. This meant that education assisted youth in increasing their knowledge about their livelihoods and their entrepreneurship skills.

The average farm size that was available and utilized was 1.13 hectares. The t-test revealed that there were no significant differences between the farm sizes of the participating and non-participating youth in agricultural enterprises. Access to farm size was the major constraint facing youth in the study area.

Youth who were venturing into micro- and small-sized agricultural enterprises were self-employed individuals; this meant that farming was their sole occupation. This was not surprising, as the province has a higher youth unemployment rate than the country as a whole. These results agreed with those of [23], which found similar results for youth occupations in the province. The average overall family size was three people per household in the study. Participating youth had an average of four people per household, while non-participating youth had an average of 2 people per household. These results accorded with those of [25]. Family size was used as a proxy for family labor. According to the t-test results, family size constituted a significant difference between youth who participated in agricultural enterprises and youth who did not participate in agricultural enterprises. This was because participating youth were assisted by family members during pick seasons. The study results revealed that non-participating youth were more involved in non-agribusiness activities than participating youth, because as they believed it was the only way to generate income to sustain their families.

Access to credit was the major stumbling block for participating youth in the study area. The study results revealed that only 28% of the youth had access to credit, while the majority did not have access to credit, and this lack of access was greater than that of non-participating youth. The study results also revealed that access to extension services was a constraint faced by youth who ventured in micro- and small-sized agricultural enterprises, affecting 39% of them. These results implied that there was no significant difference in whether youth participated or did not participate in agricultural enterprises, as they all faced constraints in accessing extension personnel.

The study also revealed that youth were members of different farm organizations. The youth who ventured into micro- and small-sized agricultural enterprises were members of farm organizations, while non-participating youth were members of non-agricultural organizations. Farm organizations assisted youth who ventured into agricultural enterprises, with training, the utilization of new agricultural techniques, and some market information. Being a member of a farm organization played a more significant role for youth who ventured into agricultural enterprises than the role played by organizations that were joined by youth who did not venture into agricultural enterprises.

The average distance travelled by both groups to either a town or a market centers was 14 km. Such distances played a huge role in discouraging youth from participating

in agricultural enterprises, as they lacked finances to hire transport for the purpose of purchasing inputs and selling their outputs.

The study also found that the involvement of youth in different activities had a significant effect on their households' monthly incomes. This was shown by the non-participating youth obtaining higher returns (ZAR 3458.79) than those of participating youth in agricultural enterprises (ZAR 1547.12). This occurred because the non-agricultural activities obtained higher returns from a mixture of different activities, such as remittances, wages from contract work, and government work, than the sole returns from agricultural enterprises.

4.2. Youth Involvement in Agriculture Enterprises

Youth decided to venture into agricultural enterprises because of the high rate of unemployment and poverty, which is on the rise in South Africa, especially in the Eastern Cape Province. The study results shown in in Table 3 indicated that agricultural enterprises are dominated by elderly farmers in the Eastern Cape Province, and only 28% of the agricultural enterprises show a growing number of young people venturing into the enterprises. These results agree with the descriptive results explained above. The study results revealed that youth involved in small- and micro-sized agricultural enterprises only practiced the farming of vegetables (30%), crops (24%), poultry (16%), and cattle and sheep (15%). The youth involved in agricultural enterprises also formed part of the decision-making for those enterprises, so they were familiar with decision-making for the farm and for the management of mechanization adopted for the farm.

Table 3. Youth participation in agricultural enterprises.

Variable		Percentage
Participation in agriculture	**Older farmers (36 years and above)** **Young farmers**	**0.72** **0.28**
Participating in agricultural enterprises by youth	Yes No	0.28 0.58
Type of enterprise	Vegetable enterprise	30
	Crop enterprise	24
	Poultry enterprise	16
	Cattle, sheep enterprise	15
Do youth participate in decision-making in the enterprise?	Yes No	72 28

The study then combined all the agricultural enterprises that youth decided to pursue, based on their skills and knowledge. These categories are shown in Figure 1, which is a continuation of Table 3, reflecting the percentage of youth involvement in each enterprise. About 54% of the youth decided to venture into crop and vegetable farming. This was the case because this type of farming is not as demanding as other agricultural activities and it has a shorter life cycle than livestock farming. Youth can start this small- and micro-sized agricultural enterprise with little finance. These results accorded with those of [25]. The second category youth saw fit to best meet their skills was livestock farming, because the majority of the youth were raised with a livestock farming background, which made it easier for them to practice this type of agricultural enterprise. The least-practiced enterprises were non-farm agricultural enterprises, with 15%.

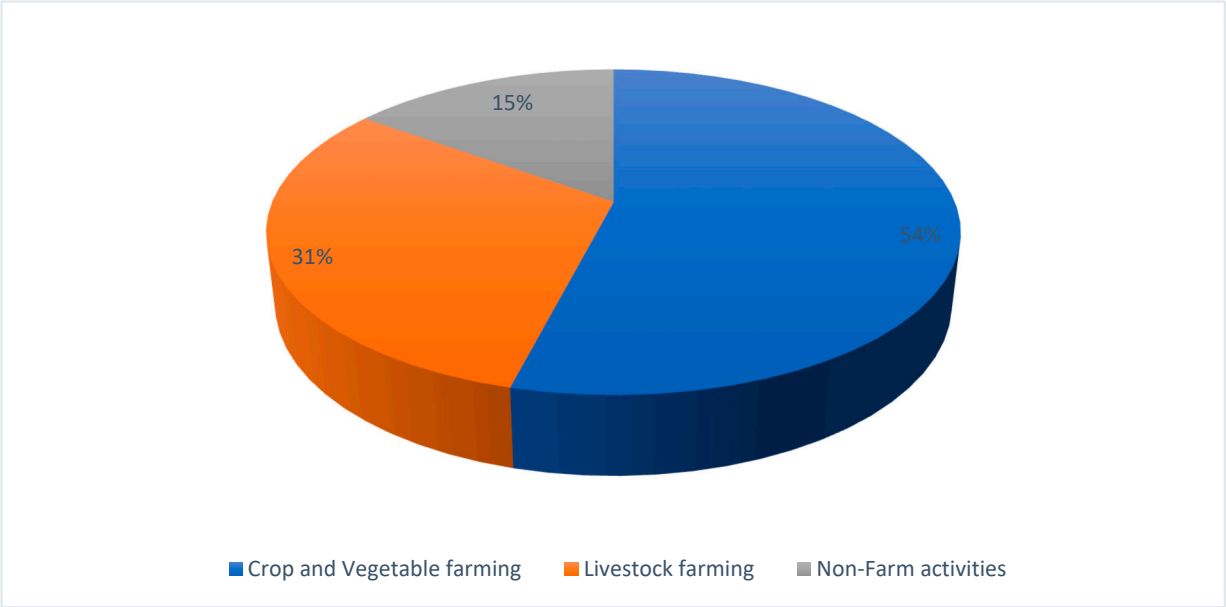

Figure 1. Representing youth engaged in agricultural enterprises.

4.3. Source of Funding for Youth Engaged in Agricultural Enterprises

The most important factor when one ventures into micro- and small-sized agricultural enterprises is funding. Funding plays a significant role in agricultural activities and is the backbone of everything that contributes to the operation of the enterprise. Figure 2 illustrates sources of funding that were available for youth who ventured into micro- and small-sized agricultural enterprises. The first source of available funding for youth who ventured into agricultural enterprises was a family support fund, with 40%. This was basically the incentive provided by the families of the respondents, as youths themselves had no funding. This was not surprising, because farmers' access to credit is a challenge in the province [28,29]. Youth had financial support from government (28%) and NGOs (24%). This kind of support was not available for every youth, and only supported minimal ventures by youth into agricultural enterprises, due to financial constraints for entrepreneurship and start-up agribusinesses. These results accorded with those of [25].

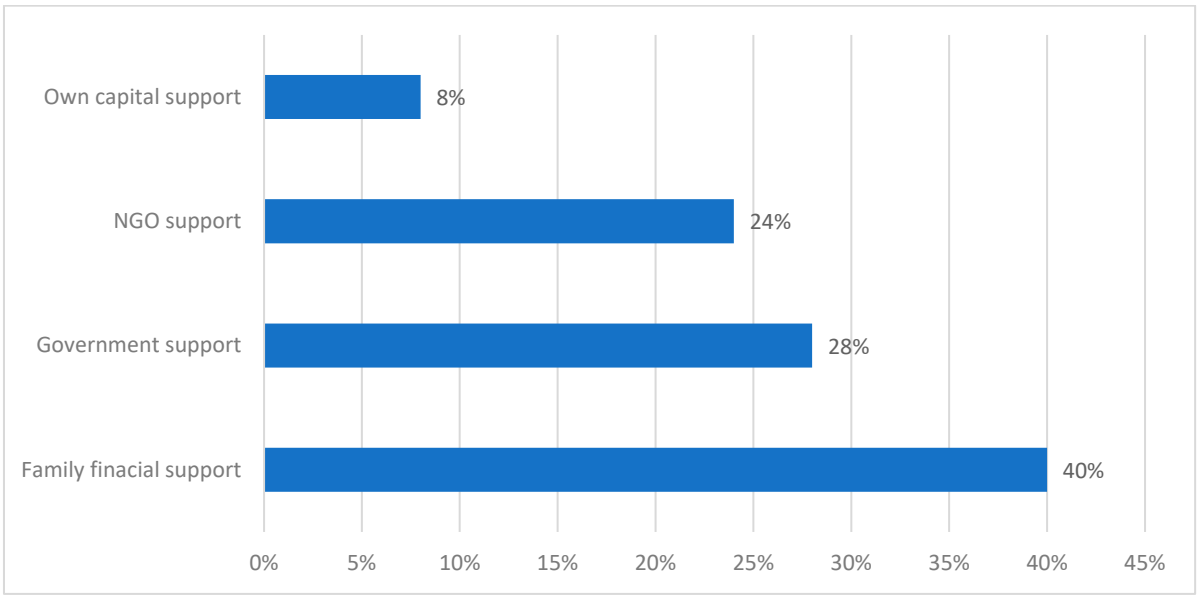

Figure 2. Sources of funding for agricultural enterprises.

Finally, some youths supported themselves through their own savings. Few youth members had this source of funding, because of unemployment, and only those who quit their jobs to venture into agricultural enterprises were funded by this source. Youth in the province struggled to find financial support to operate and run their agribusinesses.

4.4. Contribution of Micro- and Small-Sized Agricultural Enterprises

There is wide talk about youth who are involved in agricultural enterprises, but their contribution is less investigated. Youth who are involved in agricultural enterprises, be they micro-, small-, or medium-sized, are playing a crucial role in generating livelihoods and contributing to the province's gross domestic product. Figure 3 shows the contribution of agricultural enterprises that are practiced by youth. The first contribution by youth who venture into micro- and small-sized agricultural enterprises is creating job opportunities for people in the study area. These enterprises provide opportunities for work for various people in different capacities. These results agree with those of [24,26], which indicated that such enterprises permit people to earn income that they use to purchase food and other items for their households.

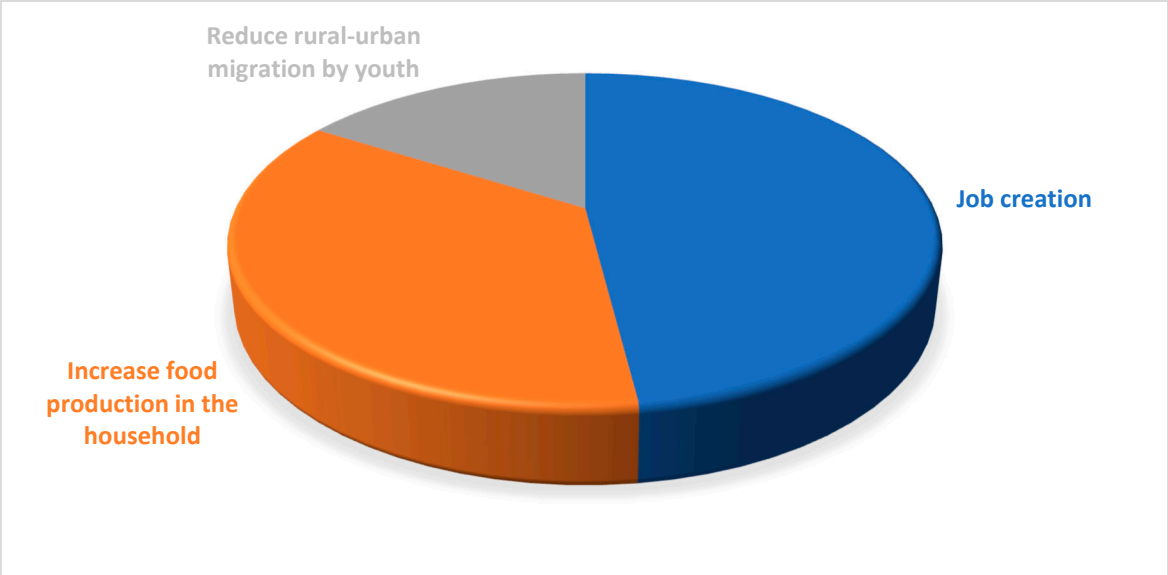

Figure 3. Role of micro- and small-sized agricultural enterprises.

The results also revealed that the youth who ventured into agricultural enterprises enhanced food production for their households. This implied that when they entered into an agricultural enterprise as an agribusiness, they made sure that they also provided food for their households and met the three components of food security (availability, accessibility, and utilization of food). They also contributed to reducing youth migration to urban areas, as they provided jobs that such migrating youth were looking for in big cities. This further provided youth with the necessary skills to venture into their own backyards and into peri-urban areas.

4.5. Challenges Faced by Youth Engaged in Agricultural Enterprises

The contribution of youth who venture into micro- and small-sized agricultural enterprises is well-acknowledged and very significant. However, youth are faced with constraints in operating agricultural enterprises, as well as constraints in embarking on micro- and small-sized agricultural enterprises. Figure 4 summarizes the challenges encountered by youth who are involved in agricultural enterprises. The major constraint is land ownership in the study area (26%). This was the main problem, as owning land that is either communal or government-based is very difficult for a young person, due to policies that are put in place that hinder youth from owning land.

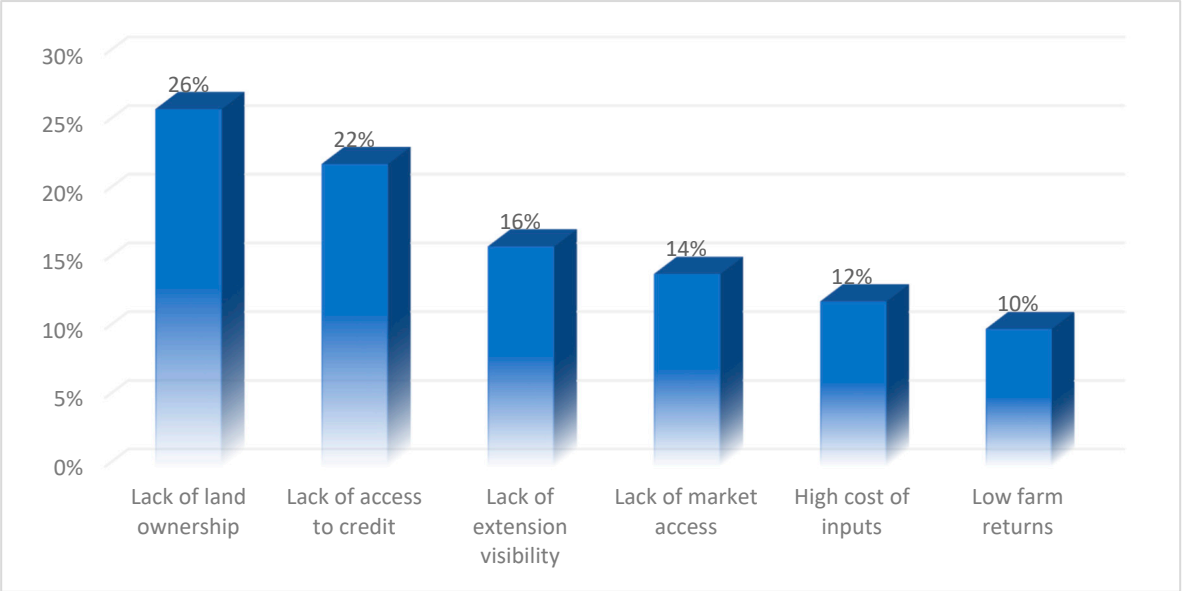

Figure 4. Challenges faced by youth engaged in agricultural enterprises.

The second major constraint was access to credit by youth who venture into micro- and small-sized agricultural enterprises, which is a very high constraint. Finance institutions demand requirements that youth do not meet and high-interest rates that they cannot afford, given the nature of agricultural enterprises in South Africa. These results accord with those of [30], which indicated that small-stakeholder farmers, especially those who operate at micro- and small-sized levels, lack market access. Lack of extension visibility (16%), lack of market access (14%), and the high cost of inputs (12%) were some of the challenges faced by youth who ventured into agricultural enterprises and these challenges forced some youth to quit farming, as they could not stand the constraints.

The last challenge faced by farmers was low returns from agricultural enterprises. This was not surprising, as the descriptive results revealed that this was widely expected, given that youth were constrained by a lack of market access, high costs of input, and a lack of extension personnel to provide them with basic information required for a farming business.

4.6. Determinants of Youth Venturing into Micro- and Small-Sized Agricultural Enterprises

The study made use of econometric analysis, in the form of logit regression, to estimate the factors that affect youth participation in micro- and small-sized agricultural enterprises in the Eastern Cape Province. The model results shown in Table 3 indicated that the 16 variables included in model 8 were found to significantly affect youth participation in micro- and small-sized agricultural enterprises at different probability levels, while the remaining variables had no influence at all. The details of the significant variables from this model are shown in Table 4 and discussed below. The adjusted R^2 of the regression was 0.69, which meant that 69% of the variation in the dependent variables can be explained by the regressors that are present in the model. The higher the R^2 value, the more explanatory the model is and the better it fits the sample. Table 4 illustrates the factors that influenced youth participation in micro- and small-sized agricultural enterprises in the Eastern Cape Province.

Sex was found to have a positive coefficient and was statistically significant, at a 5% level. This implied that a unit increase of 1% in the sex of the respondents induced an increase in the participation of youth in micro- and small-sized agricultural enterprises. This was because males were the ones who were energetic about farming, and they more easily obtained the information that was needed in agricultural enterprises than females. These results may have been due to the cultural norm that agriculture or agribusiness is mainly for men, and many cultures still perceive such businesses as male activities, as

females carry out household chores and non-agricultural activities. These results accord with those of [23,30,31], which found that men dominate agribusinesses, as they have access to information, productive resources, and greater training than females who struggle to obtain such qualities. The marginal effect implied that an increase of 1% in sex resulted in an increase in youth venturing into micro- and small-sized agricultural enterprises, by 3.8%.

Table 4. Factors influencing youth participation in agricultural enterprises.

Variable	B	P > z	Marginal Effect
Sex (male)	0.643	0.013 **	0.38
Age	0.852	0.005 ***	0.24
Access to credit	−0.549	0.015 **	−0.43
Years spent in school	0.956	0.009 ***	0.52
Farm size	0.869	0.002 ***	0.33
Member of farm organization	0.737	0.047 **	0.46
Access to extension services	−0.480	0.032 **	−0.54
Distance to market centers	−0.689	0.013 **	−0.56
Number of observations = 120	**LR chi^2 (9) = 129.67, Pr > Chi^2 = 0.000**	**Log likelihood = −117.52**	**Pseudo R^2 = 0.69**

Note: ** and *** represent significance at less than 5% and 1% respectively.

Age had a positive coefficient and was statistically significant, at a 1% level. This suggested that there was a directly proportional relationship between age and youth participation. This was the case because age provides youth with the energy and physical strength that is required in micro- and small-sized agricultural enterprises, as well as a quick understanding of the innovative technologies that are used. This implied that the addition of one year induced an increase in youth participation in agricultural enterprises. This suggested that as youth grow older, they are more likely to pursue agriculture as a livelihood strategy, because they are expected to be more experienced and knowledgeable and to embrace agriculture. These results contradicted the findings of [32], in which age was found to negatively influence youth participation. The marginal effect implied that an increase of an additional year in the age of respondents resulted in an increase in youth venturing into micro and small agricultural enterprises, by 2.4%.

Years spent in school had a positive coefficient and were statistically significant, at a 1% level. This suggested that an additional year spent in school induced an increase in youth participating in micro- and small-sized agricultural enterprises. This was because an increase in knowledge and in the ability to access information is required in agricultural enterprises. This was not surprising, as educated youth are more knowledgeable than uneducated youth and know agricultural techniques that are used to enhance agricultural productivity. These results were in accord with those of [33], which indicated that educated youth were more likely to be involved in agribusiness and agricultural enterprises. The marginal effect implied that an increase of an additional year spent in school resulted in an increase in youth venturing in micro- and small-sized agricultural enterprises, by 5.2%.

Farm size had a positive coefficient and was statistically significant, at a 1% level. This implied that an increase of 1 hectare of farm size induced an increase in youth participation in micro- and small-sized agricultural enterprises. This was because having a big farm attracted youth to become involved in agriculture, as they could practice various agricultural enterprises with the aim of improving their farm returns. These results contradicted the findings of [33]. The findings agreed with those of [30], which indicated that farm size played an important role in youth participation in agricultural enterprises, as it allowed youth to diversify their participation in different agricultural enterprises. The marginal

effect implied that an increase of an additional hectare in farm size resulted in an increase in youth venturing into micro- and small-sized agricultural enterprises, by 3.3%.

Membership in farm organizations had a positive coefficient and was statistically significant, at a 5% level. This variable was found to be very important for youth who ventured into agricultural enterprises, as it provided youth with awareness training and agronomic techniques that were used in agriculture. The results implied that a unit increase of 1% in farm organization membership induced an increase in youth venturing in micro- and small-sized agricultural enterprises. This was generally the case in rural and peri-urban areas, as farm organizations are very active in keeping their members and people interested in agricultural enterprises well-informed about new developments in agriculture, sharing agricultural information, marketing information, and new agronomic practices that are being used to enhance productivity and farm returns. These results were in line with those of [34], which indicated that farm organizations that include farmers and peers who are involved in agriculture and who are possibly successful can influence youth decisions to participate in agriculture. The marginal effect implied that an increase of 1% in membership of farm organizations resulted in an increase in youth venturing in micro- and small-sized agricultural enterprises, by 4.6%.

Access to credit had a negative coefficient and was statistically significant, at a 5% level. This suggested that an increase in access to credit of 1% induced a decrease in youth participation in micro- and small-sized agricultural enterprises. This could have been because young people do not easily have access to credit that is needed to assist in purchasing inputs that can enhance agricultural productivity. This may also have been due to financial risk-aversion. The results revealed that lack of access to credit was substantial and negatively affected youth decisions to participate in micro- and small-sized agricultural enterprises, as youth had low access to credit institutions that were willing to support them, which was discouraging. These results were in accord with those of [34,35], which indicated that a lack of financial support and access discouraged youth and small-stakeholder farmers' participation in micro- and small-sized agricultural enterprises. The marginal effect implied that an increase in access to credit of 1% resulted in a decrease in youth venturing into micro and small agricultural enterprises, by 4.3%.

Access to extension services had a negative coefficient and was statistically significant, at a 5% level. The study results were surprising, given that access to extension services in most cases do disseminate information that encourages youth to participate in agricultural enterprises. The results suggested that a unit increase in access to extension services of 1% induced a decrease in youth participation in micro- and small-sized agricultural enterprises. This was because extension services were found to be invisible and inaccessible to young people in the study area. This was unanticipated, as contact with extension officers generally provided youth with the benefit of receiving significant information, supervision, and support. These results were in accord with those of [32,36], which found that having access to an extension service would be very beneficial in providing necessary information that encouraged youth participation. The marginal effect implied that an increase in access to credit of 1% resulted in a decrease in youth venturing into micro- and small-sized agricultural enterprises, by 5.4%.

Distance to market centers had a negative coefficient and was statistically significant, at a 5% level. These results were expected to yield a negative relationship, given the location of the study sites away from central business areas. The results suggested that a unit increase of 1 additional kilometer induced a decrease in youth participation in micro- and small-sized agricultural enterprises. This was because of the long distance from central business areas market centers and farm sites, which increased transaction costs that were disadvantageous for youth. This discouraged youth participation, as they lacked the finances to pay for the hired transport to reach the central business areas. The marginal effect implied that an increase of 1 km in distance to market centers resulted in a decrease in youth venturing into micro and small agricultural enterprises, by 5.6%.

4.7. Implication for Sustainable Development

The study results revealed that youth involvement in agricultural enterprises is very low, although there is significant interest and aspiration among youth to be involved. There is an urgent need throughout the world to increase youth involvement in agricultural enterprises, with a clear vision of improving food systems in order to meet sustainable development goals. An aging farming population still occupies the farming sector, especially the small- and micro-level agricultural enterprises, and these farmers tend not to adopt the innovative technologies and agronomic practices that are aimed at enhancing food systems in order to improve food security, reduce malnutrition, alleviate poverty, increase farm returns, and enhance employment.

This study provides policymakers with clear evidence of the pull-and-push factors that need to be addressed in order to activate youth to participate in agricultural activities, as they are interested in agricultural enterprises and aspire to succeed in them. Policymakers throughout the world need to develop programs that aim to address youth challenges in agricultural enterprises, and there is a need to lessen some regulations on lending credit to youth. There is a need for good governance aimed at promoting awareness among youth about the potential of the agricultural sector. For sustainability and development purposes, there is an urgent need for policy adjustments based on the nature of the enterprise to achieve initial savings, improved interest rates, and the availability of payback period credit, as such adjustments will encourage more youth involvement in agricultural enterprises. There is also a need to include agricultural subjects and activities in schools' curricula that spark interest in young people and expose them to a variety of aspirational career opportunities in agriculture. There is a further need for policy applications of joint agricultural-based intrusions that are context-specific and that encourage interested youth to partake in shaping future food systems.

5. Conclusions

The study investigated the factors that influence the venturing by youth into micro- and small-sized agricultural enterprises in the Eastern Cape Province of South Africa. The study results revealed that youth in the study area were venturing into agricultural enterprises with the aims of contributing to job creation, increasing food productivity, and reducing youth migration. The study results further revealed that lack of land ownership, low returns, lack of market access, lack of credit access, invisibility of extension personnel, and the high cost of inputs were among the challenges faced by youth who venture into micro- and small-sized agricultural enterprises. The logit regression results revealed that sex, years spent in school, age, membership of farm organizations, and farm size were positive influences for youth participation, while access to credit, access to extension services, and distance to market centers were negative influences for youth participation in micro- and small-sized agricultural enterprises.

6. Recommendations

Based on this study's findings, we recommend capacity development programs and agricultural training programs for youth who are already participating and for youth who are not participating in agricultural enterprises, as a strategies to encourage their involvement. This study recommends strengthening or improving agricultural policies that are in place to support the interest and enthusiasm of youth to participate in agriculture. Government support must also be improved, especially by providing visible access to and support for extension personnel, because these systems are very important for nurturing youth involvement in agriculture. There is a further need to generate incentives for small/medium financial institutions or microcredit financial institutions to open sub-offices in rural and peri-urban areas, to provide credit with interest rates that are affordable to youth.

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