Asian Journal of Agriculture and Rural Development
Volume 15, Issue 3 (2025): 387-395

The impact of youth development program on rural livelihoods: A case of Fortune 40 young farmer incubation program in Bushbuckridge Municipality, South Africa

Agreement Khoza[a,b]
Anele Mayekiso[b]
Lesetja Jacob Ledwaba[a]
Abenet Belete[a]

[a]*Department of Agricultural Economics and Animal Production, University of Limpopo, Private Bag X1106, Sovenga, 0727, South Africa.*
[b]*Department of Agricultural Economics and Extension, University of Fort Hare, Private Bag X1314, Alice, 5700, South Africa.*

anelemayekiso@ymail.com *(Corresponding author)*

Article History
Received: 2 June 2025
Revised: 23 July 2025
Accepted: 8 August 2025
Published: 3 September 2025

Keywords
Agricultural program
Fortune 40
No poverty
Rural development
Sustainable livelihood approach
Youth
Zero hunger.

ABSTRACT
Agricultural programs play a significant role in reducing poverty, improving livelihoods, and increasing productivity. This study analyzed how the Fortune 40 initiative, an agricultural program, impacted the rural livelihoods of youth in Bushbuckridge Local Municipality. Primary data was collected from 43 beneficiaries using a questionnaire through face-to-face interviews. A cross-sectional research design and a quantitative research approach were employed. Descriptive statistics, a Sustainable Livelihood Approach framework, and an Ordered Probit Model were used to analyze the data. Beneficiaries' ages ranged from 22 to 38 years, with gender distribution being relatively balanced 53.5% female and 46.5% male. Challenges within the program included poor supervision, delays in input delivery, and theft. Overall, the Fortune 40 program had a moderate impact on rural livelihoods. The results indicated that factors such as age, household size, type of farming, access to credit, and land size influence the program's impact. The study recommends fair land allocation for farming and improved access to credit, particularly for youth, agricultural graduates involved in farming, and aspiring farmers.

Contribution/Originality: The study extended beyond academic inquiry by measuring the impact of an agricultural program aimed at rural development to improve livelihoods. Therefore, the results indicate that there is potential for enhanced livelihoods through agricultural development programs, particularly those targeting youth.

DOI: 10.55493/5005.v15i3.5551
ISSN(P): 2304-1455/ ISSN(E): 2224-4433
How to cite: Khoza, A., Mayekiso, A., Ledwaba, L. J., & Belete, A. (2025). The impact of youth development program on rural livelihoods: A case of Fortune 40 young farmer incubation program in Bushbuckridge Municipality, South Africa. *Asian Journal of Agriculture and Rural Development*, *15*(3), 387–395. 10.55493/5005.v15i3.5551

1. INTRODUCTION
Poverty and unemployment continue to be the most pressing developmental issues in rural communities (Gassner et al., 2019). Gassner et al. argue that historically, there have been low levels of investment in education across the African continent. Consequently, South Africa faces a surplus of job seekers, particularly those who are inexperienced and low-skilled. The youth bear the burden of unemployment regardless of their educational level, according to Statistics South Africa (Stats SA) (2020). Among the different factors that contribute to unemployment are population growth, lack of experience required by potential employers, lack of career advice in high school, and inadequate job-search methods (Cloete, 2015). According to the Insight Newsletter Issue 13, the global financial crisis that began in 2008/2009 impacted the South African economy, hampering job creation and opportunities. As a result, young people are suffering in the South African labour market. For instance, the Quarterly Labour Force Survey (QLFS) for the first quarter of 2021 reports that some youths have become discouraged from participating in the labour market.

Poverty eradication is perceived as improbable unless knowledge, skills, and capacities are transferred to individuals who are excluded from participating in value-added economic activities (Lewin, 2007). Therefore, youths have found alternatives to express their competencies in agriculture and household enterprises due to the absence of formal paying jobs. Many African countries' efforts to eradicate poverty heavily rely on the agricultural sector, including South Africa. Additionally, Dercon and Gollin (2014) highlight that for many rural Africans, agriculture is a major source of income and a key component of the continent's economic development. Moreover, the International Youth Foundation (2014) emphasises the role played by the agricultural sector in providing opportunities for entrepreneurship, which are ideal for the generation of employment, particularly among youth.

The comparative advantage of agriculture remains vital in the Mpumalanga Province, and for this reason, agriculture remains the key to unlocking development and opportunities for many communities in the Bushbuckridge area. Correspondingly, Baiphethi and Jacobs (2009) highlight that most communities, especially in rural settings, are highly dependent on agriculture for food and livelihood. Hence, the Food and Agriculture Organization (FAO) perceives youth-based agricultural initiatives as central to rural communities' development, despite any hindrances (Food and Agriculture Organization of the United Nations, 2014).

Foundational to initiatives such as the Fortune 40 Young Farmer Incubation Program (hereafter the Fortune 40 Program) is the government's role in poverty alleviation, read in conjunction with its constitutional mandate to ensure access to social security, as well as the promotion and protection of the inherent human right to dignity (South African Government, 1996), which is emphasized in agricultural legislation and policies. Agricultural programs emerge from the government's efforts to realize the social security rights of citizens and promote economic development, despite some authors' contentions that rural livelihoods are more of a social concept than an economic one (Hancel, 2019). The Fortune 40 program was founded a decade ago (2015) by the Mpumalanga Provincial Government to mentor and coach youth in entrepreneurship through skill development and experiential training to enable them to become independent entrepreneurs in agriculture. Hence, increased income, well-being, food security, and access to assets serve as the measures of success for the Fortune 40 program.

Therefore, the study's overall aim was to analyze the impact of the Fortune 40 initiative, an agricultural program, on the rural livelihoods of youth in Bushbuckridge Local Municipality.

2. MATERIALS AND METHODS

2.1. Description and Justification for the Selection of the Study Area

The study focused on three Fortune 40 programs, namely, Allandale, Thulamahashe, and Zoeknog farms, located in the Bushbuckridge Local Municipality (BLM). The three farms focused on vegetable production and mechanization. The Bushbuckridge Local Municipality is under the Ehlanzeni District Municipality in the Mpumalanga Province of South Africa. The local municipality is recognized for poverty and unemployment, especially among the youth aged 15 to 35 years, which poses a significant challenge for the municipality's economic development and the upliftment of rural livelihoods (Makhado Local Municipality, 2018). Hence, the choice of the study area was based on the BLM's intention to reinforce programs aimed at substantially improving local economic development through agricultural activities.

2.2. Ethics

Ethical clearance was obtained from the University of Limpopo's Turfloop Research Ethics Committee (Reference number TREC/147/2022: PG). The study involved human participants; therefore, ethical approval was required to ensure the participants' safety and protection. Informed consent was obtained from each participant after the purpose of the study was explained by the researchers. Privacy and confidentiality were carefully maintained, i.e., after data collection, administered questionnaires were kept in a secured cabinet and a locked room to protect the participants' information.

2.3. Sampling Procedure

A proportional sampling method was employed, wherein a finite population of 60 Fortune 40 beneficiaries was divided into subpopulations, and thereafter a random sampling technique was applied to each subpopulation. Each Fortune 40 farm consisted of 20 beneficiaries; 20 was then divided by the total population of 60, yielding 33%, and this percentage determined the proportion of the sample from each farm as the probability of selecting a unit is proportional to its size. The calculated sample size of 43 was multiplied by 33%, which gave 14 beneficiaries on the Allandale farm, 14 beneficiaries on the Zoeknog farm, and 15 beneficiaries on the Thulamahashe farm.

2.4. Data Collection Methods

The study employed a cross-sectional design, collecting primary data through in-person interviews using a questionnaire and observations. The questionnaire was administered directly to each respondent by researchers and enumerators, allowing respondents to seek clarification and express a range of opinions. The questionnaire was piloted to assess its reliability and validity, ensuring the accuracy of the collected data. Additionally, telephone interviews were conducted with some beneficiaries who were not present at the farm during data collection. Observations on the farms enabled the researcher to identify visible production indicators and gather primary data through visual evidence, which helped validate the reliability of the beneficiaries' responses. The sample size consisted of 43 beneficiaries from three Fortune 40 programs in BLM.

2.5. Data Analysis Tools

The data was captured, coded, and cleaned using Excel 16 and imported into SPSS version 28 for analysis. Descriptive statistics were used to describe the challenges faced within the Fortune 40 program. Descriptive analysis included percentages, means, and frequencies. The Sustainable Livelihoods Approach theoretical framework and an

Ordered Probit Model were used to analyze the impact of the Fortune 40 program on rural livelihoods and to examine factors influencing this impact.

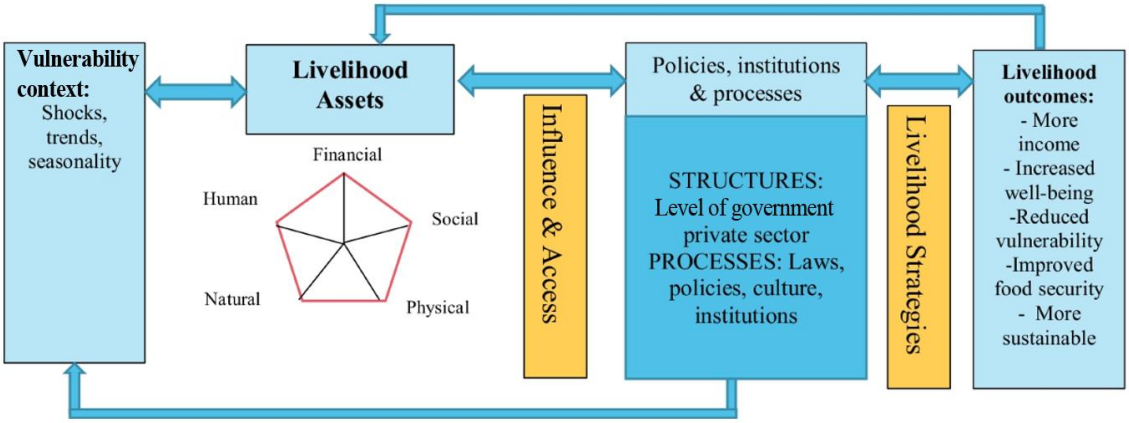

Figure 1. Sustainable livelihoods approach (SLA): Theoretical framework.
Source: Ahmed, Siwar, and Idris (2011)

Figure 1 illustrates the adopted Sustainable Livelihoods Approach from the study by Ahmed et al. (2011). The SLA operationalizes poverty reduction and focuses on promoting sustainable livelihoods through asset support by providing disadvantaged groups with better access to assets vital for sustaining their livelihoods. Therefore, SLA considers the livelihood assets of people, such as human, natural, economic, financial, social, and physical capital. However, people's livelihoods are influenced by other vulnerability factors like trends, seasonality, and shocks, as well as policy institutions, policies, and processes. Policies, institutions, and processes aim to assist people in surviving and thriving in vulnerable contexts so that their livelihoods are not undermined or compromised (Ahmed et al., 2011).

The framework was used to develop levels of impacts in an ordered manner to create dependent variables that were fitted into the ordered probit model. Therefore, improved access to livelihood assets and improved livelihood outcomes depict the positive impact of the Fortune 40 program on rural livelihoods, while the lack of access to livelihood assets indicates the negative impact of the program on rural livelihoods. The ordered categories of the dependent variable (Impact on rural livelihoods) were no impact, low impact, moderate impact, and large impact. An ordered probit model was subsequently applied to analyze the relationships between an ordinal dependent variable and a set of independent variables. An ordinal variable is a categorical variable with a specific order (Johnston, McDonald, & Quist, 2020).

The disturbance term is assumed to be normally distributed as illustrated in Equation 1.

$$y_i^* = \beta' xi + ui \quad (1)$$

Where y_i^* It is a latent dependent variable (impact status); xi It is a set of independent variables influencing the dependent variables. β' It is a set of parameters to be estimated, and UI is a disturbance term. Since we cannot observe y_i^*We can only observe the categories of responses as shown in Equation 3.

$$y = \begin{cases} 1 \ if -\infty < y_i^* < \mu_1 & (No\ impact) \\ 2 \ if \ \mu_1 < y_i^* < \mu_2 & (Low\ impact) \\ 3 \ if \ \mu_2 < y_i^* < \mu_3 & (Moderate\ impact) \\ 4 \ if \ \mu_3 < y_i^* < \infty & (Large\ impact) \end{cases} \quad (2)$$

The thresholds μ_i Indicate the normal distribution array associated with the definite values of the dependent variables. Parameters β Indicate the influence of variation in the dependent variables on the principal scale. The positive sign of the parameter β implies a large impact of the Fortune 40 program on rural livelihoods.

Shown in Equation 3 are the estimated probabilities of the Ordered Probit Model in this study.

$$\begin{gathered} \Pr(yi = 1|x) = 1 - \Phi[\beta' xi + \mu_1] \\ Pr(yi = 2|x) = \Phi[\beta' xi + \mu_1] - \Phi[\beta' xi + \mu_2] \\ Pr(yi = 3|x) = \Phi[\beta' xi + \mu_2] - \Phi[\beta' xi + \mu_3] \\ Pr(yi = 4|x) = \Phi[\beta' xi + \mu_3] \end{gathered} \quad (3)$$

Where Φ is the cumulative density function (CDF) of a standard normal random variable.

The independent variables against which the dependent variable was regressed are presented in Table 1.

Table 1. Description of variables specified in the ordered probit model.

Variables	Description	Units of measure
Impact on rural livelihoods (Y) (OPM Model)	1=No impact, 2=Low impact, 3=Moderate impact, 4= Large impact	Ordinal
Gender of the beneficiary	Male=0, Female=1	Dummy
Age of the beneficiary	Actual years	Count (Years)
Education level	0= No formal education, 1= Primary education, 2=Secondary education, 3= Tertiary education	Categorical
Years participating in the program	Actual years	Count (Years)
Land size	Actual size	Count (Hectares)

Variables	Description	Units of measure
Access to inputs	1=Yes, 0=Otherwise	Dummy
Market access	1=Yes, 0= Otherwise	Dummy
Credit access	1=Yes, 0= Otherwise	Dummy
Assets acquired by beneficiaries	0= Human capital, 1= natural capital, 2= Social capital, 3=financial capital, 4= Physical capital	Categorical
On-farm training	1=Yes, 0= Otherwise	Dummy
Workshops Attended	1= Attended, 0= Not attended	Dummy
Household size	Number of people in the household	Count (Years)
Farm income	Monthly income	Count (ZAR)
Beneficiaries' income: the exclusion of farm income.	Monthly income	Count (ZAR)
Government funds	1=Yes, 0= Otherwise	Dummy

3. RESULTS AND DISCUSSION

This section is divided into three parts: the socioeconomic characteristics of beneficiaries, the challenges encountered in the Fortune 40 program, and the empirical results of the study.

Table 2. Descriptive statistics of age and gender.

Variable	Minimum	Mean	Maximum	Standard deviation
Age	20	28.47	38	4.261
Variable	Outcome		Frequency	Percentage (%)
Gender	Male		20	46.5
	Female		23	53.5

3.1. Socio-Economic Characteristics

The average age of the beneficiaries was 28.47, which is approximately 28 years, with a minimum age of 22 years and a maximum age of 33 years, as shown in Table 2.

The age mentioned above corresponds to the age category of the program's selection criteria, which includes youths aged 15 years and above, but not more than 35 years. The gender distribution of beneficiaries was notably balanced, with approximately 46.5% males and 53.5% females.

As a result, the Fortune 40 program addressed gender inequality by maintaining a balanced gender ratio among beneficiaries, promoting the inclusion of women farmers in decision-making processes and asset acquisition. According to Statistics South Africa, equal ownership and access to resources and opportunities, as well as gender equality in decision-making positions and equal participation of both sexes in the labor force, are essential components of empowerment.

3.2. Challenges Experienced in the Fortune 40 Program

The study identified several impediments to the progress of the Fortune 40 program. Beneficiaries of the Thulamahashe farm were not present during data collection because they had not received their monthly stipends for the previous three months (April, May, and June); consequently, they decided to discontinue their participation. Beneficiaries of the Allandale farm expressed dissatisfaction with the program's daily operations due to the consistent absence of their incubator, which forced them to assume leadership roles in the program.

They also expressed dissatisfaction with the lack of resources or basic farming tools, such as hoes and shovels. As a result, they had to borrow these tools from the local community to ensure continued farm production. Additionally, the beneficiaries reported that the program took too long to fulfill their requests for resources and inputs. Furthermore, to start the third production cycle (the current cycle at the time of data collection), they had to hire a tractor for land preparation at their own expense.

The theft was one of the program's challenges; the fencing is dilapidated at Allandale Farm; consequently, some produce is lost to cattle, and occasionally, local people steal produce from the farm. Water is available from the farm's tap but only for four consecutive days per week, and there are no tanks or other water storage facilities. As a result, irrigation ceases when water is unavailable.

Storage facilities on the farm are inoperable. Additionally, the main irrigation pipe at Zoeknog Farm frequently bursts, power cables have been stolen, there is a high rate of absenteeism among learners, and the withdrawal of incubators from the program has caused delayed production on the farm.

Osmani, Kolaj, Borisov, and Arabska (2022) argue that factors contributing to the failure of agricultural programs include management-related issues such as low knowledge and experience, which result in less informed decision-making, as well as communication difficulties, and weak training and workshops.

As a result, poor quality of the projects leads to beneficiaries' dissatisfaction, which in turn causes youths to exit agricultural programs. The study's findings align with existing literature regarding obstacles that cause beneficiaries to become dissatisfied, ultimately leading to program failure or minimal positive effects on livelihoods.

3.3. The Impact of the Fortune 40 Program and the Factors That Influence It

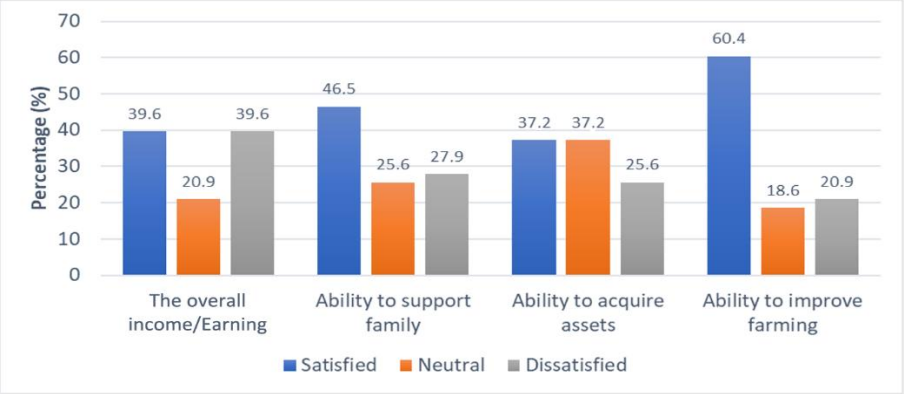

Figure 2. Changes in socio-economic wellbeing.

Several questions were posed to determine how beneficiaries felt about their social and economic well-being. These questions provided insights into how the Fortune 40 program impacted the livelihoods of its participants. Questions were weighted on three grounds: satisfied, neutral, and not satisfied, as presented in Figure 2.

When asked about the overall income and earnings from the program, approximately 39.6% were satisfied, 39.6% were dissatisfied, and 20.9% were neutral. Some beneficiaries mentioned that the stipend was insufficient because it could not cover most of their necessities, while others said they could occasionally buy food and clothing with the same amount. One beneficiary mentioned that he was able to obtain his driving license, while others said they were able to start gardens for both home consumption and sales. These results indicate a disparity in the beneficiaries' satisfaction regarding the financial capital acquired from the program.

When asked about their ability to support their families, approximately 46.5% of the beneficiaries expressed satisfaction, with some mentioning that they could provide food for their families. About 27.9% were dissatisfied, citing reasons such as living far from the program, which led to high transportation costs and an inability to contribute to their families. The remaining 25.6% were neutral regarding their ability to support their families. These results indicate a slight improvement in the beneficiaries' livelihood outcomes.

Beneficiaries must acquire land to continue receiving support from the Fortune 40 program after intervention. When asked about their ability to acquire assets, approximately 37.2% of beneficiaries expressed satisfaction. Researchers had the opportunity to visit the farms of two post-beneficiaries, who were grateful for the support received from the program after successfully acquiring land. The beneficiaries had a 2.5-hectare plot of land, and the program constructed a fence, a water tank with a capacity of 100,000 liters, and drip irrigation on their farms. About 37.2% of the beneficiaries were neutral when asked about their ability to acquire assets, while 25.6% were dissatisfied. Some beneficiaries stated that the program took a long time to provide resources during and after the intervention.

When asked about their ability to improve farming, the majority (60.4%) of the program's beneficiaries were satisfied, 18.6% were neutral, and 20.9% were dissatisfied. The majority of the program's beneficiaries stated that they were better equipped to manage a farm and knew how to cultivate some of the highly demanded crops in the local market, such as tomatoes, due to the skills gained through the program. Therefore, the changes in the socio-economic well-being of the beneficiaries indicate that the Fortune 40 program has helped improve their livelihoods to some extent.

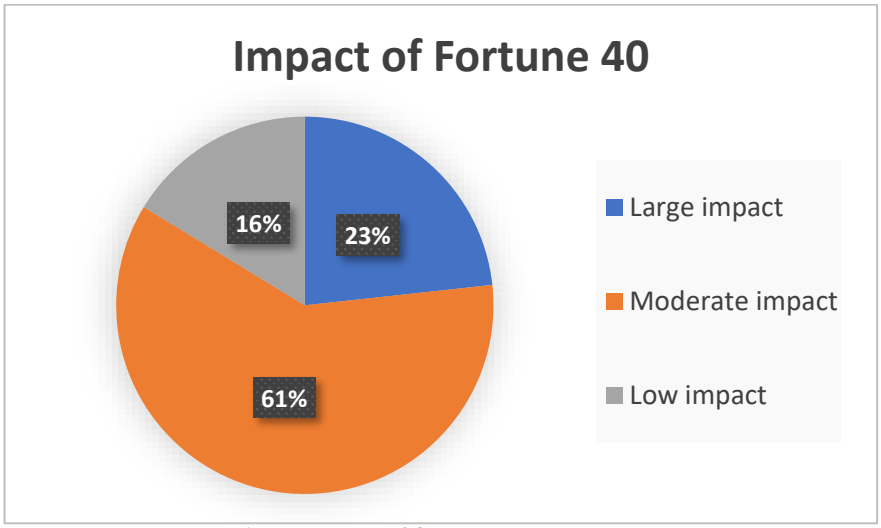

Figure 3. Impact of the Fortune 40 programme.

Figure 3 illustrates how beneficiaries assessed the impact of the Fortune 40 program on their livelihoods. When asked about the impact that the Fortune 40 program had on improving their livelihoods, approximately 23% of the beneficiaries mentioned that the program had a significant impact. Most beneficiaries (61%) reported a moderate impact on rural livelihoods, while 16% indicated a low impact. None (0%) of the beneficiaries believed the program had no impact. These findings suggest that the Fortune 40 initiative is a viable foundation for the sustainability of beneficiaries' livelihoods.

The Ordered Probit Regression Model was used to determine the factors that influenced the impact of the Fortune 40 program on rural livelihoods, and the results are shown in Table 3. Of the ten independent variables logged during the analysis, only six were found to be significant. The (-2) Log-likelihood of the estimated model is 80.748, indicating that the Ordered Probit Model can be relied upon to predict the impact of the Fortune 40 program. The study obtained a Nagelkerke R-squared of 0.737, suggesting that a substantial portion of the variation from the independent variables was explained by the model, with an overall prediction accuracy of 97.3%, as shown in Table 3. The direction of influence for each significant variable is also presented.

Table 3. Ordered probit regression results of the factors influencing the impact of the Fortune 40 program.

Variables	B coefficient	Standard error	T-statistics	Sig. (P-V)
Intercept	-4.069	10.329	0.155	0.694
Age	13.067	6.8730	3.615	0.057***
Gender	0.430	1.415	0.092	0.761
Level of education	-0.167	1.389	0.014	0.904
Household size	29.627	4.283	47.861	0.000*
Credit access	-5.587	2.699	4.285	0.038**
Government funds	-1.171	1.978	0.351	0.554
Type of farming	17.880	7.969	5.034	0.025**
Monthly income	0.002	0.001	5.034	0.025**
Workshops attended	-0.623	1.947	0.102	0.749
Land size	16.758	2.997	31.264	0.000*
Model summary				
(-2) Log-likelihood		80.748		
Accuracy of prediction: Overall (%)		97.3%		
Pseudo R-square				
Cox & Snell R-squared		0.624		
Nagelkerke R square		0.737		

Note: * Significant at 1% and ** Significant at 5% and *** Significant at 10%.

3.3.1 Age

Age has a likelihood of positively influencing the impact of the Fortune 40 program on rural livelihoods, and this was found to be significant at a 10% level (p=0.057). Participants in the Fortune 40 program were required to be youth, particularly those who could not pursue education beyond secondary school. The results suggest that including this age group in the program is likely to affect its outcomes. Youth involvement in agriculture is widely recognized as vital for sector reform, as they are considered capable of adapting to the changing global economy. Furthermore, age was a positive and significant variable in Adeyanju, Mburu, and Mignouna (2021) findings, indicating that older youths are more likely to participate in agricultural programs than their younger counterparts.

3.3.2 Household Size

Household size was likely to positively influence the impact of the Fortune 40 program on rural livelihoods, and it was found to be highly significant at a 1% level (p=0.000). The findings imply that families with a high number of members are likely to have an impact on how the Fortune 40 program affects rural livelihoods. By pooling their resources and abilities, a household could probably improve its members' standard of living. The results are consistent with Shabanbgu (2015) research on the impact of the Masibuyele Emasimini agricultural program, which found that household size was significant. Smallholder farming depends on the family because most farmers find it expensive to hire people, and their profits are insufficient to cover labor costs. As a result, larger households could be advantageous when it comes to access to labor.

3.3.3 Credit Access

Access to credit may negatively influence the impact of the Fortune 40 program on rural livelihoods, and this effect was found to be statistically significant at the 5% level (p=0.038). The findings suggest that farmers with access to financial resources such as credit are more likely to have a variety of livelihood options. Therefore, financial capital like credit can provide smallholder farmers with opportunities to adopt new technologies and allocate resources more effectively (Zulfiqar & Hussain, 2014). Thus, bringing essentiality to the promotion of production, which in turn is vital for reducing food insecurity and poverty. It was noteworthy from the Fortune 40 program that many beneficiaries lacked access to credit, which consequently limited their options for making a living. The results are consistent with those of Yin and Xiao (2020), who found that financial capital, such as credit, negatively influenced farmers' decisions regarding how to make a living from traditional agriculture.

3.3.4 Type of Farming

The type of farming was likely to positively influence the impact of the Fortune 40 program on rural livelihoods; it was found to be significant at a 5% level (p=0.025). Most probably, the findings suggest that the program's impact may vary depending on the type of farming practiced in the Fortune 40 program. Deogharia (2018) believes that diversifying agricultural operations is a key strategy for increasing income since it minimizes risk and maximizes profits by investing in a variety of crops. Therefore, the production of different crops may impact how the Fortune 40 program affects rural livelihoods. Similarly, in a study titled "Farm types and their economic characterization in complex agroecosystems for informed extension intervention," it was found that farm types are significant and crucial for precise technological intervention and well-informed policy support (Goswami, Chatterjee, & Prasad, 2014).

3.3.5 Land Size

The variable land size was likely to positively influence the impact of the Fortune 40 program on rural livelihoods, and the variable was found to be highly significant at a 1% level (p=0.000). According to the findings, the likelihood of Fortune 40 farmers producing in large quantities and increasing farm revenue may depend on access to adequate land size. As a result, there is a probability that the choice of land size may impact the livelihoods of the beneficiaries of the Fortune 40 program. This outcome aligns with the findings of Berre et al. (2017), which revealed that land availability is positively correlated with farm technical efficiency.

4. DISCUSSION

Youth participation in agricultural programs is one of the strategies that can support and stimulate rural development. For this reason, government initiatives focusing on agricultural and rural development aim to empower youth and women. The Fortune 40 incubation program also targeted youth aged 15 to 35 years without a specific gender focus. The participants in the study's observation ranged from 22 to 33 years old. This observation could suggest that youth under 22 years old were still in secondary education, were possibly not interested in agriculture, or had migrated to urban areas in search of employment opportunities. Conversely, youth aged 34 to 35 might also have been disinterested in agriculture or had migrated to urban areas for similar reasons. A study by Chipfupa and Tagwi (2021) also shares a similar sentiment in that youth, from an umbrella perspective, are regarded as not interested in farming. The authors further argue that, regardless of the notion that youth are not interested in farming, this varies across different age categories of youth. Therefore, it cannot be generalized that all youth are not interested in farming; youth participation in farming and agricultural programs depends on their social and economic circumstances, which shape their aspirations and behavior regarding farming. There was a moderate difference of 8% between men's and women's participation in the program, with women accounting for a larger proportion. This suggests that the aim of empowering women in the agricultural sector, especially in farming, is potentially leading to noticeable change. Thobejane (2022) conducted a study on the impact of empowering women farmers toward sustainable agriculture in the Gauteng province of South Africa. The study revealed that 91% of women and 81% of men reported feeling empowered. Both the study and the current research highlight the courage women have to participate in agricultural activities. This is also evident in the moderate differences in participation changes between women and men, with Thobejane's study showing a 10% difference. Since studies have been conducted to assess the impact of agricultural development programs on targeted communities, the youth development programs in agriculture and their effects on rural livelihoods remain underexplored in South African regions, leaving an open research gap for future investigation.

The majority of agricultural development programs aimed at improving youth participation in the agricultural sector are most likely to experience stagnant progress toward achieving their goals and objectives due to various factors. The Fortune 40 program is not immune to these factors that contribute to stagnant progress toward achieving its intended goals. According to Kwenye and Sichone (2016), the constraints within the agricultural programs hinder the participation of the beneficiaries, which negatively impacts the interest of the intended youths. It was evident in the Fortune 40 program that beneficiaries lacked motivation regarding the continuity of the program, resulting from factors such as the lack of resources, poor storage facilities, irrigation systems, and theft. The program offers both theoretical and practical knowledge, but the lack of resources (i.e., farming tools, production inputs, irrigation facilities, and water) hindered the practical work progress, leaving the majority of the beneficiaries discouraged as they mostly prefer working in the field, as it enhances their farming skills and experience. Similar challenges were found in the Taraba State agricultural development program, which included the lack of mobility for proper supervision and a lack of working materials (inputs), which are essential for the operation of the program (Oruonye & Ahmed, 2016). One of the intended goals of the Fortune 40 program was to provide agricultural resources to beneficiaries who could acquire land after participating in the program to enable them to launch their farming businesses. The beneficiaries lost hope for support right after participating in the program due to a lack of resources while they were still participating in the program. Similar results were observed, wherein the lack of basic facilities, the lack of adequate funding, and difficulty in accessing farming resources were among the major constraints faced by the beneficiaries of agricultural development programs (Ajani, Mgbenka, & Onah, 2015). Moreover, a monthly stipend is an incentive intended to encourage youth participation in agricultural development programs. A considerable number of beneficiaries were unable to travel or sustain themselves since some had not received their stipends for three months in a row. This contributed to the high absenteeism rate. Consequently, youths sought employment opportunities in other sectors besides agriculture. Therefore, the drawbacks of the Fortune 40 program are linked to the program's management incompetence, which can be addressed effectively through competent program supervision.

The Fortune 40 program has moderately contributed to the socio-economic well-being of its beneficiaries. The level of satisfaction with the income received from the program varied, resulting from the different backgrounds of the beneficiaries. Some beneficiaries could, but some could not afford the necessities for self-sustenance. Most beneficiaries were satisfied with their improved ability to support their families, and some managed to purchase furniture and

appliances, among other things. Similarly, the livelihood impact of the Farm Work Program was observed, wherein about 94% of the beneficiaries were able to improve their household expenses through participating in the program (Hancel, 2019). The beneficiaries of the Fortune 40 program were satisfied with the knowledge and farming skills acquired, which improved their farming practices, hence enabling them to improve their livelihoods. This then denotes a move towards realising the goal of the program. The results concur with the findings of Hancel (2019), wherein the beneficiaries of the Farm Work Program were highly satisfied with their ability to improve their livelihoods through farming, which was attributed to the technical skills learned in the program, along with inputs acquired from the program.

The factors that could influence the impact of the Fortune 40 program include the following variables: age of the beneficiaries, household size, access to credit, type of farming, and land size. It is acknowledged that agriculture provides a primary source of income and is therefore vital for economic growth, particularly in rural areas (Poudel, Kharel, & Upadhyay, 2021). It is also notable that the transition from school into the workplace is challenging for the majority of youth; hence, agricultural development programs seek to accommodate challenged youth into the field of agriculture (Cloete, 2015). As a result, the age of the beneficiaries of the Fortune 40 program, being youth, is likely to positively influence the impact of the program. This is because youth are considered enthusiastic and ambitious and can adopt new farming practices and improved technologies that enhance farm productivity (Zidana, Kaliati, & Shani, 2020). Prosperity in agriculture has become a challenge due to climate change, which requires more sustainable and climate-resilient farming systems. Youth may become discouraged when they encounter obstacles in acquiring financial resources, such as credit, due to issues including a lack of security (Hussain & Thapa, 2016). Therefore, access to credit is likely to negatively influence the impact of the Fortune 40 program. The findings of Luvhengo and Lekunze (2017) support the notion that small-scale farmers have difficulty obtaining financing because they have little or no assets to use as collateral. Land size is one of the factors that reduce agricultural productivity Berre et al. (2017), as smaller land areas make it harder for farmers to produce in larger quantities, limiting their opportunities to participate in the formal market. Additionally, they may not meet the required quality and quantity standards for produce. Nonetheless, the Fortune 40 program provided beneficiaries with adequate land size, enabling them to produce larger quantities and generate higher revenues. Therefore, land size is likely to positively influence the impact of the program. Larger land sizes allow beneficiaries to cultivate a variety of crops, mitigating risks of loss and increasing profits. Beillouin and Makowski (2019) revealed that crop diversification can help reduce risks and enhance the sustainability of agriculture. Consequently, land size is likely to have a positive effect on the program's impact.

5. CONCLUSION AND RECOMMENDATIONS

It was evident that the Fortune 40 program was initiated in response to socio-economic challenges such as poverty, inequality, and unemployment in the Mpumalanga Province. The study findings revealed that the Fortune 40 program addressed the issue of gender inequality by having a noticeably balanced gender of program beneficiaries, to integrate women farmers into farming decision-making processes and asset acquisition. Correspondingly, according to Statistics South Africa, equal ownership and access to resources and opportunities, as well as gender equality in decision-making positions and equal participation of both sexes in the labor force, are crucial components of empowerment.

Fortune 40 program has moderately improved access to livelihood assets such as human capital (skills gained from on-farm training and workshops), physical capital (farm machinery), and natural capital (arable land and water), which to some extent has led to the improvement of beneficiaries' livelihood outcomes, such as financial capital and wellbeing. Consequently, the program has a positive impact on rural livelihoods. Hence, the findings may suggest that the Fortune 40 program is a viable basis for the sustainability of the beneficiaries' livelihoods. However, based on research observations, the future existence of the Fortune 40 program is questionable, given that most beneficiaries are leaving the program, while many of the remaining beneficiaries are concerned about how the program is currently being administered and how poorly resources are being allocated.

The study results indicated that the age of beneficiaries, household size, type of farming, access to credit, and land size were variables influencing the impact of the Fortune 40 program. Consequently, the study recommends increasing land size for production to enhance vegetable yields; providing credit facilities for youth in agriculture through microfinance and rural commercial banks could be essential. Additionally, youth, such as agricultural graduates seeking practical experience and on-farm training, should be prioritized in agricultural programs.

Notwithstanding the variables that may influence the impact of the program, the study identified a need for viable systems for monitoring and evaluation of the Fortune 40 program, as the progress of the program depends more on the incubators. Therefore, the involvement of extension officers would be of great importance. Furthermore, improving time management regarding resource allocation is crucial within the Fortune 40 program, as poor allocation of resources has led to the failure of many other similar agricultural projects.

Funding: This research is funded by the National Research Foundation (NRF) (Grant number: MND210412594016).
Institutional Review Board Statement: The Ethical Committee of the University of Limpopo, South Africa has granted approval for this_study on 29 March 2022 (Ref. No. TREC/147/2022: PG).
Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.
Competing Interests: The authors declare that they have no competing interests.
Authors' Contributions: All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

REFERENCES

Adeyanju, D., Mburu, J., & Mignouna, D. (2021). Youth agricultural entrepreneurship: Assessing the impact of agricultural training programmes on performance. *Sustainability, 13*(4), 1697. https://doi.org/10.3390/su13041697

Ahmed, F., Siwar, C., & Idris, N. A. H. (2011). The sustainable livelihood approach: Reduce poverty and vulnerability. *Journal of Applied Sciences Research, 7*(6), 810–813.

Ajani, E., Mgbenka, R., & Onah, O. (2015). Empowerment of youths in rural areas through agricultural development programmes: Implications for poverty reduction in Nigeria. *International Journal of Research, 2*(2), 34-41.

Baiphethi, M. N., & Jacobs, P. T. (2009). The contribution of subsistence farming to food security in South Africa. *Agrekon, 48*(4), 459-482. https://doi.org/10.1080/03031853.2009.9523836

Beillouin, D., & Makowski, T. D. (2019). Evidence map of crop diversification strategies at the global scale. *Environmental Research Letters, 14*(12), 123001. https://doi.org/10.1088/1748-9326/ab4449

Berre, D., Corbeels, M., Rusinamhodzi, L., Mutenje, M., Thierfelder, C., & Lopez-Ridaura, S. (2017). Thinking beyond agronomic yield gap: Smallholder farm efficiency under contrasted livelihood strategies in Malawi. *Field Crops Research, 214*, 113-122. https://doi.org/10.1016/j.fcr.2017.08.026

Chipfupa, U., & Tagwi, A. (2021). Youth's participation in agriculture: A fallacy or achievable possibility? Evidence from rural South Africa. *South African Journal of Economic and Management Sciences, 24*(1), 1-12.

Cloete, A. (2015). Youth unemployment in South Africa-a theological reflection through the lens of human dignity. *Missionalia: Southern African Journal of Mission Studies, 43*(3), 513-525. https://doi.org/10.7832/43-3-133

Deogharia, P. C. (2018). Diversification of agriculture: A review. *Journal of Economic & Social Development, 15*(1), 46-59.

Dercon, S., & Gollin, D. (2014). Agriculture in African development: theories and strategies. *Annual Review of Resource Economics, 6*(1), 471-492. https://doi.org/10.1146/annurev-resource-100913-012706

Food and Agriculture Organization of the United Nations. (2014). *Youth and agriculture: Key challenges and concrete solutions.* Rome: Food and Agriculture Organization of the United Nations.

Gassner, A., Harris, D., Mausch, K., Terheggen, A., Lopes, C., Finlayson, R., & Dobie, P. (2019). Poverty eradication and food security through agriculture in Africa: Rethinking objectives and entry points. *Outlook on Agriculture, 48*(4), 309-315. https://doi.org/10.1177/0030727019888513

Goswami, R., Chatterjee, S., & Prasad, B. (2014). Farm types and their economic characterization in complex agro-ecosystems for informed extension intervention: Study from coastal West Bengal, India. *Agricultural and Food Economics, 2*, 1-24. https://doi.org/10.1186/s40100-014-0005-2

Hancel, R. B. (2019). Livelihood impacts of the farm work program on households in Bois content. Thesis., 2019. University of the West Indies Campus.

Hussain, A., & Thapa, G. B. (2016). Fungibility of smallholder agricultural credit: Empirical evidence from Pakistan. *The European Journal of Development Research, 28*, 826-846. https://doi.org/10.1057/ejdr.2015.55

International Youth Foundation. (2014). *Promoting agricultural entrepreneurship among rural youth.* Baltimore, MD: International Youth Foundation.

Johnston, C., McDonald, J., & Quist, K. (2020). A generalized ordered Probit model. *Communications in Statistics-Theory and Methods, 49*(7), 1712-1729. https://doi.org/10.1080/03610926.2019.1565780

Kwenye, J., & Sichone, T. (2016). Rural youth participation in agriculture: Exploring the significance and challenges in the control of agricultural sector in Zambian. *RUFORUM Working Document, 14*(1), 473–477.

Lewin, K. M. (2007). *Improving access, equity and transitions in education: Creating a research agenda.* CREATE Pathways to Access Research Monograph No. 1). Consortium for Research on Educational Access, Transitions and Equity (CREATE), University of Sussex.

Luvhengo, U., & Lekunze, J. N. (2017). Identifying factors that influence small-scale farmers' access to credit from commercial banks in Greater Taung Municipality, North West Province, South Africa. *Journal of Agribusiness and Rural Development, 45*(3), 601–611. https://doi.org/10.17306/J.JARD.2017.00331

Makhado Local Municipality. (2018). *Integrated development plan (IDP) 2018–2019.* Makhado, Limpopo, South Africa: Makhado Local Municipality.

Oruonye, E., & Ahmed, Y. (2016). An appraisal of the challenges of Taraba State Agricultural development program (TADP) in Nigeria. *Agricultural Science Research Journal, 6*(10), 263-268.

Osmani, M., Kolaj, R., Borisov, P., & Arabska, E. (2022). Why agricultural policies fail and two cases of policy failures in Albania. *Agricultural and resource economics: International Scientific e-journal, 8*(2), 86-104. https://doi.org/10.51599/are.2022.08.02.05

Poudel, O., Kharel, K. R., & Upadhyay, Y. M. (2021). Assessing the contribution of agriculture for boosting Nepalese economy. *BMC Journal of Scientific Research, 4*(1), 31-41. https://doi.org/10.3126/bmcjsr.v4i1.42246

Shabanbgu, R. R. (2015). Effect of Masibuyele Emasimini agricultural program on food security at New Forest Irrigation Scheme in Bushbuckridge Municipality of Ehlanzeni District in Mpumalanga Province. Master's Dissertation. University of Limpopo, Polokwane, South Africa.

South African Government. (1996). *Constitution of the Republic of South Africa, 1996.* Retrieved from https://www.gov.za/documents/constitution-republic-south-africa-1996

Statistics South Africa (Stats SA). (2020). *Gender statistics.* Pretoria, South Africa: Statistics South Africa.

Thobejane, M. K. (2022). The impact of empowering women farmers towards sustainable agriculture in the Gauteng province of South Africa. Doctoral Dissertation. University of the Free State, Bloemfontein, South Africa.

Yin, K., & Xiao, Y. (2020). Impact of farmers' livelihood capital differences on their livelihood strategies in Three Gorges Reservoir Area. *Journal of Coastal Research, 103*(SI), 258-262. https://doi.org/10.2112/SI103-055.1

Zidana, R., Kaliati, F., & Shani, C. (2020). Assessment of youth engagement in agriculture and agribusiness in Malawi: Perceptions and hindrances. *Journal of Entrepreneurship and Management, 9*(2), 19-28.

Zulfiqar, F., & Hussain, A. (2014). Forecasting wheat production gaps to assess the state of future food security in Pakistan. *Journal of Food and Nutritional Disorders, 3*(3), 1–6. https://doi.org/10.4172/2324-9323.1000144