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ABSTRACT

In this paper, a binary logistic model was used to analyse the determinants of youth participation in agriculture in the Nkonkobe Municipality in South Africa. A total of 140 youth were purposively selected for the study to complete a survey. The results show that the variables; youth programmes, programme availability, and resources were statistically significant in explaining the factors that affect youth participation in agricultural activities. Based on the study findings, it is recommended that in order to influence youth participation, they should be provided with youth programmes and resources.

KEYWORDS: Binary model, New Growth Plan, Perception, Rural Development, Youth Participation

INTRODUCTION

Since 1994 the South Africa economy has passed through a number of economic, social and political phases. The country has been integrated into the global system, and progressing well in trying to address injustices that occurred during the apartheid era (DAFF 2015). Under the apartheid era, blacks were subjected to impoverished living conditions under the white minority. The situation was exacerbated in agriculture where black smallholder farmers' productivity was affected. However, in the late 1970s and onwards the South African government prioritised agriculture (Tregurtha et al. 2008). Although, agriculture was prioritised, smallholder farmers were still side lined in benefiting from a number of agricultural initiatives (DAFF 2014). Post 1994 saw the government re prioritising agriculture in order to support black emerging farmers. In 2001, a Land Redistribution programme was launched to return part of the land taken during apartheid to black farmers. A special emphasis was made in the inclusion of women and youth in the programme (DAFF 2012). Apart from this, a number of initiatives like the Reconstruction and Development Programme (RDP), Accelerated and Shared Growth Initiative and Growth (AsgiSA), Employment Redistribution Strategy (GEAR) were launched in order to address a number of problems like unemployment, inequality and economic growth. However, one of the striking features within government policies or frameworks is the continuously interest in the upliftment of the standard of living of blacks, reducing inequality and unemployment (DAFF 2013). Furthermore, youth have emerged in recent debates as a priority to the government.

There is a widespread belief that youth play a vital role in agricultural and rural development (Ommani et al. 2006). The New Growth Path (NGP) policy which was launched in 2011 seeks to create employment mainly for the youth. Therefore, the government interest in youth is well supported by FAO (2011) which noted that the youth were the most disadvantaged group. Thus, youth participation in agriculture presents the nation with an opportunity to expand the agricultural sector. However, of late youth involvement in agriculture has been declining nationally, especially in the rural areas (Russel 2001). Therefore, this lack of participation has led to an exodus of youth migrating to urban areas. This situation is further fuelled by the attitude of rural youth pertaining agricultural activities and their inclination to pseudo jobs (Ghadiri 2005). Omani (2006) noted that job security and good living conditions attract youth to urban areas. Similarly, lack of education means youth cannot gain formal employment; hence, migration to the cities to partake in informal small-scale enterprises remains preferable to farming (Te Lintelo 2001). Woolard (2013) noted that most youth in South Africa were migrating to urban areas to look for jobs, partly due to the low status attached to farming and lack of growth in career. This migration increases problems in urban areas by leading to overcrowded cities, inequitable distribution of resource and a heavy load for those remaining in agriculture (Mathivah 2012). Apart from the challenges encountered by youth, such as, poverty and low income, youth have a low self-esteem (Samardick et al. 2000). The low self-esteem associated with youth increases the negative perception they have about agriculture, leading to non-participation. Similarly, Outley (2008) posits that perception and social status act as barriers to youth pursuing careers in agriculture, as well as, lack of information. Such perceptions are said to have an influence to participation in agriculture leading to some groups being underrepresented.

Despite the enormous contribution of youth to household agriculture, only a few empirical studies (Nnadi et al. 2008; Naamwintome et al. 2013, Kimaro et al. 2015; Anania et al. 2016) have tried to identify factors affecting youth participation in agricultural activities. These studies highlight that socio-economic factors influence youth participation in agriculture,

although they do not provide an analysis of other exogenous factors, which hinder youth participation in agriculture. Therefore, this study shifts the focus from socio-economic factors to exogenous factors that have a bearing on youth participation in agriculture based on anecdotal evidence. In the process closing the literature gap, that exists in youth participation studies.

Objective

The primary objective of this study was to assess factors influencing the participation of youth in Agriculture in Nkonkobe District Municipality in the Eastern Cape Province, South Africa. For the purposes of this study, a youth is defined as an individual within the age range of 18 to 35 years (United Nations 1999).

MATERIALS AND METHODS

The study was conducted in Alice and Seymour in the Nkonkobe Municipality, Eastern Cape Province of South Africa. The estimated population in Nkonkobe Municipality is 127117 with a total households of 35 355 (StatsSA 2011). Nkonkobe local Municipality falls under the Amatole District Municipality which has seven local municipalities namely: Ngqushwa, Great Kei, Mquma, Mbhashe, Nkonkobe and Amahlathi. The average household income per year is ZAR42764 and household size is 3.5 (StatsSA 2011). Primary data were collected with a semi-structured questionnaire that was pretested before the survey. A cross sectional study design was used to collect data from households, whereby youth were the targeted respondents. The questionnaire was structured into four parts whereby information related to demographics, farm characteristics, participation and perception towards agriculture were collected. Five enumerators were trained to interview the respondents. A total of 140 youth were purposively sampled. The main reason for choosing this method was to try and include the relevant respondents. The data gathered was coded and analysed using the SPSS Software. Since the study was more descriptive in nature, percentages and chi square tests were calculated to reveal the general information of respondents. Multi collinearity tests were done to check if the data was suitable for a binary choice model. Normality tests were also done by testing skewness and the data was normal. A binary logistic model was applied to analyse factors influencing participation of youth in agriculture.

The binary regression model was used to test the influence of the hypothesised explanatory factors on the dependent variable. It takes the following form:

$$\ln(\text{ODDS}) = \ln(P/1-P) = \beta_0 + \beta_1 X_1 + \dots + \beta_n X_n + \mu \dots \dots \dots (1)$$

In equation 1, P represents the probability of participation in agricultural activities and (1-P) represents the probability of non-participation.

P represents the predicted probability of the event which is coded with 0 (participation in agricultural activities) rather than with 1 (non-participation).

1 - P represents the predicted probability of non-participation and X represents predictor variables.

β represents the slope parameters of the model, which measures the change in *ln* for a unit change in the explanatory variables. Table 1 illustrates the variables that were used in the study and their expected signs.

RESULTS AND DISCUSSIONS

Of the 140 participants, 48 percent were female, and 52 percent were male. This finding is consistent with Torimiro and Oluborode (2006) who discovered males usually dominate in rural areas because of farming occupations. Similarly, Cheteni (2014) noted that male-headed

household dominated in the Eastern Cape Province. Table 2 shows that 30 percent respondents were within the age range of 32-35 years, almost 35 percent were within the age group 23-31 years, and 35 percent within 15-22 years. Most respondents had secondary education (73 percent) and 60 percent were temporary employed. The findings are consistent with Cheteni (2014), who found that a number of youth possessed at least a secondary qualification in the Eastern Cape. At least 60 percent were not participating in any agricultural programme and 68 percent of participants were single. The implication of this finding is that the majority of the respondents were literate, hence, literacy is expected to influence their perceptions of information received and utilized for agricultural activities, as well as, their decision to migrate to urban areas. Furthermore, educated people are expected to accept a moderate degree of awareness about agricultural activities. Jibowo and Sotomi (1996) noted that youth have a greater knowledge acquisition propensity, therefore, they are eager to discover new ideas or inventions.

The respondents were asked about their sources of income. A total of 60 percent relied on social grants for their livelihoods. The percentage of people relying on social grants is reflective of the challenges faced by many youth in the Eastern Cape Province. The province has the largest number of unemployed youth (DAFF, 2013). Respondents who were formally employed were 13 percent. The labour market mainly in agriculture is said to have a pool of unskilled workers, this has led to casualization and wage declines (AgriSETA 2010). Hence, many people are discouraged from participating in agriculture due to low wages.

In order to understand the challenges faced by the youth, a question was posed on which programmes they knew. A total of 50 percent knew cattle farming programmes, 18 percent knew dairy farming, 13 percent knew beef farming, 13 percent knew crop production and 3 percent knew poultry. It can be deduced from the findings that most respondents knew livestock programmes with the exception of the 13 percent who knew crop production. When asked which programmes they prefer, most youth stated that they are into livestock programmes. However, Gwary et al. (2008) study reported that youth were more interested in crop production than livestock because of the short gestation period of crop varieties produced which ensured quick income. Furthermore, youth shunned livestock production because of intensive capital requirements. The findings in this study directly contradict Gwary et al. (2008). Therefore, it can be concluded that factors influencing youth to participate in farming are diverse.

The respondents were further asked what benefits they would get from their involvement in agriculture. A total of 33 percent respondents believed that they will be self-employed because agriculture gives them an opportunity to be entrepreneurs. A total of 18 percent stated that they will benefit with money since they can sell agriculture products to people, 15 percent believed that participation will lead to a permanent job, 13 percent were of the position that agriculture will alleviate poverty in their families. The respondents were given a question asking about their interests in farming. A total of 48 percent had no interest in farming, 25 percent had a fair interest and only 13 percent had more interest in farming. The findings of the survey revealed that youth perceive agriculture as a bad career. Furthermore, views received from the respondents were that it is hard for them to be in farms yet their siblings are working in big cities. One of the reasons was that agriculture is a physical job, as a result, a number of youth were not keen on working hard to get income. Moreover, some respondents said that whenever they think of agriculture they associate it with sewage smell. This shows a negative perception held by youth on agricultural activities.

A three way cross tabulation was done in order to understand if gender had an influence in the participation in agricultural activities and involvement in farming. Among males who were involved in farming a total of 50 percent had interest towards agriculture. Yet, among males who were not involved in farming a total of 40 percent had no interest towards agriculture. Similarly, they were 50 percent females involved in farming who had an interest towards agriculture, and 43 percent of the females not involved in farming had no interest towards agriculture. The results are shown in Table 3.

It can be concluded that females who were not involved in farming had a higher percentage of people who were not interested in agriculture compared to males, the number of females who were involved in farming and had an interest towards agriculture was overall at 66.7 percent (50+16.7) compared to males 50 percent. Therefore, more females who were involved in farming had a better interest and perception towards agriculture compared to males. Musemwa et al. (2007) had similar findings with regard to youth in Eastern Cape, the study stated that most youth view agriculture as a dirty job. Hence, this was a cause of concern as most young people were shunning agricultural activities. The findings are similar to Abdullah (2013) who found that attitude towards agriculture has a significant influence on youth interest in agriculture. Similarly, Waldie (2001) is of the opinion that as long as agriculture is seen as inferior, youth will seek whatever seems good to them in non-agricultural sectors in the cities. This lack of interest in agriculture has contributed to young people migrating to cities in search of employment opportunities. This was further confirmed by the Chi Square test in Table 4. The Pearson Chi-Square statistics is 9.618 and the p-value is < 0.05 , thus the null hypothesis that the table variables are independent can be rejected. Thus, we can conclude that there is a significant association between involvement in farming and interest towards agriculture. However, the chi-square does not give us any information how the variables are related or how strong the relationship is.

Binary Model Results

A binary logistic regression analysis was conducted to predict youth who were involved in agricultural activities using gender, employment status, youth programmes, agricultural resources available, programme available as predictors. A test of the full model against a constant only model was statistically significant, indicating that the predictors as a set reliably distinguished between participants in agricultural activities and non-participants (chi square = 21.363, $p < .002$ with $df = 6$). Nagelkerke's R^2 of .559 indicated a moderately strong relationship between prediction and grouping. Prediction success overall was 75 percent (79.2% for No and 68.8 % for Yes). The Wald criterion demonstrated that Youth Programme, Resource, Programme Availability made a significant contribution to prediction ($p = .013$). Gender, Employment and Benefits were not significant predictors. EXP(B) value indicates that when Youth Programmes are increased by one unit (one programme) the odds ratio is 8 times as large and therefore youth are 8 more times likely to take the offer of participating in agriculture programmes. Also, when Resources are raised by one unit the odds ratio is 9 times as large and therefore youth are 9 times likely to participate in agriculture when resources are increased. Lastly, when Programmes available are increased by a unit the odds ratio is 18 times and therefore youth are like to participate in agricultural activities when they are more programmes available for agriculture. Table 6 shows the model results. The results of the binary model are consistent with Mangal (2009) who pointed that there is a lack of youth participation in agriculture. The United Nations (2011) supports this observation, but it points that there is a lack of willingness of youth participation in agriculture. Thus, supporting the study findings that youth participation in agriculture is a major problem. However, the study

did not find any link between employment and participation in agriculture as pointed by Ommani (2006).

CONCLUSION

Based on the descriptive results from the study, it can be concluded that youth have a negative perception on agriculture. The findings from the survey highlighted that youth are not participating in farming as highlighted by a number of research articles in South Africa. Many young people still view agriculture as working in farms physical. Furthermore, a number of incentives are needed to convince youths that agriculture can provide a good career. Moreso, even though agriculture is taught in secondary schools it can be ascertained that most young people would rather go into different career paths when in tertiary because of the perceptions attached to agriculture. The binary model showed that programmes available, resources and programme involvement had a significant effect in influencing youth participation in agricultural activities. Moreover, this in turn explained the current trend in youth involvement in agriculture especially in the Eastern Cape Province.

RECOMMENDATIONS

Based on the study reported here, it is recommended that future agricultural programmes for youth should include hands-on activities designed to increase knowledge of basic agriculture-related concepts. According to the survey conducted, a number of youth migrate to urban areas in search of jobs. So teaching urban agriculture may offer one of the untapped avenues in youth empowerment. A number of youth programmes in agriculture can be improved by offering in-school visits for those youth studying and follow up materials. It should be noted that not every youth wants to learn about agriculture, but, in areas that are more rural it may be necessary to create that interest in order to improve their participation. Furthermore, if the South African government wants to involve more youth into agriculture it is imperative that they start engaging with the communities where youth stay. The survey showed that most youth are from families that do subsistence farming. Therefore, involving communities maybe a recipe for success in improving youth participation in agriculture programmes. In a nutshell, the study provided insight into understanding youth perception and participation in agriculture and it adds to a body of knowledge in research related to agriculture perception and participation.

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TABLES

Table 1: Variables for the binary the model

Variable	Description of variables	Measure	Expected sign
Dependent Variable			
Part	Participation in agricultural activities	Dichotomous (0 if yes:1 if no)	
Explanatory variables			
Gender	Gender of respondents	0= female;1= male	-/+
YouthProg	Youth programmes availability	Dummy	-/+
InvolveBen	Benefits for involvement in agriculture programmes	Dummy	-/+
Employment	If whether the participant is employed	Dummy	-/+
Resource	If whether they are agricultural resources	Dummy	-/+
ProgAvail	If whether they are agricultural programmes available	Dummy	+

Table 2 Demographic of the respondents

<i>Variables</i>	<i>Percentage</i>	<i>Variables</i>	<i>Percentage</i>
Gender		Employment status	
Male	52	Temporary	60
Female	48	Self employed	25
		Permanently employed	2.5
		Other forms of employment	12.5
Age		Participation in agricultural programmes	
15-18	15	Yes	
19-22	20	no	40
23-31	35		60
32-35	30		
Education Level		Marital Status	
No Education	5	Single	67.5
Primary	10	Married	25
Secondary	72.5	Divorced	2.5
Tertiary	12.5	Widowed	5

Table 3 Cross tabulation on farming involvement

Cross tabulation								
Interest towards agriculture								
gender				No interest	Less interested	Neutral	Interested	More interested
male	Involved in farming	yes	% within involved in farming	20	0	30	50	0
		No	% within involved in farming	40	20	0	30	10
Female	Involved in farming	Yes	% within involved in farming	16.7	0	16.7	50	16.7
		no	% within involved in farming	42.9	14.3	14.3	21.4	7.1

Total	Involved in forming	Yes	% within involved in farming	18.8	0	25	50	6.3
		no	% within involved in farming	41.7	16.7	8.3	25	8.3

Table 4 Chi-Square tests

		Gender	Value	df	Asymp. Sig. (2-sided)
Male	Pearson Chi-Square		9.057 ^b	4	.060*
	Likelihood Ratio		11.534	4	.021**
	Linear-by-Linear Association		2.377	1	.123
Female	Pearson Chi-Square		3.220 ^c	4	.522
	Likelihood Ratio		3.784	4	.436
	Linear-by-Linear Association		2.470	1	.116
Total	Pearson Chi-Square		9.618 ^a	4	.047**
	Likelihood Ratio		11.184	4	.025**
	Linear-by-Linear Association		4.974	1	.026**

Note. ***Significant at 1% level; **Significant at 5% level; *Significant at 10% level

Table 6. Binary Model Results

Variables	B	S.E.	Wald	df	Sig.	Exp(B)
Gender	1.282	1.039	1.523	1	.217	3.605
Empl	.763	.965	.626	1	.429	2.146
YouthProg	2.121	1.112	3.638	1	.056**	8.341
InvolveBen	-1.062	1.212	.768	1	.381	.346
Resource	2.204	1.238	3.170	1	.075**	9.059
ProgAvail	2.912	1.237	5.544	1	.019***	18.401
Constant	-3.438	1.814	3.590	1	.058**	.032

Note. ***Significant at 1% level; **Significant at 5% level; *Significant at 10% level.