

FACTORS INFLUENCING FARMERS' USE OF DIFFERENT EXTENSION SERVICES IN THE EASTERN CAPE AND KWAZULU-NATAL PROVINCES OF SOUTH AFRICA

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ABSTRACT

Over the years, dating back to the early 1980's, South Africa has seen the emergence of various institutions providing extension services to farmers independent of government. This has seen the exodus of farmers from a traditionally supplied extension to more varied sources providing extension services. The aim of the study was to provide empirical evidence on the use/s of different extension services by farmers in the Eastern Cape and KwaZulu-Natal Provinces of South Africa. Research activities included a formal survey conducted on a sample of 265 smallholder farmers using a simple random sampling method. Data were collected using a structured questionnaire through interviews and using a semi-structured interview guide for focus group discussions. Chi-square and T-test statistics were employed to establish bivariate relationships between socio-economic characteristics of farmers and use of different sources of extension services. Multinomial logit regression was used to predict factors that influence the use of different extension services. Results from descriptive statistics show that 54% of farmers (aged 36-50 years) and 52% of farmers (51-65 years) preferred using multiple sources of extension services. From multinomial regression, farmers who favoured the used of multiple sources of extension were those who were: not satisfied with the frequency of extension visits, poor technical advice and feedback turnaround from the public sector. The study concluded that multiple sources of extension services should be the main source/s of extension provision since they recognise the diversity inherent amongst producers, and farmers can best select the information mix most suited to their farming needs.

Key words: Extension services, Multinomial logic regression, Smallholder farmers

1. INTRODUCTION

In South Africa, similar to other developing countries, government provides extension services to farmers. These services are provided free of charge as a social welfare, which makes the state bear all the costs (Koch & Terblanché, 2013). However, the recent economic plunge coupled with bureaucratic inefficiencies in the sector has led to government reducing its investment in agricultural extension services. A study by Afful and Lategan (2014) indicated that the limited funding towards extension has aggravated the sector, leading up to poor service delivery, which directly influences the performance of smallholder farmers. Furthermore, inadequate funding informs a number of challenges currently facing the agricultural extension sector such as: high extension to farmer ratio, laying off skilled and experienced workers,

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basics like transport, inputs and relevant agricultural information (Ghosh, 2012; Hlatshwayo & Worth, 2016; World Bank, 2010).

Over the years and dating back to the early 1980's, various institutions have been providing extension services to farmers independent of government (Liebenberg, 2015). These take form of input suppliers, commodity groups, and private sector companies who supply agricultural information to farmers at an agreed upon price (Zwane, 2016). Moreover, such forms of advisory services are not yet popular or widespread across the country, particularly in the poorest areas of South Africa (Dlova, 2001). This is due to a number of reasons such as; limited extension radius (coverage) and popularity, but most notably is that they work on incentives with a fee for extension services (Schwartz, 1994; Liebenberg, 2015; Department of Agriculture, Forestry and Fisheries (DAFF), 2016). Moreover, private extension suppliers only consider payments and whether the economic benefits are sufficient to justify the costs of services, which presents a challenge to the majority of resource poor farmers who cannot afford to pay for services (Hellin, 2012; Taye, 2013). This has many questioning the loyalty of private providers of extension on rural development and catering for smallholder farmers in rural areas (Labarthe & Laurent, 2013).

However, despite the costs involved with using other service providers other than the government supplied extension, smallholder farmers appear to be using varied sources of extension services. It is against this background that this study was undertaken, and to provide empirical evidence on the use of different extension services by smallholder farmers in South Africa.

1.1 Conceptual framework and literature review

A pluralistic extension system is characterised by the coexistence of multiple service providers such as public, private, and mixed extension systems that source from diverse funding streams (Davis & Terblanché, 2016). Ideally, the outcome of pluralistic extension services is that different client groups (farmers) in different contexts are satisfied with their access to services that they demand (Saliu & Age, 2009; Uddin & Qijie, 2013). Moreover, these plural forms of extension recognise the inherent diversity of farmers and farming systems and the need to address challenges in rural development with different services and approaches (DAFF, 2016).

Although pluralism in advisory services makes it easy to capitalise on the competitive advantages of different actors, one of pluralism's greatest challenges is to coordinate organisations that have vastly different mind-sets and world views (Labarthe & Laurent, 2013). According to Schwartz (1994) the role of government in extension should be limited to provision of extension as a public good, leaving extension activities to the private sector.

This setting is good as the diversity of rural life and needs of farmers should be matched by diversity in services, approaches, and providers. Differences between subsistence, smallholder and commercial farmers, as well as crop and livestock systems will affect which organisations can best provide services and using which methods (Lugamara, 2017). In addition, trends such as market opportunities and land and environmental challenges often impel farmers to seek information and knowledge to strengthen their production systems (Ferris *et al*, 2014). All these differences are a major reason for encouraging pluralistic systems.

Traditional mass media such as radio, television, newspapers, and now cell phones can reach quite different audiences. For modern day farmers, public extension services are just one source of information, often the one focusing purely on production issues (Spielman *et al*, 2011). Other farmers procure business-related services in the private sector and access facilitation services (for group processes, as well as interaction with input and market actors) through NGOs and farmer organisations (Sikwela, 2013).

2. METHODOLOGY

2.1 Study area and data collection

The study was undertaken in seven districts in the Eastern Cape and KwaZulu-Natal Provinces. The seven districts include Amathole, Joe Gqabi, Chris Hani, O.R. Tambo, and Alfred Nzo in the Eastern Cape, whilst Harry Gwala and Umgungundlovu were studied in KwaZulu-Natal. The reason for their selection was that they house majority of farmers practicing both crop and livestock farming (DAFF, 2016). The study made use of both quantitative and qualitative research approach. A list comprising of the number and location of smallholder farmers was acquired from DAFF and the Agricultural Research Council (ARC) in 2017. This permitted the researcher to employ simple random sampling and select 265 smallholder farmers. The data were collected using a structured questionnaire through interviews and using a semi-structured interview guide for focus group discussions.

2.2 Data analyses

The study employed Chi-square and T-test statistics to establish bivariate relationship between socio-economic characteristics of farmers and use of varied extension sources.

2.2.1 Multinomial logit model

Multinomial logit model, is used to model when there are more than two outcomes for dependent variable. In the logit model, the log odds of the outcome are modelled as a linear combination of the predictor variables.

In order to determine factors influencing farmers' use of different extension services in Eastern Cape and KwaZulu-Natal provinces, Multinomial logistic regression was the chosen econometric model for this purpose. The choice of a given extension provider is discrete as it is chosen amongst other alternatives (Verbeek, 2004). Let P_{ij} represent the probability of choice of any given extension service provider by farmers, then the equation representing this will be:

$$P_{ij} = \beta_0 + \beta_1 X_1 + \dots + \beta_k X_k + e \dots \dots \dots (1)$$

Where i takes values (0, 1, 2...), each representing the choice of extension providers (Public extension = 0, Private sector = 1, Multiple source of extension = 2). X_1 are factors affecting the use of different extension services, β are parameters to be estimated, and e is randomised error. With j alternative choices, the probability of choosing extension provider j is given by:

$$Pr ob (Y_i = j) = \frac{e^{z_j}}{\sum_{k=0}^j e^{z_k}} \dots \dots \dots (2)$$

Where Z_j is a choice and Z_k is an alternative choice that could be chosen (Greene, 2000). The model estimates are used to determine the probability of using different extension services j factors that affect the choice X_i . With a number of alternative choices, log odds ratio is computed as:

$$\ln\left(\frac{P_{ij}}{P_{ik}}\right) = a + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k + e_i \dots \dots \dots (3)$$

P_{ij} and P_{ik} are probabilities that a farmer will choose a given extension service and alternative extension respectively. $\ln \frac{P_{ij}}{P_{ik}}$ is a natural log of probability of choice J relative to probability choice k , a is a constant, β is a matrix of parameters that reflect the impact of changes in X on probability of choosing a given outlet, e is the error term that is independent and normally distributed with a mean zero. The parameter estimates of the Multinomial logit model provide only the direction of the effect of the independent variable on the dependent (response) variable, but do not represent the actual magnitude of change nor probabilities. The marginal effects or marginal probabilities are functions of the probability itself and measure the expected change in the probability of a particular choice being made with respect to a unit change in an independent variable from the mean (Greene, 2000).

Marginal effects of the attributes on choice are determined by getting the differential of probability of a choice and it is given by:

$$\delta = \frac{\partial P_i}{\partial X_i} = P_i(B_j - \sum_{k=0}^j P_k \beta_k) = P_i(\beta_j - \beta) \dots \dots \dots (4)$$

The MNL model was as follows:

$$y_i = \ln \frac{P_i}{P_j} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 \dots \dots \dots \beta_n X_n + R_i + \epsilon_t \dots \dots \dots (5)$$

Where Y_i = different extension services (public extension services, private sector extension, multiple extension services), β = coefficient vectors of independent variables, and X_i , where $i = 1, 2, 10$, are explanatory variables.

Table 1: Relationships between dependent and explanatory variables

Dependent variable	Measure	
Source of extension service	0 = Public extension 1 = Private extension 2 = Multiple sources of extension	
Explanatory variable	Measure	Expected outcome
Type of farmers	Dummy – Part-time = 0, Full-time = 1	+
Farmer experience	Continuous - year	+/-
Farming goals	Not Achieved = 0, Yes achieved = 1	+
Land ownership	Dummy- Does not own land = 0, Owns land = 1	+
Total number of livestock	Continuous – Number of livestock	+
Period of extension contact	Continuous – Years	-
Satisfied with extension visit	Dummy - Not satisfied = 0, Satisfied = 1	-
Frequency of extension visit	Categorical Weekly = 1, Monthly = 2, Quarterly = 3, Annually = 4	-
Feedback turnaround	Dummy - Takes too long = 0, Not too long = 1	-
Language barrier	Dummy - Language not a barrier = 0, Language a barrier = 1	+
Technical know-how/expertise	Dummy - Poor technical expertise = 0, Technical expertise not poor = 1	-
Change in farm practices	Dummy - No change in practices = 0, Change in practices = 1	-
Should extension be the base of agricultural development?	Strongly agree = 5, Agree = 4, Undecided = 3, Disagree = 2, Strongly disagree = 1	-
Privatisation of extension services	Dummy - Should not privatise = 0, Should be privatised = 1	-
Willingness to pay for extension	Unwilling to pay = 0, Willing to pay = 1	-
$R_i + \epsilon_t$ = Error term		

3. RESULTS AND DISCUSSION

3.1 Demographic information of farmers

Demographic characteristics of farmers in the study area are provided in Table 2, namely, type of farmer, age, farm experience, gender, marital status and the level of education. To assess the significance of relationship between demographic characteristics and use of different sources extension services. Chi-square statistical test was used.

Table 2: Demographic information of farmers

Sources of extension	Explanatory variables					Chi-Square significance
	Type of farmer					
	Full-time farmer	Part-time				ns
Public (%)	38	42				
Private (%)	10	14				
Multiple sources (%)	52	44				
	Age groups (years)					
	21-35	36-50	51-65	65+		**
Public (%)	42	33	36	49		
Private (%)	6			13	12	
Multiple sources (%)	42	54	52	45		
	Farming experience (years)					
	≤10	11-25	26-35	36-45	>46	ns
Public (%)	39	39	32	57	50	
Private (%)	13	10	7	-	-	
Multiple sources (%)	48	51	61	43	50	
	Gender					
	Male		Female			ns
Public (%)	40		35			
Private (%)	11		10			
Multiple sources (%)	19		55			
	Level of education					
	No education	Primary	Secondary	Tertiary		**
Public (%)	57	39	36	37		
Private (%)	4	7	12	15		
Multiple sources (%)	39	54	52	48		
Notes: *** p<0.01, ** p<0.05, *p<0.1 ns = not statistically significant						

Source: Field survey, 2018

Age divided into groups was statistically significantly related to use of different sources of extension services ($p < 0.05$). The results show that farmers in age group of 36-50 years (54%) and 51-65 years (52%) had higher percentage of farmers who were in favour of using different sources of extension services. The reason could be that farmers recognise that using multiple sources of extension caters for their varied farming needs inherent in their respective enterprises. This also agrees with findings made by Uddin and Qijie (2013) that different extension services attend to different client groups (farmers) in different contexts, ensuring that they are satisfied with their access and services demanded.

Education was statistically significantly related to farmer's use of different sources of extension services ($p < 0.05$). The findings show that farmers with primary (54%), secondary (52%) and tertiary (48%) levels of education were inclined towards using multiple sources of extension compared to their counterparts with no education. Moreover, as farmers' level of

education increases, their preference towards using multiple sources also increases. The advantage of using multiple information sources is that farmers can best select the information mix most suited to their farming needs (Saliu & Age, 2009).

3.2 Farming characteristics

In order to understand the farmers, the study profiled them by looking at the following characteristics; farmer enterprise, farmer's category, farming reasons and land ownership. The study employed Chi-square to assess the relationship between farming characteristics and use of different extension services (Table 3).

Farmers were categorised into commercial and communal groups. Commercial farmers were defined as those whose primary goal is to make profit from farming, while communal farmers primarily practice subsistence farming and the primary goal is household consumption over profit. Land tenure was statistically significant at 5% level related to use of different sources of extension services. As shown in Table 3 commercial farmers (58%) indicated that they preferred using multiple sources of extension for agriculture related information

Table 3: Farmer activities

Sources of extension	Explanatory variable			Chi-Square significance
	Farming enterprise			
	Crop farming	Livestock farming	Mixed farming	
Public (%)	41	46	36	ns
Private (%)	11	7	12	
Multiple sources (%)	48	47	52	
	Land tenure			
	Commercial	Communal		
Public (%)	28	46		**
Private (%)	14	9		
Multiple sources (%)	58	45		
	Farming reasons			
	HH Consum	Selling	Both HHC and selling	
Public (%)	33	41	39	ns
Private (%)	11	14	10	
Multiple sources (%)	56	46	52	
	Land Ownership			
	Yes	No		
Public (%)	36	41		ns
Private (%)	11	10		
Multiple sources (%)	53	49		
Notes: *** p<0.01, ** p<0.05, *p<0.1 ns = not statistically significant				

Source: Field survey, 2018

3.3 Access to extension services

Agricultural extension services has come to encompass a wide range of activities in both the public and private sectors, however, the exchange of information continues to be the primary focus of all extension activities.

Access to extension service was statistically significantly related to use of different extension services ($p < 0.05$). As shown in Table 4, 51% of the farmers had access to multiple sources of extension services. The easiness or difficulty to access extension services was significant at 10% relative to use of multiple sources of extension services. The findings show that the majority of farmers had difficulties accessing extension services.

Table 4: Access to extension services

Sources of extension	Explanatory variables					Chi-Square significance
	Access to extension services					
	Yes	No				
Public (%)	39	29				**
Private (%)	10	42				
Multiple sources (%)	51	29				
	How is the access to extension services					
	Easy		Difficult			
Public (%)	38		42			*
Private (%)	13		4			
Multiple sources (%)	49		54			
	Extension visits					
	Weekly	Monthly	Quarterly	Annual		
Public (%)	50	40	36	40		ns
Private (%)	7	11	12	4		
Multiple sources (%)	43	49	52	56		
	Satisfied with extension visit					
	Yes		No			
Public (%)	36		42			ns
Private (%)	14		9			
Multiple sources (%)	50		49			
	Quality of extension serviced received					
	Very good	Good	Neutral	Poor	Very poor	
Public (%)	61	31	42	43	43	**
Private (%)	21	11	7	4	29	
Multiple sources (%)	18	58	51	53	28	
Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ ns = not statistically significant						

Source: Field survey, 2018

The quality of extension services was statistically significantly related to farmers use of different extension services ($p < 0.05$). As shown in Table 4, 58% of farmers who had access to multiple sources rated the quality of extension received as good, whilst services from the public sector was rated as very good. The findings are in contrast to many surveys and articles that found services from government operated extension to be poor (Düvel, 2002; Makara, 2010; Umhlaba Rural Services, 2006).

3.4 Impact of extension services

Table 5 shows the results on the impact that extension services have on smallholder farmers and prospects of privatisation of extension services in South Africa. Chi-square statistical test was used.

Table 5 Impact of extension services

Sources of extension	Explanatory variable		Chi-Square significance
	Change in farm practices		
	Yes	No	
Public (%)	52	34	**
Private (%)	11	11	
Multiple sources (%)	37	54	
	Change in farming yields		
	Yes	No	
Public (%)	35	54	*
Private (%)	11	9	
Multiple sources (%)	54	37	
	Willingness to pay		
	Yes	No	
Public (%)	27	54	***
Private (%)	14	6	
Multiple sources (%)	60	40	
Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$			

Source: Field survey, 2018

Table 5 shows that changes in farm practice were statistically significant at 5% relative farmers' use of different sources of extension. Change in farm yields was statistically significant at 10% related to farmers' use of different sources of extension services. while evidence of change in farm yields was significant at 10%. Change in farm practices showed that the majority of farmers (52%) who saw changes in their farming methodologies received services from the public sector only. As demonstrated in Table 5 54% of the farmers who saw changes in their yield returns indicated that they received services from a variety of service providers. Willingness to pay for extension services was statistically significantly related to use of different extension services ($p < 0.01$). Moreover, the findings showed that 60% of farmers were willing to pay for extension supplied by multiple sources. This is because a farmer can best select the information mix most suited to their farming needs. Munthali (2013) suggested that farmers are willing to pay for the best mix of products or services only if it is unobtainable for free and the benefit to them is greater than the cost.

3.5 Multinomial logit model

The following section reports on the inferential statistics of the Multinomial logit model used to investigate factors influencing use of different extension services by smallholder farmers (Table 6). The dependent variable were the varied sources of extension services (Public extension/government, Private extension, and multiple source of extension). Moreover Public extension was used as a base outcome since it was a primary contact for most farmers interviewed in the study area.

Table 6: Factors that influence the use of different extension services

Explanatory variables	Coefficient t	Std. Err.	Z	P>z
0 = Public extension (Base outcome)				
1 = Private extension (Outcome 1)				
Type of farmer	.0137206	.5903098	0.02	ns
Farming experience	-.3475494	.4034144	-0.86	ns
Farming goals	-.2009824	.4337145	-0.46	ns
Land ownership	.0795576	.486186	0.16	ns
Total number of livestock	.0015712	.0011914	1.32	ns
Period with extension services	-.0504897	.060195	-0.84	ns
Satisfied with extension services	-.9129754	.9014185	-1.01	ns
Frequency of extension visit	-.4023689	.2851353	-1.41	ns
Feedback from extension take long	.0704147	.2079664	0.34	ns
Language barrier	.3457643	.2442788	1.42	ns
Technical know-how/expertise	-.053679	.2369413	-0.23	ns
Changes in farm practices	.9459012	.6385791	1.48	ns
Extension base of development	-.0418877	.2954429	-0.14	ns
Privatisation of extension services	1.501949	.6045058	2.48	**
Willingness to pay for extension	.2752595	.6069029	0.45	**
_cons	-1.50382	1.931399	-0.78	ns
Multiple sources of extension (Outcome 2)				
Type of farmer	.7604773	.4573131	1.66	*
Farming experience	-.2652551	.2488653	-1.07	ns
Farming goals	.3708106	.3252069	1.14	ns
Land ownership	.4229153	.3372512	1.25	ns
Total number of livestock	.0016977	.0011725	1.45	ns
Period with extension services	.0589853	.0334035	1.77	*
Satisfied with extension services	-.7634805	.6645229	-1.15	ns
Frequency of extension visit	-.2357273	.2031209	-1.16	ns
Feedback from extension take long	.3020595	.1383281	2.18	**
Language barrier	.2369387	.1806491	1.31	ns
Technical know-how/expertise	-.3290661	.1643732	-2.00	5**
Changes in farm practices	1.170556	.4334862	2.70	**
Extension base of development	.3782304	.207262	1.82	*
Privatisation of extension services	2.536356	.4677252	5.42	***
Willingness to pay for extension	-.5935919	.4539526	-1.31	**
_cons	-4.456649	1.456956	-3.06	***

Notes: *** p<0.01, ** p<0.05, *p<0.1
 ns = not statistically significant

Source: Field survey 2018

As shown in Table 6, 15 independent variables were fitted on the Multinomial logit model, outcome 1 (private extension) only had two significant variables (privatisation and willingness to pay for extension). In outcome 2 (multiple sources), 8 variables were positively directly related to farmers' use of different extension services. These were captured as (Farmer type, period with extension, feedback from extension takes long, poor technical expertise, change in farmers' practices, extension base of development, privatisation extension, and willingness to pay for extension services).

According to Greene (2000), the coefficients of the logit model cannot be interpreted from the initial output, thus the need to run the marginal effects. The marginal effects helps to predict how much the (conditional) probability of the outcome variable changes when there is a change in the value of variables, holding all other variable constants at some values. The marginal effect of the results are presented in Table 7.

Table 7: Marginal effects of the Multinomial logit model

Variable	dy/dx	Std. Err.	Z	P>z
Type of farmer	-.1439873	.1031	-1.40	*
Farming experience	.0624887	.05377	1.16	ns
Farming goals	-.0625975	.06904	-0.91	ns
Land ownership	-.0820122	.07114	-1.15	ns
Total number of livestock	-.0003764	.00025	-1.48	ns
Period with extension services	-.0092899	.00725	-1.28	ns
Satisfied with extension services	.174632	.13579	1.29	ns
Frequency of extension visits	.0589032	.04288	1.37	ns
Feedback turnaround	-.0594311	.02961	-2.01	*
Language barrier	-.0570909	.03845	-1.48	ns
Technical know-how/expertise	.0639146	.03507	1.82	*
Changes in farm practices	-.2680339	.09607	-2.79	***
Extension base of development	-.0697298	.04398	-1.59	ns
Privatisation of extension services	-.4886393	.07527	-6.49	***
Willingness to pay for extension	.1008832	.09279	1.09	0.027**
* dy/dx is for discrete change of dummy variable from 0 to 1				
* Notes: *** p<0.01, ** p<0.05, *p<0.1				
ns = not statistically significant				

Source: Fieldwork, 2018

3.5.1 Farmer type

Farmers in this survey come in twofold, they were either full-time or part-time farmers. Table 7 shows type of farmer was statistically significantly related to use of different extension sources (p<0.05). The coefficient was negative, suggesting that, type of farmer did not positively influence farmers to use different sources extension services.

This means the expected difference in probability of $y = 1$ associated with type of farmer decreases by 14%. The hypothesis is that if a farmer decides to move from one source to more sources of information, relationship and farming operations of the new information supplier/s may be difficult to understand at first. This could lead to a decrease of minimal improvements in yield returns for whilst the farm is trying to understand the new farming ways from different sources. Another hypothesis is that the use of different sources to solve a problem might be an issue because different sources might come with different techniques to address the same needs, which will confuse the farmer or make it difficult for a farmer to decide what they should employ first.

3.5.2 Feedback turnaround

Feedback is important because it helps the farmer to better understand the different constraints they are confronted with and provide further insight on which inputs to buy or strategies to use in order to help solve immediate problems (Dlova, 2001) Feedback turnaround from extension officers was statistically significant at 10% level to farmers' use of different extension services. The coefficient was negative, indicating that feedback turnaround did not positively influence farmers to use different sources extension services. . The expected difference in probability of $y = 1$ associated with feedback turnaround decreases by 6%, .. The exodus of a farmer from one source of extension to different sources of information could mean that a farmer perceives multiple sources can provide feedback quicker due to competition from other sources. This could be a result of too many may approaches to a single problem could confuse a farmer to deciding which solution works best and sustainable. Moreover a farmer could withhold the application of the information because they are waiting for feedback from other sources.

3.5.3 Technical expertise

Technical expertise and poor advice from extension officers has been a long-standing problem in South Africa and a number of articles have highlighted this (Düvel, 2002; Umhlaba Rural Services, 2006; Makara, 2010; Maoba, 2016). Technical expertise of extension officials was statistically significantly related to farmers' use of different sources of extension services ($p < 0.1$). The coefficient was positive, indicating a positively direct effect technical expertise have on farmers' use of different sources of extension services. The expected difference in probability of $y = 1$ (using different sources) associated with technical know-how increases y 6.3%. This could be a result that t multiple sources have specialists specialising in different commodities who come with good technical knowledge and could help solve farmers' challenges and improve their farm returns (Hellin, 2012).

3.5.4 Change in farming practices

According to Table 7, results indicate that change in farm practices was statistically significantly related to farmers' use of different extension sources ($p < 0.05$). The coefficient was negative, indicating that change in farming practices did not positively influence farmers to use different sources extension services. The probability of $y = 1$ associated with change in farming practices decreased by 26%. This could mean farming practices did not change and that farmers do not trust the operations of varied extension services instead rely on their indigenous farm operations (laggards).

3.5.5 Privatisation extension services

Privatisation of extension was statistically significantly related to farmers' use of different sources of extension services ($p < 0.01$). The coefficient was negative, suggesting that, privatisation of extension did not positively influence farmers to use different sources extension services. The expected difference in probability of $y = 1$ associated with privatisation decreased by 48%. This could mean that farmers do not want privatisation of extension services but an amalgamation of varied source to provide agricultural related services to farmers.

This is to say farmers do not want a monopoly where one source of extension service provides services to all farmers; they preferred the multiple source of extension. The findings are in line with the suggestion by Schwartz (1994) that extension services cannot, and should not, be totally privatised, there is room for some privatisation of public extension activities as well active promotion of private and NGO extension activities which complement rather than replace existing public extension services (Schwartz, 1994).

3.3.6 Willingness to pay for extension service

The inclusion of the private sector as a source to provide extension means farmers will have to pay for the services (information and technology) they receive (Zwane, 2016). The extent to which the smallholder farmers are willing to pay for extension services is relatively unknown in South Africa. As shown in to Table 7, willingness to pay was statistically significant at 5% level related to farmers' use of different extension sources. The coefficient was positive, indicating a positively direct effect farmers' willingness to pay has on use of different sources of extension services. The expected difference in probability of $y = 1$ associated with willingness to pay increases by 10%. This could mean that farmers were willing to pay for different sources of extension that provide agriculture related services suited to their farming needs (Afful & Lategan, 2015; Munthali, 2013; Schwartz, 1994).

4. CONCLUSION

The study investigated in this paper focused on the factors that influence the use of different extension services. The study concluded that 51% of the farmers had access to multiple sources of extension although the stipulations (private companies needed farmers to buy their products before they can assist them) were different; these include public extension, private extension, and the multiple sources of extension. From the Multinomial regression, it was discovered that farmers indicated that they prefer using multiple sources for their extension services. The reasons differed from farmers, but the most common is that the advantage of using multiple information sources was that farmers could best select the information mix most suited to their farming needs. Moreover, farmers who preferred the use of multiple sources of extension appeared to be those who practiced farming on both a full-time and part-time basis, wanted improved feedback turnaround, improved technical expertise, change in farm practices, involvement of private sector, and willing to pay for extension services. The study concluded that different sources of extension services should provide services to all farmers and not the public or private sector alone in South Africa. The study also indicated that factors such as extension visits, technical expertise of extension official, and poor feedback were the factors influencing farmers to look for other sources of extension.

5. REFERENCES

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