

The determinants of intrinsic participatory capacity in collective smallholder farming entrepreneurs: A case of land reform emerging farmers in North West Province of the Republic of South Africa.

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Abstract

Intrinsic participation is seen (by any society) as an indispensable tool to improve production yet the experiences of smallholder farmers (to date) presents a contrast. It is assumed that the failure to achieve essential participation in an enterprise may adversely affect the entrepreneurial goals, resulting in poor enterprise performance. The objective of the study was to find out which factors determine the level of participation amongst the collective land reform farming enterprises, whilst the primary aim was to review the selection processes of land reform beneficiaries' identification in North West Province. In this study, cross-sectional data was collected through quantitative and qualitative research methodologies. A sample of (n = 523) farmers was randomly selected across North West Province. The binary logistic regression model (BLRM) in the SPSS software was used to analyse the data. The results of the analyses revealed that age of the smallholder entrepreneurs is significant to influence their participation in their farming ventures. Secondly, income source was also found to be significant to influence participation of these entrepreneurs. The above key determinants could be necessary in selecting successful smallholder collective farmers. Policy on youth participation and support in the smallholder farming environment is inevitable. Multiple source of income should be regulated in order to ensure a focus on the participation of entrepreneurs in this type of business venture.

Key words: smallholder, entrepreneurs, participation, reform, enterprises

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INTRODUCTION

Land reform is referred to as a compulsory take-over of land, usually by the State from the biggest landowners, and with partial compensation (Lipton, 1993). Its primary motivation is to reduce poverty by reducing inequality through distributive or collectivistic means (Lipton, 1974). Land reform is considered the cornerstone of the entire rural development strategy in various nations (Bandyopadhyay, 1982). Theoretical and some empirical evidence seem to suggest that land reform may provide equity and efficiency benefits (Deininger 1999). Hence, land reform is regarded as the most promising way to achieve a rapid transition to a more efficient and equitable distribution of landholding (Binswanger and Deininger, 1993). Although, land reform is seen as a useful tool to redistribute land resources, Gorton (2001) reported that its redistributive capability is disappointingly slow. Numerous research findings have shown that various countries such as Brazil, Mozambique, Zimbabwe, Colombia, South Africa, etc. have had serious challenges to ensure that land reform is implemented successfully (Mmbengwa, 2009; Binswanger and Deininger, 1993).

In agrarian societies, land is not merely the most important factor of production (given its non-substitutable nature), it also serves as the 'last resort' to which an ill-fated peasant could turn for insurance in times of crop failure (Kung et al. 2012). Consequently, land reform strategies remain a divisive, hotly debated issue in a number of developing countries such as Zimbabwe, Malawi, South Africa, Guatemala, El Salvador, Brazil, Colombia, etc. (Deininger, 1999) and are often used to canvas support during elections. The socio-political connection of land reform often results in the allocation of land resources to undeserving beneficiaries (Kinsey, 2004). In South African agrarian development, the quality of beneficiaries of the land reform and their intrinsic participation are of less value than the quantity of the land redistributed. This is despite the marginal success rate (less 5 %) of land reform strategies implement to date with an unaccounted for massive loss of return on investment (Mmbengwa, 2009). This paper attempts to investigate factors that are useful in the participation of land reform beneficiaries beyond the transfer period of the land. It assumes that the intrinsic participatory capabilities of the beneficiaries may lead to productive efficiencies that may reciprocally lead to the improvement in the success of land reform farming enterprises. This assumption is made with an awareness that land reform enterprises are highly complex and their success does not rest with a few factors.

LITERATURE REVIEW

Definitions of participation differ in terms of the context and expectation (Agarwal, 2010, Agarwal, 2001; Kempe, 1983)). The World Health Organization (WHO, 2001) defines participation as involvement in a life situation. According to Engel-Yeger and Hamed-Daher (2013), the WHO categorises participation in terms of personal maintenance, mobility, information exchange, social relationships, home life, education, work and employment, economic life, and community, social, and civic life (WHO, 2001). At its narrowest, participation in a group can be defined in terms of nominal membership and at its broadest it can be defined in terms of a dynamic interactive process (Agarwal 2010). According to Wilkinson and Pickett, greater differences between status group members exist with higher levels of inequality, resulting in status gaps. These gaps trigger status competition to the detriment of a range of desirable outcomes, including participation (Lancee and Van de Werfhorst 2012). Coulibaly-Lingani et al (2011) and Little (1994) associate the term participation with an active process whereby beneficiary or client groups influence the direction and execution of the development or management of a natural resource to enhance their well-being in terms of income, personal growth, self-reliance or other values.

Participation is also seen by other researchers as key to rural development (Gow and Vansant 1983). These authors argue that in many rural development projects, inadequate attention is given to external constraints that may prevent the project from attracting effective local participation. These authors further refer to organisations such as cooperatives as a common form of participation. Creating effective participation is known to be challenging as it requires skill to bring together diverse approaches and therefore there is no simple blueprint. Contemporary research findings have reported many success stories of farmer organisations leading to effective farmer participation in value chains (Kantemeridoua et al., 2013). For example, over 70 % of India's milk is produced by households within one cooperative (Hellin et al., 2009). However, Kantemeridoua et al. (2013) also highlight that a determinant for effective participation seems to be education, since it makes citizens feel self-confident and aware, and helps them channel their efforts towards a specific goal, instead of remaining impassive and simply expressing complaints about problems as opposed to providing the solution.

In different societies, participation manifests itself in different modes. According to Lancee and Van de Werfhorst (2012), resource theory argues that it is the availability of resources that determines participation. Hence, in some societies, resource endowment influences participation. Where resources influences participation, only the resourced participants takes crucial decisions and stakeholders are invited to participate in order to justify the decision and stakeholder participation is therefore merely symbolic. In functional participation, people take part in the decision-making process and are likely to contribute to the discussion. In auto-mobilisation, one or several stakeholders instigate exchanges of relevant issues with the other group members; participation is thus defined *de facto*. In active participation, participants contribute more or less directly to the decision-making process via negotiation procedures with multilateral relations between the stakeholders. According to Agarwal (2001) participation is

passive when a participant is informed of decisions *ex post facto*; or attends meetings, assists in decision-making without speaking up', and active when a 'participant expresses opinions whether or not solicited or taking initiatives of other sorts. Education also reportedly influences local people's participation in agricultural enterprises (Owubah et al., 2001) and stimulates social participation (Lise, 2000). The age of people has not been found to influence their participation in sectors such as forestry industries (Thacher et al., 1997; Zhang, 2001), but in other studies (Atmis et al., 2007; Beach et al., 2005), it was found that the older a person is, the more likely their capacity to participate. In South African agrarian reform where land reform beneficiaries possess neither education nor resources, their participation in the formation of cooperatives and the functionality of the cooperatives is more likely to be influenced by politicians and educated extension officers. The lack of resources and educational capacity may likely influence their intrinsic participation in the professional running of the conceived enterprises.

RESEARCH METHODOLOGY

The study was initiated in the year 2011 and it was a cross sectional study investigated a range of issues pertaining land reform acquired farms. However, this paper reports only the aspects of internal participation by individual beneficiaries referred to as intrinsic participatory capacity. The research was conducted in one of South African provinces called North West and the findings therefore cannot be generalised to other eight provinces. This province was chosen for the study due to high number of land reform farmers and also because farming in North West is one of the economic sectors that can assist in the creation of jobs and thereby reduce poverty. The other criterion used during the study was that the farms should be modelled as collective land reform farming enterprises perceived to be the source of food to households that are vulnerable to food insecurity. According to Deininger (1999), the implementation of land reform in South African was expected to affect national food security adversely.

This study used both quantitative and qualitative research methodologies. These data collection methodologies were opted for due to their relative advantages over each other. Therefore, their complementarities were exploited to advance the quality of the research output. A non-probability sample (which used a purposive sampling frame) was used. During the investigation, the study made use of primary and secondary data (Oni et al., 2013). The secondary data was collected from various related books, published articles (in the internet) and official reports of government which included (but not limited to) Department of Agriculture, Forestry and Fisheries (DAFF) and Department of Rural Development and Land Reform (DRDLR). The primary data was obtained from field surveys that were conducted using face to face interviews with the growers. The collection of this type of data included the use of personal observations by the researchers (numerators), the use of structured interviews, informal discussions with affected individuals. Prior to the primary data collection, stakeholder such as North West Provincial Department of agriculture and key informants in province were consulted. Meetings with stakeholders assisted in the identification of the farmers. The primary data collection commenced upon the receipt and consolidation of the farmers' list. Farmers

identified were contacted with the intention of requesting the permission for them to be involved. The structured questionnaire was administered to the respondents (n = 523) selected for the study. The collected quantitative was analysed using the statistical package for social scientists (SPSS) windows version 17.0.

Model specification: The descriptive analysis was performed using the case processing summary and classification outcomes. The case processing summary aided in classifying cases that were included and those that were not included in the model.

The response function was a binary (Yes/No) with the coded outcome for Yes being '1' and No '2'. The question posed was are you actively involved in your farming enterprise? (Table 1).

Table 1: Description of the dependent and explanatory variables used in the analysis and expected signs

Variable	Variable code	Description of the variable	Expected signs
Dependent Variable			
Active beneficiaries	AB	Are you actively involved in your farming enterprise? Yes=1, No=2	+
Explanatory variables			
Age	AR	Respondents' age	±
Experience	FE	Do you have farming experience? Yes=1, No=2	+
Household	HS	Respondents' household size	±
Income	IS	Do you have the income sources? Yes=1, No=2	+
Relationship	RAB	Do you have a good relationship other beneficiaries? Yes=1, No=2	-
Active	NAB	How many active beneficiaries do you have in your farming enterprise?	±

The independent variables in the model were:

$X_1 = \text{Age}$

$X_2 = \text{Farming experience (Experienced or less experienced)}$

$X_3 = \text{Types of farming (Emerging commercial or subsistence)}$

$X_4 = \text{Household size (large or small)}$

$X_5 = \text{Income sources}$

X_6 = Relationship amongst beneficiaries (Related or not)

X_7 = Number of active beneficiaries

For all the categorical variables, the last code was deemed a reference variable.

Model 0: This model is synonymous with a null hypothesis and is used to be compared to the true model to see if the true model brings any improvement. In this case, Model 0 was stated as follows:

$$\Pr\{Y_i\} = \pi = \frac{e^{b_0}}{1 + e^{b_0}} \dots \dots \dots (1)$$

Where

b_0 = the constant

π = the mean response at any level.

e^{b_0} = is the exponent of the coefficients

Model 1: This is the true model that has to be compared with the Model 0. The logistic regression model fitted was determined by the following equation:

$$\pi = \frac{e^{b_0 + b_1 X_1 + b_2 X_2 \dots \dots \dots + b_n X_n}}{1 + e^{b_0 + b_2 X_1 + b_2 X_2 \dots \dots \dots + b_n X_n}} \dots \dots \dots (2)$$

Where

$$b_1 = \log_e(odds_2) - \log_e(odds_1)$$

$$e^{b_0} = \text{Estimated odds} = \left(\frac{odds_2}{odds_1} \right)$$

The test of coefficients: The test of coefficients was performed using the Wald statistical test. This test was preferred because the study had a large sample size (n = 523)

$$Z^* = \frac{b_x}{s(b_x)} \dots \dots \dots (3)$$

Where: b_k = coefficient of variation.

S = standard error variance.

Model predictive capacity and fitting information

Table 2 provides the model classification of the intrinsic participation capacity of smallholder farmers. According to the results, it is clear that model 0 (baseline model) was classified as having 52.1% overall predictive capacity whilst on the other hand, model 1 (true model) was classified as having 60.7% overall predictive capacity.

This shows that our true model has a superior (5.1%) predictive capacity over the baseline model. In table 3, it was found that Nagelkerke R-Square was 0.085. This implies that the independent variables in this model can only predict 8.5% variability of the dependent variable in the sample. Furthermore, the model (Chi-square = 34.468, P = 0.00) was found to be significant to explain the dependent variable in the model. And thus we are satisfied with the model. The results of the Hosmer and Lemeshow test of goodness of fit (Chi-square = 14.879, P = 0.062) showed that we fail to reject the null hypothesis that the model is adequate. This implies that the model is nicely fitted and therefore, we can use it for prediction in this study.

Table 2: Model classifications for intrinsic participation capacity

Variables	Categories	Observed	Predicted	Overall Percentage
Active beneficiaries (Model 1)	Male	250	0.00	0.0
	Female	272	100.00	0.0
	Overall Predicted Percentage	-	-	52.1
Active beneficiaries (Model 2)	Male	139	111	55.6
	Female	94	178	65.4
	Overall Predicted Percentage	-	-	60.7

Table 3: Models fitting information of the intrinsic participation of beneficiaries

Model summary	-2 log likelihood	Cox & Snell R Square	Nagelkerke R Square
	688.250	0.064	0.085
Omnibus test of Model coefficients	Chi-square	DF	Sig
Step	34.468	7	0.000
Block	34.468	7	0.000
Model	34.468	7	0.000
Hosmer and Lemeshow test			
	14.879	8	0.062

RESULTS AND DISCUSSION

This section presents the results and discussion of the analyses of the determinants of the active participation of beneficiary in collective land reform farming enterprises province of South Africa. These results are presented from descriptive and inferential statistical outputs. To ensure coherent and logistical presentation, the results are presented together with the discussion. In presenting this section, the descriptive and inferential analyses are presented respectively.

Descriptive analysis: This analysis was explored in order to show the numerical and proportional differences as depicted in table 4. The objective was to examine the representativeness within the sample. According to the descriptive analysis, females were more (52%) represented than males (48%). In addition, these entrepreneurs were dominated (60.6%) by farmers with 4 years and above years of farming experience. These farmers were classified as subsistence and emerging farmers. According to the descriptive analysis, the emerging farmers were in majority (59.8%) within the sample relative to the subsistence farmers who were found to be 40.2%.

In relation to the households size (where these entrepreneurs comes), the study found that the majority of the entrepreneurs were from bigger (44.4%) family size (3 to 6 family members) relative to smaller (11.3%) household size of 0 to 2 members. The study showed that these entrepreneurs were dominated (47.6%) by farmers who rely on government grant as the source of income followed by family support (17.2%) and entrepreneurs who relies on salary (12.6%), farm income (10.7%) and spouse support (4.6%) were found to be in minority.

Table 4: Descriptive analysis of collective smallholder farming entrepreneurs

Variables	Categories	N	%
1. Gender	Male	251	48.0
	Female	272	52.0
	Total	523	100.0
2. Farming experience (years)	> 1yr	124	23.7
	<or =2yrs	34	6.5
	<or =3yrs	48	9.2
	<or =4yrs	317	60.6
	Total	523	100.0
3. Types of farming	Subsistence	210	40.2
	Emerging	313	59.8
	Total	523	100.0
4. Household size	0-2 members	59	11.3
	3 to 5 members	232	44.4
	6 and above members	232	44.4
	Total	523	100.0
5. Main sources of income	Government grant	249	47.6
	Salary	66	12.6
	Farm income	56	10.7
	Family Support	90	17.2
	Spouse Support	24	4.6
	Other	38	7.3
	Total	523	100.0
6. Relationship between beneficiaries	Related	117	22.4
	Non-related	406	77.6
	Total	523	100.0

Table 5: Results of the determinants of intrinsic participation of smallholder farming entrepreneurs presented in the baseline model (Model 0) and true model (Model 1).

Variables	Model 0			Model 1			Exp (B)	(%)	
	β	DF	Sig	β	Wald	DF			Sig
Constant	0.084	1	0.336	1.040	2.777	1	0.096	2.830	180
Age	10.104**	1	0.001	-0.026**	18.333	1	0.000	0.974	-2.6
Experience	0.002	1	.967	0.033	0.221	1	0.638	1.034	3.4
Type of farming	1.378	1	.240	0.198	1.249	1	0.264	1.219	21.9
Household size	0.806	1	.369	0.133	0.941	1	0.332	1.142	14.2
Income source	13.179**	1	.000	-0.261**	18.972	1	0.000	0.770	-2.3
Relationship	0.571	1	0.550	0.062	0.241	1	0.623	1.064	6.4
Active	33.446	7	0.000	0.000	0.001	7	0.976	1.000	0.0

Notes: Dependent variable: Active participation, * = $p < 0.1$, ** = $p < 0.05$

The results of the key determinants of intrinsic participation presented in the baseline and true model is shown in table 5 above. These results show that only two out of seven independent variables were found to be significant at 5% probability value. This implies that only 29% of the independent variables in the sample are the key determinant of intrinsic participation variable. In both model 0 and 1, age and source of income were found to be those key determinant of participation mentioned above. In model 0, the model suggests that the older the farmer becomes, the higher ($\beta = 10.104$, $P = 0.001$) the probability of the farmer to participate in the collective smallholder farming. On the contrary, the true model (Model 1) seems to suggest that the older the farmer becomes the lower ($\beta = -0.026$, $P = 0.00$) the probability of his/her participation in the smallholder farming provided other factors are kept constant. The true model seems to suggest that there is a negative correlation between age and participatory capacity in smallholder farming in North West province. Furthermore, it appears that an increase in the age of the farmer could lead to the reduction of participation in this farming activities by 2.6%. Meaning that farmers are 0.974 times less likely to be active in the collective farming as they grow older. This might imply that young farmers are more likely to participate in this farming sector. These results seem to suggest that recruiting youth in this farming may induce high participation and sustainability of this farming sector.

The results also revealed that income source is another key determinant of the intrinsic participation in the smallholder farming sector. The baseline model predicted the positive correlation between income source and intrinsic participation of smallholder farming entrepreneurs in their farming ventures. This implies that a unit increase in the source of income could result in 13.179 unit increase in the participatory capacity. On the other hand, the true model seem to predict the contrast in that it predict the negative correlation between the above mentioned variables. In the context of the true model, this may imply that increasing the income source may result in the decline ($\beta = -0.261$, $P = 0.00$) of the participation of smallholder farming entrepreneurs.

The negative correlation between the sources of income and participation does appear to be counter intuitive and cannot be supported by general trend and contemporary economic theories. In general, the increase in the source of income induce economic participation, in this case the opposite seems to be the case. However, the results of the true model may be reflective of the dependency syndrome from government grant funding. Although South African government has since 1994 introduced the smallholder support grants, it appears that the availability of the grant is not reaching the true entrepreneurs who could use the grant as stimulus to increase viability of the smallholder farming.

The results may also reflect that numerous income source may deflate the focus on smallholder farming to other lucrative business ventures in other sectors other than agricultural enterprises which may in turn be perceived as risky as a results of its reliance to climate variability. Furthermore, the results seems to show that increasing the probability of income sources in this sector could result in the reduction of participation in smallholder farming by 2.3% given other variables are kept constant.

CONCLUSION AND RECOMMENDATIONS

The objective of the study was to find out which factors determine the level of participation amongst land reform collective farming enterprises in North West province of South Africa. The primary aim was to review the selection processes of land reform beneficiaries. The study revealed two major key determinant of participation of the smallholder farming enterprises. In this study, it is revealed that age and income source are the main determinant of participation in the smallholder farming sector. In the collective smallholder farming environment, the study seems to suggest that the involvement of the youth is critical in inducing intrinsic participation.

This seems to suggest that lack of participation of youth in the smallholder farming may be the key factor that is leading to the collapse of these ventures despite continuous support by South African government. Secondly the study uncovered the effect of multiple source of income on the sustainability (participation) of smallholder farming venture. Given the above findings, the study concludes that selection of smallholder farming beneficiaries should be guided by the age and the sources of income. In order for factors such as age and sources of income (which are inversely correlated with active participation), it is suggested that a moderate economic age and moderate sources of income is recommended in the selection of smallholder entrepreneurs.

In view of the outcomes of this study, it may be deduced that a policy review be made in favour of the inclusion of factors that have a positive impact on the active participation of land reform beneficiaries. Clear selection criterion may help to increase the level of participation in these farming activities. Further research on the establishment of the threshold for economic and active participation in this type of farming may help to stimulate the economic impact of these farming enterprises and thereby inducing the smallholder farming commercialisation.

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