

# EXAMINING THE CONTRIBUTION OF ENTREPRENEURSHIP SPIRIT TO THE PERFORMANCE OF SMALLHOLDER MAIZE PRODUCERS IN MHLONTLO LOCAL MUNICIPALITY IN THE EASTERN CAPE PROVINCE OF SOUTH AFRICA

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**Authors:**

**Richard Avuletey**

**Prof. Ajuruchukwu Obi**



University of Fort Hare

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# PRESENTATION OUTLINE

- Introduction
- Objectives
- South Africa's entrepreneurial performance
- Research methodology
- Results and discussion
- Conclusion
- Recommendations



# INTRODUCTION

- Agricultural production can simply be defined as the process of transforming inputs (factors of production) into outputs (Doll and Orazem, 1984).
- Among factors of production needed in the transformation process of inputs to outputs include natural resources (mainly land and water), labour and capital (mainly physical and financial capital) (Djomo and Sikod, 2012).
- The accessibility and use of these factors of production is crucial in achieving the desired output (Djomo and Sikod, 2012).
- level of accessibility and use of these factors of production is thought to be influenced by the individual's human dimensions (Padilla-Fernandez and Nuthall, 2001).
- For example, the human capital that includes skill and knowledge avails information needed to apply fertilizers, pesticides, and herbicides and adopt resource-saving and enhancement productive technologies (CIMMYT, 2000).



# INTRODUCTION CONT.

- Entrepreneurial spirit is among the human dimensions and can be described as a person who is creative and constantly looking for opportunities to improve or expand businesses for increased profits.
- Entrepreneurs have ability to calculate economic risks and mind about profits and losses, and they are innovative in nature to catch-up with growing global competition (Masaviru, 2011).
- Robert (2012) indicated that individuals' level of entrepreneurship is crucial in accumulating productive assets and financial assets for maximizing output and profits.



# OBJECTIVES

- The **broad objective** of the study is to investigate the impact of entrepreneurial spirit on the performance of small-scale maize producers in Tsolo Magisterial District in O.R. Tambo District in the Eastern Cape Province of South Africa.
- This was addressed in the **specific objectives** of the study were outline as:
  - (i) To determine the level of technical efficiency among smallholder maize producers in the study area.
  - (ii) To identify and determine the effect of entrepreneurial spirit and socio-economic characteristics that influences the technical efficiency of maize producers in the study area.



# SOUTH AFRICA'S ENTREPRENEURIAL PERFORMANCE

- Global Entrepreneurship Monitor (GEM) used the World Economic Forum's (WEF) classifications to categories South Africa among the efficient-driven economies, however, South African second economy dominated by resource-poor households can be classified among the factor-driven economies (GEM, 2011).
- The factor-driven economy is characterized by mainly subsistence agriculture and extraction businesses with a heavy reliance on unskilled labour and natural resources (GEM, 2011).
- Further, the economy is faced with poor entrepreneurial environment.
- To improve on the entrepreneurial environment, the government of South Africa has developed policies that emphasize promotion of entrepreneurial activity especially in the informal sector.
- This has been implemented through allocation of vast financial resources to catalyze the establishment of self-owned or joint ventures businesses (Modiba, 2009; GEM, 2011).
- Notwithstanding the support from government, South Africa's level of entrepreneurial spirit is reported to be the lowest and lagging behind many countries globally (Modiba, 2009; GEM, 2011).



# RESEARCH METHODOLOGY

## STUDY AREA

- The study was carried out in the Tsolo Magisterial district in the O.R. Tambo municipality of the Eastern Cape Province. Tsolo is a magisterial district in the Mhlontlo local municipality.
- The Mhlontlo municipality is further divided into Tsolo magisterial district and Qumbu magisterial district, with Qumbu as the main centre.
- Tsolo was chosen as the study area based on the result of the preliminary survey conducted in the study district.
- Tsolo town is situated 42 km northwest of Mthatha and 22 km southwest of Qumbu (with grid reference of  $31.3^{\circ}\text{S}28.7^{\circ}\text{E}$ ). The district covers an area of  $46.74\text{km}^2$ .



# Sampling procedure and the Data

- In order to select sample households, multi-stage sampling technique was followed.
- In the first stage, the study district was purposively selected from the OR Tambo Municipality based on the extent of maize production.
- In the second stage, four villages, namely Ntshiqo, Nombizo, Manka and Main town (Crosbow), were selected to represent the district.
- Finally, 120 sample farmers were selected for in-depth study.
- Primary data was used in this study and was collected through field survey and household interviews using a structured questionnaire.
- The study selected three questions each for the four psychological characteristics and used it to develop the PsyCap questionnaire which was administered to the target farmers.
- A 4-point Likert-type scale (1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree) was used to scale each question.





# Sampling procedure and the Data Cont.

- Respondents were asked to indicate their level of agreement in response to the 12 farmers' psychological capital statements, where "1" being strongly disagreed and "4" being strongly agree.
- Farmers socio-economic variables, institutional characteristics were also collected to show how the jointly affect farmers performance.



# Method of data analysis

- The study employed the following methods in the data analysis:
- **Descriptive data analysis** in the form of means, standard deviations and percentages were used to summarize the socio-economic and institutional characteristics in the study area.
- These were useful in analysing household characteristics as well as the relationship between variables.
- **The technical efficiency and its determinants** were analyzed using Data Envelopment Analysis (**DEA**) and multivariate ordinary least square (**OLS**) method respectively.



# Estimating the Impact of Farmers' entrepreneurial spirit on Efficiency

- The impact of entrepreneurship measured by positive psychological capital on technical efficiency was estimated using a robust Ordinary Least Squares (OLS) because of its characteristics of being unbiased and consistent estimator (McDonald, 2009).
- The impact of perceived farmers' positive psychological capital on the level of technical efficiency can be determined by establishing the relationship between the estimated average scores derived from Likert scaling of responses for each farmer's psychological capital and the computed technical efficiency scores.
- An OLS regression is performed and Durbin-Watson statistic is estimated to determine the extent of autocorrelation problem (Obi and Chisango, 2011). The linear model for individual farmer is estimated as:





# Estimating the Impact of Farmers' entrepreneurial spirit on Efficiency Cont.

The linear model is estimated as shown below for each farmer.

$$Y = \beta_0 + \beta_1 HUSHDSZE + \beta_2 AGE + \beta_3 FARMSIZ + \beta_4 FERTKILO + \beta_5 LABWRKDY + \beta_6 YRSSCH + \beta_7 YRSORGMEMB + \beta_8 SELF-EFFICACY + \beta_9 RESILIENCE + \beta_{10} OPTIMISM + \beta_{11} HOPE + e \dots \dots \dots (2)$$

- Where Y= Technical efficiency scores
- E=Error term
- $\beta_0$ =Constant ( intercept)
- $\beta_1 \dots \beta_{25}$ =Regression coefficients
- HUSHDSIZE=Household size
- AGE =Age of the household head
- FARMSIZ =Farm size for maize (ha)
- FERTKILO =Amount of fertilizer used (kg)
- LABWRKDY=Work-days of labour used
- YRSSCH=Years spent in school (Human Capital)
- YRSORGMEMB=Years of organizational membership (years)



# Estimating the Impact of Farmers' entrepreneurial spirit on Efficiency Cont.

- SELF-EFFICACY= Self-confidence level of farmers
- RESILIENCE= Failure tolerability of farmers
- OPTIMISM= Need to success of farmers
- HOPE= Will to succeed spirit of farmers



# RESULTS AND DISCUSSION

## General characteristics of the households and farmers psychological capital

**Table 1: Description of households' characteristics of sampled farmers as used in the DEA and OLS model (Source: Model results 2014)**

Variables	Description	Min	Max	Mean	Std. Dev.
Yield (Kg)	Maize yield (bags/ha)	250	5200	1016.25	721.99
Age	Age of the farmer (yrs)	36	89	52.83	9.13
Years in school	Education level (years)	0	20	8.61	6.28
Household size	Size of the household	2	16	5.72	2.37
Fertilizer usage (kg)	Fertilizer used per ha	0	300	170.42	91.78
Work-days of labour	Hired and family labour	0	14	4.28	2.67
Years of org. member	Years of membership	0	10	3.01	2.99
Farm size	Farm size per farmer	1	13	1.31	1.17
Self-efficacy	Self-confidence	2	4	3.60	0.509
Resilience	Failure tolerability	3	4	3.58	0.496
Hope	Will to succeed	3	4	3.58	0.496
Optimism	Need to succeed	3	4	3.47	0.501



# RESULTS AND DISCUSSION Cont.

## Technical Efficiency of Maize Farms

**Table 2: Frequency and percentage distribution of technical efficiency estimates of maize producers (Source: Model results 2014)**

Technical efficiency range	CRS-TE		VRS-TE	
	Frequency	Percent	Frequency	Percent
≤0.20	4	3.3	-	-
0.21-0.30	18	15	-	-
0.31-0.40	21	17.5	-	-
0.41-0.50	20	16.7	-	-
0.51-0.60	14	11.7	-	-
0.61-0.70	15	12.5	4	3.3
0.71-0.80	6	5	27	22.5
0.81-0.90	4	3.3	37	30.8
0.91-1.00	18	15	52	43.3
Total	120	100	120	100
Minimum	0.12		0.62	
Maximum	1.00		1.00	
Mean	0.54		0.89	





# RESULTS AND DISCUSSION Cont.

## The OLS result of the determinants of technical efficiency (TE)

**Table 3: Multivariate regression (OLS) results** (Source: Model results. (\*\*\*, \*\*, \* are 1, 5 and 10% significant levels respectively).

Variable	Coefficient	Std. Err.	T	P-value
FERTKILO	1.885	0.590	3.192	0.002***
FARMSIZ	410.660	35.030	11.723	0.000***
LABWRKDY	35.035	20.312	1.725	0.087*
AGE	-6.360	4.923	-1.292	0.199
YRSSCH	-23.764	9.039	-2.629	0.010***
HUSHDSIZE	74.082	17.286	4.286	0.000***
YRSORGMEM B	-13.764	18.248	-0.754	0.452
Selfconf	6.034	80.553	0.075	0.940
Failtole	60.193	84.275	0.714	0.477
Needsucc	104.709	81.067	1.292	0.199
Hope	134.996	80.783	1.671	0.098*
(Constant)	49.574	562.697	0.088	0.930

R-squared 0.710

Adj R-squared 0.680

Durbin-Watson 1.93

F(11,108) 24.012

P-value 0.000(0.000)\*\*\*



# CONCLUSION

- The DEA results showed that farmers from this area had a mean technical efficiency score of 0.62 and 0.89 under CRS and VRS respectively.
- The result showed high technical efficiency among farmers in the area but poverty and livelihoods of the people are still low probably due to uneconomic scale of production.
- Farmers psychological capital such as hope was found to be significant and positively related to technical efficiency.
- The farmers in the area operate with a small-land holdings that output is not sufficient to lift their standard of living.
- This means that, increase in their scale of production would as well increase their production and improve their standard of living.
- The analysis of the determinants of the technical efficiency revealed socio-economic variables such as quantity of fertilizer, household size, labour use, years in schooling and farm size as significant and important with regards to farmers' efficiency in the study area.



# RECOMMENDATIONS

- The recommendations discussed below are made on the basis of the findings of this study.
- The farmers in this area showed a high technical efficiency in maize production but interestingly continue to experience poverty and food insecurity.
- This calls for the intervention of both government and non-governmental agencies to assist farmers in this area.
- The poverty and food insecurity issues may be due to farmers operating on small arable land probably as a result of lack of finance to purchase enough farm inputs including land to increase their scale of production.
- This will ensure that people in rural areas, specifically small-scale farmers who practice subsistence farming, and are mainly found in the Eastern Cape Province, improve their standard of living.
- The study encourages policies that will make agriculture credit from government and NGOs available to these farmers in addressing their resource acquisition problems especially farm lands and other important farm inputs such as fertilizer and labour.



# RECOMMENDATIONS Cont.

- In addition, sufficient education should be giving to farmers to enable them to make timely decisions on the allocation of farm inputs and general management. Educated farmers are better managers meaning that they produce closer to their production frontier.
- It also recommended that extension officers in the Eastern Cape Department of Agriculture intensify their efforts to assist small-scale farmers to overcome the challenges of the economies scale by supplying basic production factors as fertilizers and seeds and tractor services at a subsidized price.
- Lastly, concerted efforts aimed at removing the bottlenecks that have constrained effective policy implementation and its accrued benefits in the South Africa agriculture are needed from all the stake holders.
- There is the need for private sector involvement to fill gaps in input supply and inadequate facilities for haulage of inputs and outputs to facilitate market access in order to provide positive incentive to farmers to expand production.



# END OF PRESENTATION

# THANK YOU



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