Land Tenure and Land Productivity: A Case of Maize Production in Swaziland

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Abstract: Food production in Swaziland follows a dualistic pattern of the land tenure system, namely; the Traditional Tenure System (TCT) and the Title Deed Tenure system (TDT). Land tenure plays a major role in the development and performance of the agricultural sector by influencing land ownership and its use. The Ministry of Agriculture has observed the differential in maize production among the TCT and TDT farmers. The purpose of this study was to empirically establish whether land tenure as an institution contributes to the observed maize productivity differentials among Swazi farmers. Maize as a staple food for the Swazi Nation and used as a measure of food security, was used in the study to present the impacts of land tenure on maize productivity. The study used a purposive sampling technique to obtain a sample of 63 farmers from both TCT and TDT. Data were collected in 2008 from the Manzini region. Data were analyzed using descriptive and recursive regression models. The results confirmed the existence of differentials in maize yields and the size of land holdings between TDT and TCT farming households. Tenure security was found to influence land improvements through access and use of credit, while the level of education influenced the use of credit. Maize productivity was positively influenced by the amount of capital used, while TCT farmers are constrained by finance and land availability. The results further indicated that TDT farmers were highly mechanized, while TCT farmers mainly used livestock to cultivate their land. Therefore, there is a need for the review of the land tenure system in order to clearly and sufficiently define tenure rights on TCT so, as to promote land productivity.

Key words: Land productivity, land tenure, maize production, property rights

INTRODUCTION

Land tenure system in Swaziland: There are two distinctly tenure systems in Swaziland, Traditional Customary Tenure (TCT) and Title Deed Tenure (TDT). Of the total land area, arable land covers 1910 km², TCT and TDT occupy 57.6 and 42.4%, respectively of this land (West, 2000). TCT is land held in trust by the King for the Swazi Nation, hence it is called Swazi Nation Land (SNL). It is land governed by the Chiefs and is accessible through traditional structures called Kukhonta. Sithole and Apedaile (1986) defined Kukhonta as a process by which an individual seeks residence in a chiefdom by approaching local traditional authorities. From this process an individual is allocated a piece of land with user rights to build on and cultivate the land, including inheritance to his/her descendants. Chiefs have power to evict and or re-allocate a household in the community upon evidence of crime and witchcraft (West, 2000). To service these rights, a household regularly serves the Chief’s house and fields and this service called kuhlilela, also strengthen the voice to be heard upon reported disputes and conflicts within the community.

On SNL, land management is communal as cropping lands are availed for cattle grazing in winter and grazing lands are for everyone who has stock. Sithole and Apedaile (1986) noted that about one tenth of the land is normally allocated to households and the rest for livestock grazing. However, the decision to what is to be cultivated on the fields allocated lies within the household members' preferences (Magagula, 1982). Crop production on SNL is labour intensive, mostly rain fed and thus prone to variability of climatic conditions. Magagula and Faki (1999) list some of the bottlenecks of SNL food production as inappropriate pricing, non-availability of credit and lack of labour during peak season. Land on SNL has no exchange rights except through the family tree, however it has been noted that because farming inputs are getting expensive for rural farmers, people settled on SNL sell some portion of the fields allocated to them and this exacerbates change in rural land use change. FAO (2005) reported that subsistence agriculture is the major contributor of survival for the majority of the Swazi population.

The Title Deed Tenure (TDT) is governed by private land ownership rights and is called the Title Deed Land (TDL), an inherent system from the colonial period where land given to the colonial settlers was registered for demarcated title deed holdings. This allowed them to do anything with the land including buying and selling...
Maize production and food security: Maize is the single most important crop in Swaziland and is used as a measure of food security (FAO, 2005). It is grown on 36% of the country’s arable land and its shortage in households is deemed as a sign of food crisis (FAO, 2005). The country has four agro-climatic zones, namely; the Highveld, Middleveld, Lowveld and the Lubombo Plateau. The highest yields and area under maize is observed in the Middleveld. Table 1 presents maize yields by region in the years 2001/2002 to 2006/2007.

Maize yields are dropping per year since 2001/2002 due to variability in weather conditions and changes in land use (Ndlela and Mkhabela, 2008). The National Maize Corporation (NMC) recorded a decline of 19% in maize in 2006/2007. Maize imports from South Africa are used to help fill the gap between the national maize production and consumption.

**Objectives:** The Ministry of Agriculture (MoA) (2005) reported that the yield estimates of maize were seven tonnes on TDT and one and half tonnes on SNL. Quantitative effects of this disparity are not known, hence, this study provides a comparative analysis of maize productivity for farmers on TDL and those on SNL. Specifically, the study determines the contribution of land tenure to maize productivity.

**Hypothesis:**

H$_{1}$: Land tenure has no effect on maize productivity in Swaziland

H$_{2}$: Land tenure has an effect on maize productivity in Swaziland.

### Table 1: Total maize yields (tonnes) from 2001/2002 to 2006/2007

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Highveld</td>
<td>25 567</td>
<td>22 078</td>
<td>33 367</td>
<td>30 058</td>
<td>27 058</td>
<td>13 123</td>
</tr>
<tr>
<td>Middleveld</td>
<td>24 693</td>
<td>26 537</td>
<td>26 537</td>
<td>32 629</td>
<td>28 629</td>
<td>10 206</td>
</tr>
<tr>
<td>Lowveld</td>
<td>14 545</td>
<td>7 128</td>
<td>7 128</td>
<td>7 642</td>
<td>7 528</td>
<td>1 475</td>
</tr>
<tr>
<td>Lubombo Plateau</td>
<td>2 834</td>
<td>1 055</td>
<td>1 055</td>
<td>4 211</td>
<td>3 911</td>
<td>1 366</td>
</tr>
<tr>
<td>Swaziland</td>
<td>67 639</td>
<td>68 087</td>
<td>68 087</td>
<td>74 540</td>
<td>67 127</td>
<td>26 170</td>
</tr>
</tbody>
</table>

CSO, 2006/2007

THEORETICAL FRAMEWORK

**Tenure security and productivity:** Roth and Haase (1998) reported that farmers are more likely to make medium to long term improvements if tenure has security rights. Property rights are important for developing countries where a risk to assets is put forth as a crucial determinant of lagging growth (Collier and Ginning, 1999). Ayyalew *et al.* (2005) argued that the perceived lack of transfer rights by farmers is the most important factor in explaining the relatively low investment in developing countries. West (2000) observed that there is varying access to land, levels of quality, levels of individualization of rights and control by traditional authorities in Africa. However, in Swaziland, the traditional tenure rights are not well defined (Sithole and Apedaile, 1986).

There is a tendency to undermine the importance of customary land tenure system which is an integral part of social, political and economic framework (Migot-Adholla *et al*., 1994). Norton (2004) argued that customary land tenure protects the poor and vulnerable member of society and it can be more flexible to changing economic circumstances than individual tenure. Place (2006) noted that when measured in terms of possession of land, which a farming household has strong continuous use rights alongside with transfer rights, the tenure security is relatively high in Sub-Saharan Africa. Land conflicts in Southern Africa tend to emerge whenever profitable investments arise which may be evidence that tenure security is not at its best as rent-seeking (Adams, 2001). The economic effects of property rights to land is related to the improved access to institutional credit, improved investments in land, higher productivity, higher land values and higher output and incomes (Byamugisha, 1999).

Bruce (1988) reported that tenure security may not be the cause of the high investments in land, rather it might be induced by the higher investment in the land, being the purchase price. Aw-Hassan *et al.* (2000) observed that though the length of ownership to land is secure in customary tenure, there is lack of clear agreements and differential interpretations of some rules governing communal land. The lack of enforcement mechanisms in customary tenure creates insecurity in terms of number of absolute rights, assurance of existing rights and the costs of enforcing the rights (Fraser, 2004). Farmers’ fear of expropriation over land on which an investment would have been made deters investments in fixed assets.
Also access to credit might be hindered if property rights are not sufficiently well-defined for land to serve as collateral. FAO (1994) reported that tenure reform measures helped to change the cropping patterns in favour of certain tradable crops like sugarcane, rubber and rice. Feder and Feeny (1991) observed that the major influences of productivity are those which constrain rapid agricultural technologies, namely; lack of credit, limited access to extension, small farm size, inappropriate land tenure system, insufficient human labour and capital, absence of mechanization options to ease constraints, lack of access and untimely farm inputs, and inappropriate transport and market facilities.

**METHODOLOGY**

**Research design and sampling:** The study was descriptive in nature and was conducted in the Manzini region, a region known for its good soils for maize production. A survey of 63 farmers was conducted with 15 and 48 farmers from TDL and SNL respectively. Farmers were selected randomly from a list developed with the assistance of the Ministry of Agriculture and NMC. Initially, from a total of 183 farmers (48 TDL and 135 SNL), 30 and 60 farmers were respectively selected to participate in the study, however due to absenteeism at the time of data collection the numbers declined though prior to the study means to inform them were made to cab the problem.

**Data collection:** The study used data collected from 63 randomly selected farmers, of which 15 were from TDL and 48 were from SNL. Personal interviews were used to collect the data using a structured questionnaire. Data were collected in February, 2008 from farmers in the Middleveld of Swaziland. Information on socio-economic aspects of maize farmers and farm investments were sought.

**Model specification:**

\[
A = f(Z^a, H, E) \quad (1)
\]

\[
L = f(Z^a, T, A_L) \quad (2)
\]

\[
I = f(Z^a, A_S, L) \quad (3)
\]

\[
M = f(L, I) \quad (4)
\]

where;

- A = value of agricultural credit (E) used to finance past fixed improvements and current operating expenses expressed based on 2007 prices
- L = value of past fixed improvements (E) on the land
- I = value of current operating expenses (E) on maize fields
- M = maize productivity measured in tonnes per hectare
- \( Z^a \) = household and farmer characteristics
- T = land tenure status treated as a dummy variables; 1 = TDL and 0 = SNL
- H = area under maize cultivation measured in hectares
- E = amount of equity contribution in Emalangeni
- \( A_L \) = current value in Emalangeni of long-term credit used to finance past fixed land improvements
- \( A_S \) = current value in Emalangeni of short-term credit used to finance operating expenses

A system of endogenous and exogenous variables were the endogenous variables were determined one at a time in a sequence. The first endogenous variable A was determined using the OLS from the first equation independently of other endogenous variables (L and I). The estimated coefficient obtained for A was thus used in the second equation. The same procedure was used in the estimation of the endogenous variables L and I, hence Eq. (2) and (4) were estimated using the 2SLS.

The recursive causal models adopted are illustrated by Gujarati (2003) as follows:

\[
Y_1 = \beta_{11}X_{11} + \beta_{12}X_{12} + \ldots + \beta_{1Z}X_{1Z} + e_1
\]

\[
Y_2 = \beta_{21}X_{11} + \beta_{22}X_{12} + \ldots + B_{2Z}X_{1Z} + e_2
\]

\[
Y_3 = \beta_{31}X_{11} + \beta_{32}X_{12} + \ldots + B_{3Z}X_{1Z} + e_3
\]

\[
Y_4 = \beta_{41}X_{11} + \beta_{42}X_{12} + \ldots + B_{4Z}X_{1Z} + e_4
\]

where;

- X_{1i} = exogenous variables
- Y_{1i} = endogenous variables
- e_{1i} = independent error terms

And such that covariance of \((e_1, e_2) = \text{covariance } (e_1, e_1) = \text{covariance } (e_2, e_2)\). That is, the error terms in the different equations are technically uncorrelated (Gujarati, 2003). Wonnacott and Wonnacott (1979) noted that a recursive system is easier to deal with than a simultaneous system as the OLS can be used to estimate parameters if the error term in the equation is independent of the regressors. Therefore the OLS can be applied to \(Y_1\) because it has only exogenous variables and the assumption is that they are uncorrelated with the error term \(e_1\). For \(Y_1, Y_2, Y_3\) and \(Y_4\), the 2SLS is used because the system therein now involves both endogenous and exogenous variables. The estimated values of A, L, and I were used to run equations Y2, Y3 and Y4 because the estimates are not correlated with the error term \(e_2\). This rendered the use of OLS justified as the estimates have no influence on the error term. Bruck (2003) and Mahabile (2006) used the recursive regression method to analyze the effects of land tenure on productivity of agricultural production in Mozambique and Botswana respectively; the estimation of models was adopted for the study as follows:
\[ A = \beta_{01} + \beta_{11} \text{Age} + \beta_{21} \text{Gender} + \beta_{31} \text{Years} + \beta_{41} \text{Education} + \beta_{51} \text{Transfer} + \beta_{61} \text{Family size} + \beta_{71} \text{Maize area} + \beta_{81} \text{Land tenure} + \beta_{91} \text{Equity} \]  

(1)

\[ \ln(l) = \beta_{02} + \beta_{12} \text{Age} + \beta_{22} \text{Gender} + \beta_{32} \text{Years} + \beta_{42} \text{Education} + \beta_{52} \text{Transfer} + \beta_{62} \text{Family size} + \beta_{72} \text{Land tenure} \]  

(2)

\[ \ln(i) = \beta_{03} + \beta_{13} \text{Age} + \beta_{23} \text{Gender} + \beta_{33} \text{Married} + \beta_{43} \text{Education} + \beta_{53} \text{Family} + \beta_{63} \ln(l) + \beta_{73} \text{Transfer} \]  

(3)

\[ M = \beta_{04} + \beta_{14} \ln(\text{capital used}) \]  

(4)

where:

- **A**: present value of agricultural credit (E) used to finance past fixed improvements and current operating expenses measured (E)
- **Age**: age (years) of head of household
- **Gender**: a dummy variable scoring one for male and zero for females
- **Years**: period of years the head of household has occupied the farm
- **Education**: formal schooling completed by the household head (year)
- **Transfer**: monthly off-farm income (E) earned by the household
- **Family**: number of people per household
- **Land**: total land area (ha) available for cropping
- **Tenure**: a dummy variable scoring one for land under TDL and zero for SNL.
- **Equity**: equity contribution (E)
- **LN (l)**: natural log of the present value of investment in the most prevalent fixed improvement (E)
- **A_L**: present value of long term credit (E) used to finance fixed improvements, the most frequently observed improvement and the only one for which reliable data could be gathered
- **LN (I)**: natural log of presence of current expenditure (E) on operating inputs per unit land
- **A_s**: value of seasonal credit (E) used to finance current operating inputs

Positive collinearity is probable between **A_s** and **Transfer**, hence the two variables are summed to create an index called **Liquidity** (i.e., **A_s** + **Transfer**)

**M** - Maize Productivity measured as yield in tonnes per hectare

Capital is the total value (E) of long and short term credit used (**l** + **i**)

The parameters to be estimated from each of the models are:

\[ B_{01}, B_{11}, ..., B_{91} \]

\[ B_{04}, ..., B_{14} \]

where:

- The **B_{01}, B_{04}** represent the respective intercepts and the **B_{11}, ..., B_{14}** the coefficients of the explanatory variables in each model.

**Data analysis:** Data were analysed using recursive regression model as outline by Gujarati (2003), as well as descriptive statistics such as means, frequencies and the t-test.

**RESULTS AND DISCUSSION**

**Characteristics of respondents:** Table 2 presents the results of the descriptive statistics. The results indicate that literacy measured by the number of years spent acquiring education differed among the farmers’ groups, where average schooling of household head was 10 and 6 on TDL and SNL respectively. The differences in literacy rates are likely to impact on the use of credit and investment in land improvement methods.

There is a significant difference (p<0.05) in the amount of off-farm income per household, at E4194 and E1800 on TDL and SNL respectively. Off farm income improves the liquidity position of the farmers, while SNL farmers practice mixed farming with pumpkin, beans and sweet potatoes, the TDL famers grow a pure maize stand. Landholding size and area under maize were significantly different (p<0.05) among the groups with TDL having large landholdings. The average landholdings were 19 ha and 4.9 ha, while area under maize was 9.33 and 4.18 ha on TDL and SNL respectively. Of the SNL farmers only 4.4% is irrigated while 73.3% on TDL had irrigated fields and 27% of them used mechanized harvesting too.

Maize yields per hectare were significantly different with SNL observing an average of 4.42 tonnes and TDL had 9.75 tonnes attributable to the type of seeds and quantity used as well as the crop practices engaged. Noted was that current maize yields do save as next season’s seeds on SNL while TDL farmers use hybrid seeds every time.

Noted is that 76% of SNL farmers owned livestock, while 40% of TDL farmers did, this is attributed to the use of communal grazing of SNL, while TDL needed to have enough land for private grazing. Also SNL farmers used less short-term and long-term credit including land investments undertaken as opposed to TDL farmers. This is evidence to the report by Roth and Haase (1998) that farmers will be more likely to make medium to long term improvements if tenure is security.
Table 2: Descriptive characteristics of farm-households by tenure type in the middleveld of Swaziland 2008

<table>
<thead>
<tr>
<th>Variable</th>
<th>TDL Farmers (n = 15)</th>
<th>SNL Farmers (n = 48)</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average age of head of household (HH)</td>
<td>60</td>
<td>57</td>
<td>1.05</td>
</tr>
<tr>
<td>Gender of HH (% male)</td>
<td>93.3</td>
<td>84</td>
<td>0.94</td>
</tr>
<tr>
<td>Average size if household</td>
<td>8</td>
<td>7</td>
<td>0.71</td>
</tr>
<tr>
<td>Average years of schooling of HH</td>
<td>10</td>
<td>6</td>
<td>7.46**</td>
</tr>
<tr>
<td>Average farming years on the farm</td>
<td>10</td>
<td>12.5</td>
<td>1.13</td>
</tr>
<tr>
<td>Off-farm income of HH (E)</td>
<td>4194</td>
<td>1800</td>
<td>6.54**</td>
</tr>
<tr>
<td>Average total land per household (ha)</td>
<td>19</td>
<td>4.9</td>
<td>3.55**</td>
</tr>
<tr>
<td>Average area under maize (ha)</td>
<td>9.33</td>
<td>4.18</td>
<td>4.46**</td>
</tr>
<tr>
<td>Average amount of short term credit (E)</td>
<td>72790</td>
<td>23590</td>
<td>7.06**</td>
</tr>
<tr>
<td>Average amount of long term credit (E)</td>
<td>35000</td>
<td>4600</td>
<td>4.85**</td>
</tr>
<tr>
<td>Average total assets value (E)</td>
<td>54000</td>
<td>14270</td>
<td>5.26**</td>
</tr>
<tr>
<td>Average value of land investments (E)</td>
<td>56580</td>
<td>28310</td>
<td>3.77**</td>
</tr>
<tr>
<td>Households owning livestock n (%)</td>
<td>40</td>
<td>76.2</td>
<td>4.76**</td>
</tr>
<tr>
<td>Households with fenced maize fields (%)</td>
<td>66.7</td>
<td>38</td>
<td>3.88**</td>
</tr>
</tbody>
</table>

**: Significant at 5% level of probability

Table 3: Maize production constraints

<table>
<thead>
<tr>
<th>Constraints</th>
<th>SNL farmers (n = 48)</th>
<th>TDL farmers (n = 15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent of farmers</td>
<td>Percent of farmers</td>
<td></td>
</tr>
<tr>
<td>Lack of financial resources</td>
<td>79.2</td>
<td>33.3</td>
</tr>
<tr>
<td>Lack of arable land</td>
<td>60.4</td>
<td>40.0</td>
</tr>
<tr>
<td>Lack of water</td>
<td>56.3</td>
<td>73.3</td>
</tr>
<tr>
<td>Lack of market</td>
<td>39.6</td>
<td>60.4</td>
</tr>
<tr>
<td>Lack of labour</td>
<td>33.3</td>
<td>46.7</td>
</tr>
</tbody>
</table>

Table 4: Parameter estimates of the agricultural credit

<table>
<thead>
<tr>
<th>Variable</th>
<th>β-coefficients</th>
<th>S.E</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>- 4094.482</td>
<td>9192.747</td>
<td>- 0.445</td>
</tr>
<tr>
<td>Age</td>
<td>- 3.168</td>
<td>121.617</td>
<td>- 0.03</td>
</tr>
<tr>
<td>Gender</td>
<td>1345.567</td>
<td>374.254</td>
<td>0.529</td>
</tr>
<tr>
<td>Education</td>
<td>821.139</td>
<td>254.65</td>
<td>3.292**</td>
</tr>
<tr>
<td>Family size</td>
<td>- 50.134</td>
<td>460.318</td>
<td>- 0.109</td>
</tr>
<tr>
<td>Years on land</td>
<td>89.407</td>
<td>157.470</td>
<td>0.568</td>
</tr>
<tr>
<td>Income transfer to HH</td>
<td>- 342.679</td>
<td>108.347</td>
<td>3.163**</td>
</tr>
<tr>
<td>Tenure (T)</td>
<td>14434.724</td>
<td>3562.066</td>
<td>4.052**</td>
</tr>
<tr>
<td>R²</td>
<td>0.915</td>
<td>81.568**</td>
<td></td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.762</td>
<td>0.904</td>
<td></td>
</tr>
</tbody>
</table>
| F-value | 2.011** | **: Significant at 5% level of probability

Yields on both farmer groups differed significantly with 9.73 t/ha on TDL and 4.42 t/ha on SNL. Attributes to yields differences were the use of herbicides and farm inputs, where only 24.1% of the SNL farmers use herbicides and 93.3% farmers on TDL. This was attributed to the mixed farming practiced on SNL. Also farm labour is mainly hired labour on TDL while SNL uses family labour. As Byamugisha (1991) observed tenure security as the only one of the factors that influences investment to enhance land productivity.

Maize production constraints: Table 3 presents the constraints farmers face in maize production. According to the results, SNL farmers perceived lack of financial resources as the major constraint (79.2%) to maize production, followed by the limited land (60.4%). TDL farmers perceived lack of water (73.3%) and unprofitable markets, the least important was lack of financial resources while SNL perceived lack of labour as the least important constraint. SNL production is mostly rain fed and there is too much variation in the quantity of farm inputs used per annum on the same piece of land. As TDL has capacity to employ irrigation, water is the main deterrent. Also while land is not an issue for TDL, the SNL farmers can never have the land portions they desire and size.

Determinants of agricultural credit: The discussion focuses on the results pertaining to the effects of tenure ownership, education of household members and land size as explanatory variables. The adjusted R² was 0.76, indicating that the independent variables in the model explain 76% of the variation in the total amount of credit received by household. The results in Table 4 indicate that the parameter estimates of the three explanatory variables are highly significant (p<0.05). These are education level, total area and tenure. It is evident that the explanatory variables positively influence the amount of credit received by households. Education impacts on credit from the perspective that literacy plays a significant role among members of households in decision making regarding procurement and efficient allocation of inputs.

Determinants of fixed land improvements: The results in Table 5 indicate that the adjusted R² is 0.904, hence the independent variable included in the regression equation
Determinants of current operating expenditure: The results in Table 6 indicate that the adjusted $R^2$ value is 0.86 and implies that 86% of the variation in the current operational expenditure is explained by the independent variable. The results show that off-farm income, area under maize and land improvements are the principal factors determining the requirement of total current expenditure.

Economic effects of off-farm income are linked to the current liquidity situation and equity contribution of a farmer as it improves the farm liquidity and predetermines the amount of credit to be employed. This is through positive influence on the equity contribution and the repayment capacity of the farmer. The area planted under maize positively influence current expenditure needs and where finance is not a major constraint adequate inputs would be used relative to scale. Significance of land improvements too imply that the more land developed the more the current expenditure in maintenance for improved soil quality and sustainability. This, in turn, could promote the intensive use of the land in a cropping year, hence leading to increased annual expenditure.

CONCLUSION AND RECOMMENDATION

Food production in Swaziland follows a dualistic pattern of the land tenure system. Land tenure is presented as Traditional Customary Tenure (TCT) and the Title Deed Tenure (TDT) systems. As an institution, land tenure plays a major role in the performance and development of the food sector by influencing the land ownership and use patterns as well as the productivity of the land. Evident is that the yield per hectare of maize cultivated on TDT is much higher than those cultivated TCT. TDT farmers have better education, more land, more off-farm income than TCT farmers. As a result yield on TDT is almost double that on TCT. While TDT farmers planted a pure stand, TCT farmers practiced intercropping. Farmers are exposed to different constraints and have different immediate requirements. TDT farmers need water for irrigation and lucrative markets, while TCT farmers need finance and land. The TDT farms were highly mechanized when compared to TCT farms.

The results of the recursive models show that credit, land-specific investment and maize productivity values between TDT and TCT differ significantly, TDT being higher in all aspects than TCT. This shows that property rights to land contribute significantly to the observed differentials in accessibility to credit, high investments to land and high maize productivity in the study area, hence the hypothesis that land tenure has no effect on maize productivity is rejected. Moreover, farm capital contributes 63% towards maize productivity in Swaziland.

In light of the struggle for food self reliance, it is recommended that land tenure reform on TCT be undertaken with the view to sufficiently define land rights. As a kingdom, the value of Chiefdoms may outweigh the immediate need for land titling, however, government need to structure an agriculture finance institution that will serve the TCT farmers, taking into account the land tenure effects to their productivity.

REFERENCES


