

ANALYSIS OF SMALL-SCALE GROWER RETURNS IN MPUMALANGA: TENANT FARMERS OR SUSTAINABLE PRODUCERS?

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Abstract

Small-scale grower (SSG) production in Mpumalanga province of South Africa has declined dramatically since the 2000/01 season. Tsb Sugar Ltd provided 811 consolidated remittance advice slips from the 2003/04 to 2006/07 seasons for analysis to obtain an insight into SSG financial returns. The results are indicative of the growers' annual cash trading account, and are expressed per unit of gross production to enable comparison. Results indicate that the sustainability of the sector is questionable, with 30% of growers reliant on industry financial grants to generate a remuneration surplus. Scale economies do exist in the sector and a direct positive relationship exists between yield and unit returns. A grower's choice of financial institution's terms of trade has a significant impact on unit returns. Results show that declining yields may be a product of a reduced incentive to invest, brought about by continued poor terms of trade. Specific policy recommendations include improving performance by consolidating areas to take advantage of scale economies and increasing yields, and increasing the institutional savings to enable growers to ratoon their crops. Returns can be further improved, and sustainability enhanced, by restructuring current debt levels through lobbying financial institutions for debt restructuring.

Keywords: small-scale growers, unit returns, scale economies, incentive

Introduction

Small-scale grower (SSG) production in Mpumalanga has developed around the establishment of irrigated projects. Each irrigated project comprises a collection of individual farmers using a common river abstraction point and main line irrigation infrastructure.

SSG production in Mpumalanga has declined dramatically since the 2000/01 season¹ (SACGA, 2008). SSGs are constrained by scale economies (Monwa and Nieuwoudt, 1998), high transaction costs (Wynne *et al.*, 2004) and land tenure issues (Thomson and Lyne, 1993) which influence grower's returns. As individual growers exit the market additional pressure is placed on the remaining growers to maintain the communal irrigation infrastructure, accelerating the decline. Given that SSG production is 20% of the region's cane supply, this decline in production threatens the sustainability of the milling operation in the region, because the high capital expenditure overheads demand consistent throughput.

¹In the 2000/01 season 8056 ha produced 746 000 tons cane, while in the 2007/08 season 8273 ha produced only 510 000 tons.

Data and Methodology

The data set is derived from 811 consolidated remittance advices obtained from Tsb Sugar Ltd for the 2003/04 to 2006/07 seasons. These remittance advice slips represent 209 individual growers, each producing off an average farm size of 8.2 ha on 29 irrigated projects. The data has been adjusted for inflation in order to generate real values and is expressed in constant 2007 ZAR terms. The real data has been reduced to unit production values in order to generate ZAR/ton values to enable comparison.

Margins

The corrected data is indicative of the grower's annual cash trading account, but does not include any other non-cessioned expenses, private drawings or tax obligations. Table 1 displays three income streams, less any deductions from the cash flow, to generate a gross margin. The negative 'Interest on Retention' values reflected during the 2003/04 season are a result of a mid-season drop in the estimated Recoverable Value (RV) cane price. Those growers who delivered prior to the downward adjustment in the price were overpaid by the miller concerned. The mill retention² was increased to 6% of grower proceeds to control seasonal price fluctuations in following seasons.

'Institutional Savings' provide a short term savings scheme for growers. Proceeds are ring fenced for on-farm inputs, irrigation infrastructure maintenance and electricity expenses. These proceeds are intended to facilitate successful reinvestment in the following season's crop and are reflected as a deduction from the growers' cash flow.

Table 1 displays average margins for each season from 2004 to 2007. Column (m) is the first derivative of each income or expenditure item over the four seasons indicating the rate of change in each category over time. Haulage costs, as indicated in Table 1, are increasing at a rate of ZAR6.12/t/annum despite the sector's major transporters being grower-owned cooperatives. Institutional Savings have remained stable and may not be tracking inflationary trends.

Returns

The financial year for SSGs in Mpumalanga can be separated into two important events. Firstly, approximately 45 days after the final delivery of their crops, the growers receive their first payment. Of the growers in Mpumalanga, 47% (378) receive no income after the delivery of their entire crop.

Secondly, at the financial year end payment, growers are paid their retained income which is offset against cessioned expenses such that 34% (276) of growers receive no income. These results indicate that the SSG sector in Mpumalanga is not sustainable. As growers exit additional pressure is placed on the remaining growers to maintain the common irrigation infrastructure, placing additional pressure on sustainability.

²South African mills retain 6% of SSG proceeds and 2% of LSG proceeds to control for fluctuations in the RV price during the season. The retained proceeds and interest are paid to growers once the final RV price is declared at the financial year end in March.

Table 1. Comparison of average margins over four seasons and the rate of change.

	2004	2005	2006	2007	(m)
	(ZAR/t)	(ZAR/t)	(ZAR/t)	(ZAR/t)	(ZAR/t/annum)
Cane Income	182.54	173.25	180.42	221.27	12.34
Interest on Retention	-0.05	0.46	0.61	0.71	0.24
Vat Income	15.93	16.75	18.15	18.98	1.05
Gross Income	198.05	190.23	199.23	240.92	13.76
Levies	3.10	3.95	3.30	4.27	0.29
Farmers Associations	7.12	7.65	10.05	6.09	-0.07
Cutting	10.71	9.09	9.25	10.27	-0.12
Loading	9.21	11.14	28.76	12.88	2.86
Hauling	45.61	54.15	55.48	65.57	6.12
Debt Redemption	41.45	30.90	37.67	47.02	2.35
Institutional Savings	70.50	71.14	67.30	76.71	1.48
Liguguletfu Cooperative				8.15	
Total Expenditure	175.57	173.37	175.70	200.61	7.74
Margin	22.61	16.93	23.30	40.06	5.87
SPF			6.24	6.57	

Supplementary Payment Fund

The Supplementary Payment Fund (SPF) is paid on 31 March, as is the final cane payment. The SPF is an additional source of income for a grower, and is in the form of an industry grant. The SPF was introduced as a control for the lack of scale economies in the sector, and is a transfer directly to growers producing less than 3000 t/annum from growers producing more than 5000 t³.

As this income cannot be considered farming income and cannot be levied, it was not included when determining the margin displayed in Table 1. The introduction of the SPF in the 2005/06 season resulted in growers receiving an average of ZAR6.52/t. For 17% of the sample, the SPF was the only income received.

Focus areas

The dataset does provide insight into which areas warrant attention in order to improve returns and ensure sustainability. As expected there is a direct relationship between yield and returns.

When a linear function ($y(t) = \beta_1 + \beta_2 t$) with the margin (ZAR/t) as the dependant variable is fitted with yield in 10 t/ha stratum as the independent variable, the first derivative illustrates a rate of change per yield strata. For each 10 t/ha increase in yield the margin achieved by the growers increases by ZAR4.40/t⁴.

³Growers producing between 3000 t and 5000 t have their contributions to the SPF refunded. These growers neither benefit from nor contribute to the SPF.

⁴For each 1 t/ha increase in yield a R0.44/t increase in margin is achieved.

The direct relationship between yield and returns displayed in Figure 1 is not an unexpected result. Given the generally poor returns achieved by growers it is unexpected that growers yielding between 0-10 t/ha still generate a positive margin (ZAR3.52/t) at the conclusion of the season. This result provides insight into why there is reluctance among growers to reinvest in their crop and incur the risk associated with the debt burden. Figure 1 indicates that 'mining' the crop by providing minimal inputs does generate positive returns in the short run.

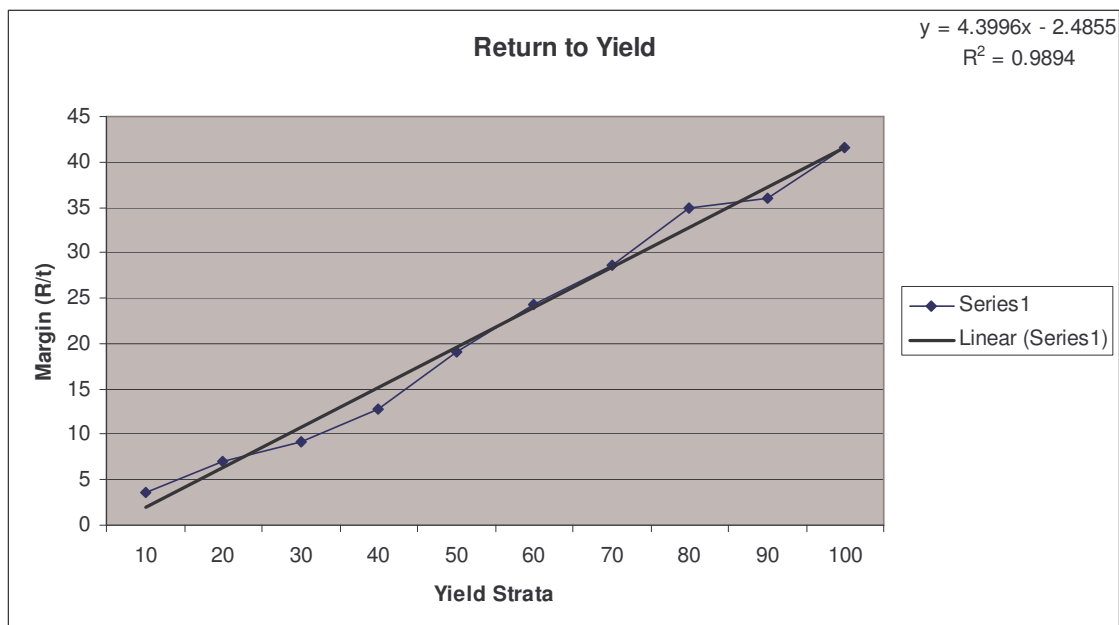


Figure 1. Returns to yield.

Figure 2 displays the returns to scale that are evident within the sample. The first derivative of a linear function with 5ha area strata as the independent variable and margin (ZAR/t) as the dependant variable indicates a ZAR4.97/ha increase in margin per strata⁵. Figure 2 illustrates that, as the area cultivated by the grower increases, the margin achieved by the grower increases.

The need for the consolidation of land to minimise transaction costs (Wynne *et al.*, 2004) is evident, and this can be achieved by introducing various institutions and policies (Bizimana *et al.*, 2004). An example is the introduction of a land rental market which introduces an opportunity cost to underutilised land (Dengu *et al.*, 2007) and thereby can facilitate consolidation.

Table 2 displays growers' annual cash trading account sorted according to their choice of financial institution. Land Bank's client results are displayed separately from those of other financial institutions. Table 2 illustrates that a grower's choice of financial institution has a significant impact on margins. Results indicate that, although average incomes are consistent across the most commonly utilised financial institutions, Land Bank's client margin is ZAR27.30/t less than the weighted average margin of the other banks.

⁵For each 1 ha increase in cultivated area, an increase of R0.99/t is achieved.

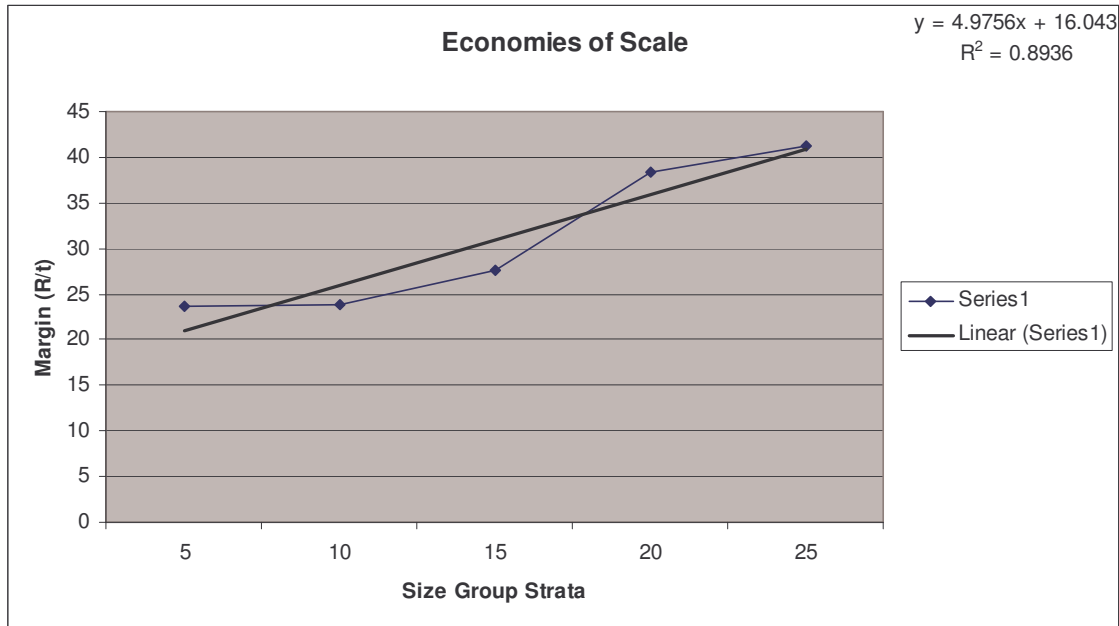


Figure 2. Returns to scale.

Table 2. Choice of financial institution.

	Non-Land Bank		Land Bank	
	n	Average (ZAR/t)	n	Average (ZAR/t)
RV Income	575	190.00	236	187.07
Interest on Retention	575	0.43	236	0.45
Tax Income	565	17.24	236	17.95
Gross Income	575	207.25	236	205.47
Levies	575	3.65	236	3.65
Farmers Associations**	524	8.48	186	5.67
Cutting	427	9.93	164	9.46
Loading	34	12.37	7	23.15
Hauling*	572	56.13	236	52.83
Debt Redemption**	476	29.88	236	57.21
Institutional Savings	575	70.94	234	72.39
Liguguletfu	102	7.89	51	8.67
Reciever of Revenue	29	27.27	2	13.36
Total Expenditure	575	173.78	236	199.18
Margin**	575	33.59	236	6.29

*Statistically significantly different at the 10% level of significance

**Statistically significantly different at the 5% level of significance

The difference in margins achieved can be attributed to the significantly (at 5% significance level) different debt redemption results. Land Bank clients are redeeming debt at a rate of ZAR57.21/t compared with other non-Land Bank clients of ZAR29.88/t. The variance could

be a result of either higher average debt levels or accelerated debt redemption policies. The differences between means are statistically significantly different at the 1% significance level using the independent group's t-test⁶.

Summary

SSG production in Mpumalanga has declined dramatically since the 2000/01 season. The sustainability of the sector is particularly important as SSG production accounts for 20% of cane supply in the region. Analysis of individual grower returns indicates that 34% of growers are reliant on industry grants to generate a net return to farming. Results indicate that low yielding growers are able to generate a return by mining their crop. Although this strategy may be successful in the short run, it may negatively impact on long term sustainability.

Without intervention the poor returns will result in further erosion of the incentive to farm resulting in growers abandoning their fields. As growers exit farming, pressure is placed on the remaining growers to maintain the irrigation infrastructure, and this could eventually result in the collapse of the sector. Results indicate the expected returns to yield and scale economies, and also indicate that a grower's choice of financial institution can have a significant impact on returns and consequently on grower incentives.

Results have, and continue to, inform policy recommendations in Mpumalanga. Intervention focused on increasing 'institutional savings' in line with inflationary pressures to ensure adequate provision for successful reinvestment in their crop. The Akwandze Agricultural Finance (AAF) Retention Savings⁷ rate was increased from ZAR60/t to ZAR85/t during the 2009/10 season.

The Small Scale Grower Sustainability Project, a joint Tsb Sugar Ltd and Mpumalanga Cane Growers' Association initiative, is assisting growers to formalise an existing land rental market. A rental market facilitates the consolidation of farming to improve yields by taking advantage of scale economies.

Analysis of SSG returns in Mpumalanga indicates that SSGs are not sustainable producers. Intervention in the form of policy recommendations is critical to creating a sustainable sector. The reason for SSGs remaining in production despite generating no net return from their farming effort provides an interesting avenue for further research.

$${}^6 t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\left(\frac{S_p^2}{n_1} + \frac{S_p^2}{n_2}\right)}} \text{ where: } S_p^2 = \frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}$$

(Mason, 1986, 481)

⁷Retention Savings are an institutional savings mechanism which deducts a declared rate (ZAR85/t) from individual growers proceeds prior to any other cost deductions to ensure growers have the means to ratoon their crop. This is facilitated by AAF in Mpumalanga.

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