

## THE ECONOMIC IMPACT OF A RURAL LAND TAX ON SELECTED COMMERCIAL FARMS IN KWAZULU-NATAL, SOUTH AFRICA

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### Abstract

This study investigates the economic impact of a land tax implemented under the Local Government Municipal Property Rates Act No. 6 of 2004 on commercial farms using five case studies with five-year data sets in the Mtonjaneni and Umgeni municipal districts of KwaZulu-Natal. The case of farms' ability to pay annual rates between 0.25 per cent and 1 per cent of the value of improved land using real annual economic profit with and without rebates of up to 70 per cent proposed by the Department: Provincial and Local Government ranged from zero to five out of five years, with a mean of two out of five years. A 2 per cent land tax rate with such rebates could also be financed only in two out of five years on average. These results suggest that proposed annual land tax rates of 1.5 per cent (Mtonjaneni) or 1 per cent (Umgeni) on these specific farms would markedly reduce the incentive to invest in farm improvements.

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### 1

#### Introduction

Since the early 1990s, the South African (SA) Government has considered the implementation of a rural land tax, as reflected by 15 drafts of the proposed Local Government Property Rates Bill. This Bill has now been enacted into legislation as the Local Government Municipal Property Rates Act No. 6 of 2004 (hereafter referred to as "the LGMPRA") (Department: Provincial and Local Government (DPLG), 2004a). President Mbeki signed the LGMPRA into effect on 2 July 2005 (SA Government Gazette No. 27720, 2005). Prior to that date, farm land in South Africa was not subject to property taxes levied by municipalities. The new LGMPRA however, incorporates all previously unrated land into municipal boundaries, so that farm land that was not rated under the old municipal ordinances is now liable to pay a land tax (DPLG, 2004a).

The power for SA municipalities to levy a tax on land stems from Section 229 of the SA Constitution, which guarantees "rates on property" as "an autonomous source of revenue

for municipalities" (Franzsen, 2000: 1). In terms of Section 229 of the SA Constitution, a municipality may impose rates on property and surcharges on fees for services provided by or on behalf of the municipality. However, Section 229(2)(a) of the SA Constitution states that a municipality may not exercise its power to levy rates on property in a way that would materially and unreasonably prejudice (a) national economic policies; (b) economic activities across its boundaries; or (c) the national mobility of goods, services, capital or labour (DPLG 2004a: 28).

In South Africa, the land tax is intended to "provide local government with access to a sufficient and buoyant source of revenue to fulfill its developmental responsibilities" (DPLG, 2004b: 5). There is a relatively limited amount of published literature that analyses the potential economic impact of a land tax on commercial farms in South Africa. Nieuwoudt (1990; 1995) noted that a land tax is likely to reduce land rents, and hence cause lower farm land values and discourage investment on farms. Franzsen (1995; 2000) concluded that the implementation of a land tax on commercial

farms could be administratively feasible to levy, assess and collect if it is left to each individual tax jurisdiction to decide after consultation, and in light of its own peculiar circumstances and conditions, which method(s) of valuation and what tax rate to use. Van Schalkwyk *et al.* (1994) reported that a land tax may reduce land values, which in turn would affect the security value of land pledged against loans from financial institutions. *No published peer-reviewed study in South Africa, however, has estimated the economic impact of a land tax on commercial farms using actual accounting and economic data for specific individual farms.*

The aim of this study, therefore, is to estimate the potential impacts of a land tax on selected commercial farms in KwaZulu-Natal (KZN) using farm-specific annual data for the period 2001-2006. The study assesses how a land tax affects farm economic profit (the return to risk and land) that shows the ability of the farm to pay a land tax after accounting for the opportunity cost of resources other than land used on the farm. A Residual Income Methodology (RIM) is developed to estimate the annual and mean economic profit for five selected commercial farms in KZN within the Mtonjaneni and Umgeni municipal districts that have different farming enterprises. Sensitivity analysis is then used to assess whether or not the annual economic profit can finance a range of land tax rates that these municipalities could apply to the market value of land and fixed improvements (the basis for valuing land in terms of the LGMPRA (DPLG, 2004a)). This range includes the annual rates of 1.5 per cent and 1 per cent, respectively, proposed by these two municipalities. The sensitivity analysis also accounts for potential land tax rebates as proposed by the DPLG in the "Generic Rates Policy Format (GRPF)" guidelines (DPLG, 2004c). The paper is organised as follows: Section 2 describes the key provisions of the new LGMPRA, while Section 3 summarises the GRPF guidelines. Section 4 outlines the economic effects of a land tax, and Section 5 describes the study research methodology. Section 6 presents the results of the five case studies. A concluding section discusses some management and policy implications of the results.

## 2 Key provisions in the LGMPRA No. 6 of 2004

The key provisions in the LGMPRA for this study pertain to the criteria that municipalities must use to value and rate farm land.

### 2.1 Designation of municipal valuers and method of property valuation

Before the date of property valuation every municipality must designate a person as a municipal valuer; *this person* may be a municipal official or a valuer who is in private practice. If the valuer is in private practice, the municipality must receive tenders for the intended valuation work so as to follow an open, competitive and transparent process as per Chapter 11 of the Municipal Finance Management Act. The municipal valuer must determine a "market value" for all properties within that municipality and prepare a valuation role for these properties. Market value is defined in Section 46(1) of the LGMPRA as "the amount the property would have realized if sold on the date of valuation in the open market by a willing seller to a willing buyer" (DPLG, 2004c: 50). Professional independent valuers must be persons registered as professional valuers or professional associated valuers in terms of the Property Valuers Profession Act, 2000 (Act No. 47 of 2000) and know how to value properties which have not yet been sold using the "willing seller to a willing buyer" principle (DPLG, 2004a: 2). Section 46(1) of the LGMPRA further states that "in determining the market value of a property *used for agricultural purposes*, the value of any annual crops or growing timber on the property that have not yet been harvested as at the date of valuation must be disregarded for purposes of valuing the property" (DPLG, 2004a: 50). A valuation roll will remain valid for up to four financial years, after which it must be updated (DPLG, 2004a: 40).

### 2.2 Determination of the land tax rate

The financial liabilities for municipal property rates are calculated by multiplying the market value of immovable property by a cent amount

in the rand that a municipal council has determined. This amount is supposed to be decided by that council taking into account public comments, submissions and inputs on the council's draft rates policy and budget that is subjected to the process of community participation (DPLG, 2004b: 2). The critical determinant of how much property owners will pay is the amount in rands that each municipal council will determine for various property categories. In addition, the LGMPRA does not give the right to substantial increases in the total revenue needs of municipalities, nor does it set the cent amount in the rand. Each municipality will apparently continue to set and collect property rates in an amount sufficient to meet its needs, taking into account the likely impact of rates on local economic development, ratepayers and their ability to pay such rates (DPLG, 2004c: 3). In this regard, it must be noted that most of the developed countries that are South Africa's main trading partners tend to levy annual land taxes on farms at rates below 1 per cent, whereas local municipalities tend to have higher rates – for example the Mtonjaneni and Umgeni municipalities have proposed rates of 1.5 per cent and 1 per cent, respectively (Darroch, 2003; Barnsley, 2006; The Witness, 2007). Farmers in developed countries (except New Zealand and Australia) also receive higher levels of agricultural support from their governments than do most SA commercial farmers (apart from tariff protection afforded to several industries such as the SA sugar industry) (Organisation for Economic Cooperation and Development, 2006).

The LGMPRA contains what are intended to be checks and balances to protect property owners if a land tax rate levied by a municipality is materially and unreasonably prejudicing national economic policies, economic activities across municipal boundaries, and the national mobility of goods, services and capital. If the Minister for Provincial and Local Government is convinced by evidence to this effect, the Minister must, in terms of Section 16(2)(a) of the LGMPRA, and after notifying the Minister

of Finance, gazette a notice to the relevant municipality that the cent amount in the rand must be limited to the amount specified in the notice (DPLG, 2004a: 28). Commercial farmers will, therefore, have to provide such evidence if they want to appeal against the land tax rates levied by local municipalities.

### **2.3 Compulsory phasing-in of certain rates**

Section 21 of the LGMPRA requires municipalities to “phase-in” land tax rates levied on newly rateable property over three financial years. This refers to any property on which property rates were not levied before the end of the financial year preceding the date on which the LGMPRA took effect. The phasing-in discount must be at least 75 per cent of the land tax rate in the first year that a municipality implements the LGMPRA, at least 50 per cent in the second year, and at least 25 per cent in the third year. The full land tax rate then applies from the fourth year onwards (DPLG, 2004a: 33-34).

### **2.4 Property rate exemptions, reductions and rebates**

In addition to the mandatory prohibitions on rating described above, Section 3(4) of the LGMPRA enables municipalities to grant exemptions from, rebates on, and reductions in property rates based on local conditions and circumstances. Owners of agricultural properties who are *bona fide* farmers qualify for such relief measures (see Section 15(2)(f) of the LGMPRA (DPLG 2004a: 28)). The LGMPRA does not specify the extent of these measures, but guidelines for setting rebates for the owners of agricultural land are proposed in the GRPF. These guidelines are discussed in section 3 of this paper. A municipality also may not levy rates on a property belonging to a land reform beneficiary or his or her heirs for 10 years from the date on which such beneficiary's title was registered (DPLG, 2004a: 30).

### 3

#### **Guidelines proposed by the DPLG for land tax rebates for commercial farms**

Section 3(4) of the LGMPRA requires that a municipality must consider the following criteria in developing a policy for annual exemptions, rebates and reductions for properties used for agricultural purposes: (a) the extent of services it provides in respect of such properties; (b) the contribution of agriculture to the local economy; (c) the extent to which agriculture assists in meeting the municipality's service delivery and development obligations; and (d) the contribution of agriculture to farm workers' social and economic welfare. The guidelines for such criteria proposed in the GRPF (DPLG, 2004c) are outlined in the following three sections.

#### **3.1 Extent of municipal services provided to agricultural properties**

- 7.5 per cent rebate, if there are no municipal roads next to the property.
- 7.5 per cent rebate, if there is no municipal sewerage to the property.
- 7.5 per cent rebate, if there is no municipal electricity to the property.
- 20 per cent rebate, if water is not supplied by the municipality.
- 7.5 per cent rebate, if the municipality provides no refuse removal (DPLG, 2004c: 11).

#### **3.2 The contribution of agriculture to the local economy**

An annual rebate of up to 5 per cent is proposed if an agricultural property contributes substantially to job creation, and the salaries/wages of its farm workers are reasonable, e.g., if they meet the minimum standards set by the Government (minimum wage) or if they are in line with the industry average (DPLG, 2004c: 12).

#### **3.3 Extent to which agriculture assists the municipality in meeting its service delivery and development obligations**

- 5 per cent rebate, if the owner is providing permanent residential property to the farm workers and such property is registered in the name of these farm workers; proof must be provided.
- 5 per cent rebate, if such residential properties are provided with potable water.
- 5 per cent rebate, if the farmer electrifies such residential properties of farm workers.
- 5 per cent rebate, if the farmer is availing his land/buildings to be used for cemetery, education and recreational purposes of the farm workers' children and nearby community in general, etc. (DPLG, 2004c: 12).

Under the three sets of guidelines, a farmer that meets all of the proposed requirements would receive a maximum annual land tax rebate of 75 per cent. The RIM for each of the five case study farms accounts for these proposed rebates where applicable. Section 4 outlines the economic effects of a land tax on farm land as background for the RIM.

### 4

#### **Outline of the economic effects of a land tax on farm land**

This section outlines the potential effects of a land tax on farm land rents and investment, the advantages and disadvantages of a land tax, and the concept of the capitalisation of a land tax.

#### **4.1 Effects of a land tax on farm land rents and investment**

Nieuwoudt (1995, citing Pasour (1975)) notes that a rural land tax on the *improved value* of land (in the long run) falls on new investment and as such will be a disincentive to future investment in land improvements. A land tax reduces current operating returns to land (cash rents), and thereby reduces the incentive to invest in new improvements. This is likely

to reduce future food production and export earnings, and increase food prices in the long run. A land tax is thus unlikely to bring idle land into use. Other disadvantages of a land tax include: (a) administration is costly as all properties need to be appraised individually and regularly; (b) in practice it is almost impossible to exclude all improvements from the tax; (c) the tax is a flat rate tax and not progressive; and (d) the tax is the same in relatively higher income years and relatively lower income years during a given valuation cycle, although it may be possible to defer the tax and incur interest charges. The land tax is thus a fixed cost as it cannot be shifted and has to be paid by the farmer regardless of what is produced on the farm. Against these disadvantages, the following are advantages of a land tax: (a) evasion and avoidance are not possible; (b) farmers need not keep records on costs and incomes as required for Value Added Tax and income tax reporting; (c) it is a wealth tax; and (d) it may more effectively tax the wealthy landowner who with the assistance of tax experts can plan to avoid income taxes (Lindholm, 1972; Van Schalkwyk *et al.*, 1994; Franzsen, 1995; Nieuwoudt, 1995; Olsen, 2004: 87).

#### 4.2 Capitalisation of a land tax

Pasour (1973; 1975) and Barry *et al.* (2000) show that land taxes or increases in land taxes in the United States were capitalised (discounted) into lower farm land values. The current market value of farm land,  $V_0$ , can be estimated by capitalising the expected annual real earnings from that land (cash rents),  $R_0$ . If  $R_0$  are expected to grow over time at a real rate of  $g$  per cent,  $V_0$  is estimated by the constant growth model (if  $g$  is constant) as (Barry *et al.*, 2000):

$$V_0 = R_0 (1 + g) / (i_t - g) \quad (4.1)$$

where  $i_t$  is the expected real interest rate.

Reworking equation (4.1) gives:

$$(i_t - g) / (1 + g) = R_0 / V_0 \quad (4.2)$$

Equation (4.2) implies that there is a constant ratio between  $R_0$  and  $V_0$  – a rise (fall) in  $R_0$

causes a proportional rise (fall) in  $V_0$ . Nieuwoudt (1987: 10) and Ortmann (1987: 295) both state that the long-run average rental rate of return for land in SA agriculture ( $R_0/V_0$ ) is about 5 per cent. Rents show the true profits realised from land after considering all costs, including risk and management, where rent is the “payment made per unit of time to owners of property for the use of their land and buildings” (Ortmann, 1987: 249). If a land tax of 1 per cent of  $V_0$  is fully capitalised,  $R_0$  after the land tax = 5 per cent – 1 per cent = 4 per cent, a drop of 20 per cent. A fall in  $R_0$  from, say, 100 rand, to 80 rand, thus means that  $V_0$  falls from  $100/0.05 = 2000$  rand to  $80/0.05 = 1600$  rand, or by  $400/2000 = 20$  per cent.

Land values are thus expected to fall by the same percentage as land rents if a land tax is fully capitalised into lower land values. Full capitalisation, however, is unlikely as the supply of improved farmland is likely to be highly inelastic rather than perfectly inelastic in the long-run. The reason is that improvements such as draining, clearing, fencing, irrigation, new pastures, etc. take time to develop in response to higher expected rents. Such changes are thus likely to be small relative to the total quantity of improved farmland available during any time period (Pasour, 1975). This implies that a relatively small share of the land tax will be “shifted” to consumers in the form of higher prices due to less future investment in land improvements. In addition, if the proceeds from a land tax are used to improve municipal infrastructure, such as the upgrading of roads,  $R_0$  and hence  $V_0$  could rise, thereby partially offsetting the fall in net rent and  $V_0$  caused by the land tax (Pasour, 1973). The capitalisation of lower expected net rents into lower expected land values implies that the RIM described in section 5.3 below must account for the negative impact of the land tax on rental returns to land.

## 5

### Research methodology

This section describes the case study farms, study data collection and the RIM framework.

### 5.1 Target commercial farms in KZN

Due to cost and time constraints, and the confidential nature of the required data, the selected commercial farms were drawn from farmers in the Mtonjaneni and Umgeni municipal districts of KZN that were prepared to provide the annual data required for the RIM. The Mtonjaneni municipal district office is based in Melmoth in Zululand, some 270 km north of Pietermaritzburg, the capital city of KZN. The Umgeni municipal district office is based in Howick, which is about 35 km north-west of Pietermaritzburg. The KZN province has a diverse commercial farming sector operating enterprises such as poultry, livestock, sugarcane, timber, vegetable, maize, and dairy (Wikipedia, 2006). The five commercial farms used to develop the case studies in this paper differ in the main enterprises.

Case Study 1 is an 816 hectare (ha) sugar cane and timber farm in the Mtonjaneni municipal district. Case Study 2 describes an intensive poultry (egg) farm with some maize (170 ha in total area), while Case Study 3 is an intensive dairy farm on 434 ha. Case Study 4 applies to 239 ha of farm land that is leased out for intensive vegetable production, maize and grazing. Case Study 5 is a mixed enterprise farm producing maize, potatoes, sheep, cattle and poultry, spanning 374 ha. Case study farms 2 to 5 are situated in the Umgeni municipal district. These five farms were chosen as their owners were: (a) well-established (operating for over 10 years); (b) able to provide relevant, accurate and audited accounting data for the last five to six years; (c) willing to release confidential accounting and economic data; and (d) operating typical farm enterprises found in KZN. Given that land reform beneficiaries receive a 10-year exemption from the payment of property rates, no "land reform" case study was analysed.

### 5.2 Study data collection

Data were collected from each farmer using face-to-face interviews and a questionnaire designed to estimate the size of annual land tax rebates using the proposed DPLG GRPF guidelines discussed in section 3. The accounting data were drawn from the farm income and

cash flow statements and balance sheets. These data were analysed using the RIM described in section 5.3 to estimate the annual return to risk and land (a proxy for rent) for each farm during 2001-2006 if available. The market value of land and fixed improvements for each farm (including the homestead, and excluding the value of standing crops) was estimated by independent professional valuers who requested to remain anonymous and not be cited in this paper. These market valuations are listed in each municipality's valuation roll and were conducted in accordance with the LGMPRA definition of market value (see section 2.1) using the comparable sales method. The research questionnaire contained questions about the extent of municipal services received by the farm; job creation and wage levels on each farm, and services provided to staff; and the farmer/land owner's estimated opportunity cost of management (net revenue forgone from his/her next best occupation (Olsen, 2004)).

### 5.3 Empirical analysis using the RIM framework

Meaningful conclusions about how to allocate resources need to be drawn from the expected economic, and not accounting, performance of farms (Aggarwal, 2001). The RIM is useful in this regard as it reduces revenue after accounting costs and income tax by a charge for the opportunity cost of management that is employed to produce the income. This yields an estimate of economic profit (Hawawini *et al.*, 2001: 11) that is a proxy for the current annual operating return to risk and land generated by a farming activity. Economic profit gives farmers and policy makers a better understanding of whether a farm can afford different levels of annual land tax – a farm with a high accounting profit may not necessarily have a high economic profit. The RIM in this paper is adapted from Mephram (1980), Kay & Edwards (1999), and O'Hanlon & Peasnell (2004), as illustrated in Appendix 1 for Case Study 1 (the RIMs for the other four case studies are not shown due to the word limitation on this paper, but are available from the authors on request). The RIM first estimates annual nominal accounting

profit as farm revenue less fixed costs and variable costs, plus other receipts (if any), for each year during 2002-2006. Under fixed costs, the annual depreciation charge is adjusted to current cost terms using the relevant Machinery and Implement index for each year (see SA Department of Agriculture (2006: 101)). This implies that the operational capacity of each case study farm is sustained by adequate provision of funds for the replacement of machinery and implements (Faul *et al.*, 1981).

Annual nominal accounting profit (loss) is then expressed in real terms after income tax using the SA Consumer Price Index (CPI) with 2006 as base year (Statistics SA, 2006) and income tax rates as reported by the SA Revenue Service (SARS) (SARS, 2006). Deducting the real opportunity cost of management after income tax then gives an estimate of the annual real economic profit (return to risk and land). The *opportunity cost or value of operator labour and management* is what the operator (farmer) could receive in a non-farm job that requires similar labour and management skills (Olsen, 2004: 209). If this opportunity cost component is ignored, annual farm profit will be overstated and this figure should then be interpreted as the "estimated return to management and profit" (Kay & Edwards, 1999: 168). In addition, if the opportunity cost of management is not covered (negative economic profit), the farmer would have an incentive to shift his resources out of the current farm enterprises into other uses (Doll & Orazem, 1984). To allow for uncertainty in obtaining off-farm employment, the opportunity cost of management after income tax in this paper is given by each farmer's estimate of the real annual net income after income tax that he/she could earn in his/her best alternative non-farm job multiplied by his/her subjective estimate of the probability of actually securing that job. The annual real economic profit (return to risk and land) ignores any (non-cash) capital gains due to the appreciation (if any) in value of improved farm land – it estimates the current operating returns available to pay the land tax after all resources *other than land* have received payment.

The annual real return to risk and land expressed as a percentage of the market value

of land and fixed improvements as of 2006 gives the rate of return to risk and land. Following Barnard & Nix (1979: 530), the mean annual real economic profit and rate of return to risk and land for each case study over several seasons (2001-2006 if available) is estimated to effectively compare farm financial results. Sensitivity analysis is then used to assess whether or not the annual and mean returns to risk and land can fund different rates of annual land tax ranging from 0.25 per cent to 5 per cent (the latter being the estimated average annual rate of return to farm land in South Africa (Nieuwoudt, 1987; Ortmann, 1987; Darroch, 2003)). The sensitivity analysis also accounts for the effects of proposed annual land tax rebates under the GRPF guidelines, and hence shows each farm's ability to pay each land tax rate with and without the applicable rebate(s). For case studies 2 to 5, it also includes the effects of the 50 per cent rebate that has been proposed by the Umgeni Municipality (despite the GRPG guidelines) for agricultural properties (Lee, 2007). Case Study 1 in the Mtonjaneni municipal district is subject to the three-year phasing-in period for the land tax, while case studies 2 to 5 in the Umgeni municipality are no longer considered as "previously unrated land", and do not qualify for phasing-in (Barnsley, 2006).

## 6

### Results

#### 6.1 Case study 1

This sugarcane and timber farm (real market value of R7 500 000) qualifies for a 70 per cent land tax rebate (all GRPF rebate guideline criteria except for providing permanent housing to farm workers are met). Table 1 summarises key annual accounting and economic data, and Table 2 shows the annual land tax due with and without the rebate for tax rates between 0.25 per cent and 5 per cent. Table 3 tracks the land tax amount due over the three-year phasing-in period for the 1.5 per cent rate proposed by the Mtonjaneni Municipality. After four years with no rebate the annual land tax is R112 000, while a 70 per cent rebate reduces the annual land tax to R33 750.

**Table 1**

Key measures: Sugarcane and timber farm, Mtonjaneni municipality, KZN (2006=100)

Measure	2006	2005	2004	2003	2002	Mean
Nominal accounting profit (R)	1 218 115	170 790	496 989	1 169 107	1 025 108	816 022
Real accounting profit before income tax (R)	1 218 115	178 838	537 867	1 283 323	1 190 602	881 748
Real accounting profit (loss) after income tax (R)	773 869	134 924	352 744	792 201	708 279	552 403
Real opportunity cost of management (R)	405 000	405 000	405 000	405 000	405 000	405 000
Real economic profit (R)	368 869	-270 076	-52 256	387 201	303 279	147 403
Return to risk and land (%) <sup>1</sup>	4.92%	-3.60%	-0.70%	5.16%	4.04%	1.96%

<sup>1</sup>Note: Return to risk and land (%) = Real economic profit/real value of land and fixed improvements (R7 500 000).**Table 2**

Annual land tax with and without a rebate: Sugarcane and timber farm, Mtonjaneni municipality, KZN (2006=100)

Land tax rate	0.25%	0.5%	1%	1.5%	2%	3%	4%	5%
Amount payable (No rebate) (R)	18 750	37 500	75 000	112 500	150 000	225 000	300 000	375 000
Amount payable (70% rebate) (R)	5 625	11 250	22 500	33 750	45 000	67 500	90 000	112 500

**Table 3**

Annual land tax over the four-year phasing-in period for a 1.5 per cent tax rate: Sugarcane and timber farm, Mtonjaneni municipality, KZN (2006 = 100)

Period	With No Rebate	With a 70% Rebate
Year 1: 75% reduction (R)	28 125	8 436
Year 2: 50% reduction (R)	56 250	16 875
Year 3: 25% reduction (R)	84 375	25 213
Year 4: Full rate applies (R)	112 500	33 750

The five-year mean return to risk and land for Case 1 implies that an annual land tax of 1.96% would, on average, tax away all economic profit. Given the fluctuating five-year trend, estimated annual economic profit could probably finance the proposed 1.5 per cent annual land tax in two out of four years during the phasing-in period. In the long-term after the phasing-in period is

over, estimated annual economic profit can meet all land tax scenarios from 0.25 per cent up to 4 per cent with no rebate, and 5 per cent with GRPF rebate, in three out of five years. A land tax rate of 5 per cent with no rebate can only be met in one year (2003) when it will almost deplete real economic profit.

## 6.2 Case study 2

Table 4 gives key annual RIM data for this intensive poultry (egg production) farm in the Umgeni municipal district with a real market value of R8 232 000. Table 5 summarises the annual land taxes that this farm would pay on

this market value at rates from 0.25 per cent to 5 per cent, including the 1 per cent rate currently applied by the Umgeni Municipality (The Witness, 2007). Case Study 2 also qualifies for a 70 per cent land tax rebate under the GRPF guidelines (again there is no permanent housing for farm workers).

**Table 4**

Key measures: Intensive poultry farm (egg production), Umgeni municipality, KZN (2006=100)

Measure	2006	2005	2004	2003	2002	Mean
Nominal accounting profit (R)	1 995 217	780 664	1 496 271	708 478	518 905	1 099 907
Real accounting profit before income tax (R)	1 995 217	817 449	1 619 341	777 693	602 677	1 162 475
Real accounting profit (loss) after income tax (R)	1 240 130	524 451	1 001 547	488 823	314 735	713 937
Real opportunity cost of management (R)	1 140 000	1 140 000	1 140 000	1 140 000	1 140 000	1 140 000
Real economic profit (R)	100 130	-615 549	-138 453	-651 177	-825 265	-426 063
Return to risk and land (%) <sup>2</sup>	1.22%	-7.48%	-1.68%	-7.91%	-10.03%	-5.18%

<sup>2</sup>Note: Real economic profit/real value of land and fixed improvements (R8 232 000).

**Table 5**

Annual land tax payable with and without a rebate: Intensive poultry farm (egg production), Umgeni municipality, KZN (2006=100)

Land tax rate	0.25%	0.5%	1%	2%	3%	4%	5%
Amount payable (No rebate)	20 580	41 160	82 320	164 640	246 960	329 280	411 600
Amount payable (70% rebate)	6 174	12 348	24 696	49 392	74 088	131 712	123 480
Amount payable (50% rebate)	10 290	20 580	41 160	82 320	123 480	164 640	205 800

Land tax rates of between 0.25 per cent and 1 per cent with or without rebates could be funded from current operating returns only in one of the five years (2006). A land tax rate of 2 per cent with rebates could also be financed only in 2006, when it would cut the surplus available for new investment after paying the land tax to below 1 per cent of the market value of land and fixed improvements. A land tax rate of 3 per cent with a 70 per cent rebate gives similar results to the land tax rate of 2 per cent with rebates.

## 6.3 Case study 3

Table 6 and Table 7 show the key annual accounting, economic and land tax data for this intensive dairy farm in the Umgeni municipal district (market value of R8 178 00) that has a 70 per cent land tax rebate using the GRPF criteria (again farm workers receive no permanent housing). Annual land taxes at rates from 0.25 per cent to 2 per cent – all with and without the GRPF or Umgeni Municipality rebates – could be financed from current operating returns only

in two of the five years (2003 and 2004). Payment of a 1 per cent annual land tax without rebates, or a 2 per cent annual land tax with the 50 per cent municipal rebate, in 2004 would have left a surplus for annual reinvestment of less than R1 000. The mean economic profit and return to

risk and land for 2001-2005 were both positive, being R6 479 and 0.08 per cent, respectively. This suggests that an annual land tax rate of 1 per cent of the market value of land and fixed improvements would markedly reduce the incentive to invest in future improvements.

**Table 6**

Key measures: Intensive dairy farm, Umgeni municipality, KZN (2006=100)

Measure	2005	2004	2003	2002	2001	Mean
Nominal accounting profit (R)	460 732	774 047	1 660 214	417 591	11 278	664 772
Real accounting profit before income tax (R)	482 442	837 713	1 822 408	485 007	14 294	728 373
Real accounting profit (loss) after income tax (R)	323 465	532 558	1 115 645	299 004	11 721	456 479
Real opportunity cost of management (R)	450 000	450 000	450 000	450 000	450 000	450 000
Real economic profit (R)	-126 535	82 558	665 645	-150 996	-438 279	6 479
Return to risk and land (%) <sup>3</sup>	-1.55%	1.01%	8.14%	-1.85%	-5.36%	0.08%

<sup>3</sup>Note: Real economic profit/real value of land and fixed improvements (R8 178 000)

**Table 7**

Annual land tax payable with and without a rebate: Case study 3, Umgeni municipality, KZN (2006=100)

Land tax rate	0.25%	0.5%	1%	2%	3%	4%	5%
Amount payable (No rebate) (R)	20 445	40 890	81 780	163 560	245 340	327 120	408 900
Amount payable (70% rebate) (R)	6 134	12 267	24 534	49 068	73 602	98 136	122 670
Amount payable (50% rebate) (R)	10 223	20 445	40 890	81 780	122 670	163 560	204 450

#### 6.4 Case study 4

Key annual measures relating to the rental income earned by the lessor in Case Study 4 from leasing out 239ha of land worth R1 964 487 for vegetable and maize production and grazing are shown in Table 8. This farm would qualify for a 65 per cent land tax rebate under the GRPF criteria. Case Study 4 differs from the other four cases in estimating annual real economic profit, as the lessor receives cash rent (nominal economic profit) rather than accounting profit

as annual income. The implicit assumption in this case study, therefore, is that *the opportunity cost of management has been met*, leaving nominal economic profit as the return to risk and land before income tax. Land maintenance costs were subtracted from nominal economic profit before charging income tax to reflect the lessor's tax-deductible expenditure in maintaining the leased land. Real economic profit after income tax thus shows the equivalent estimated annual return to risk and land.

**Table 8**

Key measures: Leased land, Umgeni municipality, KZN (2006=100)

Measure	2006	2005	2004	2003	2002	Mean
Nominal cash rent (economic profit) before income tax (R)	84 000	84 000	84 000	79 000	79 000	82 000
Annual nominal maintenance costs (R)	17 000	15 350	16 000	14 350	12 750	15 090
Real economic profit before income tax (R)	67 000	71 885	73 593	70 966	76 945	72 078
Real economic profit (loss) after income tax (R)	54 940	58 946	60 066	57 932	57 172	57 811
Return to risk and land (%) <sup>4</sup>	2.80%	3.00%	3.06%	2.95%	2.91%	2.94%

<sup>4</sup>Note: Real economic profit after income tax/real value of land and fixed improvements (R1 964 487).

Given the annual land taxes estimated in Table 9, economic profit could fund rates from 0.25 per cent to 1 per cent with and without rebates in all five years during 2002-2006. However, the limited surplus available for reinvestment relative to the market value of land and fixed

improvements at land tax rates of 2 per cent and greater, even with the 50 per cent rebate proposed by the Umgeni Municipality, would markedly reduce the incentive to make further capital improvements on this farm land.

**Table 9**

Annual land tax payable with and without a rebate: Leased land, Umgeni municipality, KZN (2006=100)

Land tax rate	0.25%	0.5%	1%	2%	3%	4%	5%
Amount payable (No rebate) (R)	4 911	9 822	19 645	39 290	58 935	78 579	98 224
Amount payable (65% rebate) (R)	1 719	3 438	6 876	13 751	20 627	27 503	34 379
Amount payable (50% rebate) (R)	2 456	4 911	9 822	19 645	29 467	39 290	49 112

### 6.5 Case study 5

This mixed enterprise farm with an estimated real market value of R3 597 000 qualifies for a 70 per cent land tax rebate using the GRPF guidelines (again no permanent housing is provided). Tables 10 and 11 summarise the relevant annual accounting, economic and

land tax data. Case Study 5 could not pay any level of annual land tax out of annual current operating returns during 2002-2006. The negative mean annual rate of return to risk and land (-8.50 per cent) implies that the land tax would further worsen this farm's already weak liquidity position.

**Table 10**

Key measures: Mixed enterprise farm, Umgeni municipality, KZN, (2006=100)

Measure	2006	2005	2004	2003	2002	Mean
Nominal accounting profit (R)	371 917	-169 792	-196 786	226 080	-149 675	16 349
Real accounting profit before income tax (R)	371 917	-177 792	-212 972	248 167	-173 838	11 096
Real accounting profit (loss) after income tax (R)	265 589	-177 792	-212 972	171 100	-173 838	-25 583
Real opportunity cost of management (R)	280 000	280 000	280 000	280 000	280 000	280 000
Real economic profit (R)	-14 411	-457 792	-492 972	-108 900	-453 838	-305 583
Return to risk and land (%) <sup>5</sup>	-0.40%	-12.731%	-13.71%	-3.03%	-12.62%	-8.50%

<sup>5</sup> Note: Real economic profit/real value of land and fixed improvements (R3 597 000).**Table 11**

Annual land tax payable with and without a rebate: Mixed enterprise farm, Umgeni municipality, KZN (2006=100)

Land tax rate	0.25%	0.5%	1%	2%	3%	4%	5%
Amount payable (No rebate) (R)	8 993	17 985	35 970	71 940	107 910	143 880	179 850
Amount payable (70% rebate) (R)	2 698	5 396	10 791	21 582	32 373	43 164	53 955
Amount Payable (50% rebate) (R)	4 497	8 993	17 985	35 970	53 955	71 940	89 925

## 6.6 Summary of results

The estimated mean annual rate of return to risk and land (real economic profit (loss) excluding capital gains, divided by the real market value of land and fixed improvements) for the five case study farms during 2001-2006 ranged from -8.50 per cent to 2.94 per cent, with an average of -1.740 per cent. The five case study farms' ability to pay annual land taxes of between 0.25 per cent and 1 per cent of the value of improved land with and without proposed GRPF rebates from annual current operating returns ranged from zero to five out of five years, with an average of two out of five years. A land tax rate of 2 per cent *with such rebates* could be financed using current operating returns also only in two out

of five years on average. These results suggest that annual land taxes on the market value of land and fixed improvements at rates of 1.5 per cent or 1 per cent proposed by the municipalities concerned would markedly reduce the incentive to make future capital investments on these specific farms.

## 7

## Conclusions

Using the RIM framework, study results show that an annual land tax at the proposed rate of 1.5 per cent on the market value of improved land for Case Study 1 in the Mtonjaneni Municipality could only be financed by current

operating returns with or without the proposed GRPF rebates in three out of five years. For case studies 2 to 5 in the Umgeni Municipality, only one farm could, on average, pay the proposed annual rate of 1 per cent with or without rebates out of current operating returns during 2001-2006. These findings, together with the case study farms' inability to also consistently pay these proposed annual rates or lower annual rates of 0.25 per cent over a five-year period, raise concerns about the negative impact of such rates on future investment in farm improvements, and hence, food production and prices. Given that annual land tax rates in the countries that are South Africa's major trading partners tend to be less than 1 per cent, and that most of these countries give considerably more support to agriculture, land tax rates over 1 per cent in South Africa will likely further reduce the competitiveness of the SA agricultural sector.

Study results relate to five case study farms that, while operating typical farm enterprises found in KZN, are not a statistically representative sample of commercial farms in KZN. Further research is, therefore, needed in KZN and other SA provinces to estimate how different annual rates of land tax will affect the economic performance of farms in other areas to assess whether rates above 1 per cent can be met from current operating returns without markedly reducing investment in capital improvements. Another policy issue raised by this study is the extent to which SA municipalities will adopt the DPLG GRPF guidelines on land tax rebates for commercial farms. These guidelines are not binding on municipalities, and at the time of writing, the Mtonjaneni Municipality had offered no rebate, while the Umgeni Municipality had proposed a flat rate of 50 per cent on all farm properties (despite this study showing that the four farms in the Umgeni Municipality would qualify for rebates of between 65 per cent and 70 per cent under the GRPF criteria). Given the lack of published peer-reviewed studies on how these guidelines will affect SA commercial farmers, it is critical that accurate information on the contribution of agriculture in individual municipalities be compiled. This will help municipal representatives to better assess the costs and benefits of different land

tax rates and hence set affordable rates that will generate revenue without compromising future investments in farm improvements and the role of agriculture in the local economy.

This paper also highlights the need to assess the impact of land taxes on SA farms on a case-by-case, municipality-by-municipality basis, using data that are specific to individual farms. Key determinants will be the estimated market value of improved farm land, the rate randage, the extent of land tax rebates, the phasing-in period (if any) and the estimated annual current operating returns to farm land over several years. More research is needed to assess whether or not the costs that local municipalities will incur to implement land taxes (the value of rebates plus land valuation and administration costs) will be less than the revenue that they receive from these taxes. Further research could also focus on how a rural land tax may affect land use patterns and investments by commercial farmers in items such as labour training and fire control that currently reduce the costs incurred by municipalities to provide such services.

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### References

- 1 AGGARWAL, R. (2001) "Using economic profit to assess performance: A metric for modern firms", *Business Horizons*, (January/February): 55-60.
- 2 BARNARD, C.S. & NIX, J.S. (1979) *Farm Planning and Control* (4<sup>th</sup> ed.) Cambridge University Press: Cambridge.
- 3 BARNESLEY, R. (2006) Personal communication, Chairman: KwaZulu-Natal Agricultural Union, Dargle, South Africa.

- 4 BARRY, P.J.; ELLINGER, P.N.; HOPKIN, J.A. & BAKER, C.B. (2000) *Financial Management in Agriculture* (6<sup>th</sup> ed.) The Interstate Publishers & Printers: Danville, Illinois, USA.
- 5 DARROCH M.A.G. (2003) "The potential effects of a land tax on agricultural land use, investment and land values in KwaZulu-Natal". A Report prepared for the KwaZulu-Natal Agricultural Union. Pietermaritzburg.
- 6 DOLL, J.P. & ORAZEM, F. (1984) *Production Economics: Theory with Applications* (2<sup>nd</sup> ed.) Wiley: New York.
- 7 DEPARTMENT: PROVINCIAL AND LOCAL GOVERNMENT (DPLG) (2004a) "Local Government: Municipal Property Rates Act No. 6 of 2004", Department: Provincial and Local Government, Republic of South Africa. <http://dplg.gov.za> [Accessed on 30 May 2006].
- 8 DEPARTMENT: PROVINCIAL AND LOCAL GOVERNMENT (DPLG) (2004b) "Guidelines on valuations for municipalities", Department: Provincial and Local Government, Republic of South Africa. <http://dplg.gov.za> [Accessed on 30 May 2006].
- 9 DEPARTMENT: PROVINCIAL AND LOCAL GOVERNMENT (DPLG) (2004c) "Generic rates policy format", Department: Provincial and Local Government, Republic of South Africa. <http://dplg.gov.za> [Accessed on 30 May 2006].
- 10 FAUL, M.A.; EVERINGHAM, G.K.; REDELINGHUY, H.F. & VAN VUUREN, L.M. (1981) *Financial Accounting*, Butterworth: Pretoria.
- 11 FRANZSEN, R.C.D. (1995) "Viability of a rural land tax in South Africa", *Property Management*, 13(3): 21-42.
- 12 FRANZSEN, R.C.D. (2000) "Local government and property tax reform in South Africa", <http://www.lincolnst.edu/pubs/pub-detail.asp?id=299> [Accessed on 13 July 2006].
- 13 HAWAWINI, G.; SUBRAMANIAN, V. & VERDIN, P. (2001) "Is performance driven by industry- or firm-specific factors?", *Working Paper, INSEAD Business School*, Fontainebleau, France.
- 14 KAY, R.D. & EDWARDS, W.M. (1999) *Farm Management* (4<sup>th</sup> ed.) McGraw-Hill: New York.
- 15 LEE, C.R. (2007) Personal communication, Legal Representative for the KwaZulu-Natal Agricultural Union, Dargle, South Africa.
- 16 LINDHOLM, R.W. (1972) "Twenty-one land value taxation questions and answers", *The American Journal of Economics and Sociology*, 31(2):153-164.
- 17 MEPHAM, M.J. (1980) "The residual income debate", *Journal of Business Finance & Accounting*, 7(2): 183-199.
- 18 NIEUWOUDT, W.L. (1990) "Efficiency of land use", *Agrekon*, 29(4): 210-214.
- 19 NIEUWOUDT, W.L. (1995) "The impact of a land tax on future investments: A note", *The South African Journal of Economics*, 63(1): 85-90.
- 20 O'HANLON, J. & PEASNEL, K. (2004) "Residual income valuation: Are inflation adjustments necessary?", *Review of Accounting Studies*, 9: 375-398.
- 21 OLSEN, K.D. (2004) *Farm Management: Principles and Strategies* Iowa State Press: Iowa, United States of America.
- 22 ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT (OECD) (2006) *Agricultural policies in OECD countries at a glance: 2006* Food, Agriculture and Fisheries Directorate, Organization for Cooperation and Development: Paris, France.
- 23 ORTMANN, G.F. (1987) "Land rents and production costs in the South African Sugar Industry", *The South African Journal of Economics*, 55(3): 249-258.
- 24 PASOUR, E.C. (1973) "Real property taxes and farm real estate values in North Carolina", *American Journal of Agricultural Economics*, 55: 549-556.
- 25 PASOUR, E.C. (1975) "The capitalization of real property taxes levied on farm real estate", *American Journal of Agricultural Economics*, 57: 389-397.
- 26 SOUTH AFRICAN DEPARTMENT OF AGRICULTURE (2006) "Price indices of machinery, trucks and implements", <http://www.nda.agric.za> [Accessed on 8 March 2007].
- 27 SOUTH AFRICAN GOVERNMENT GAZETTE (2005) *Gazette No. 27720*, Government Printer: Pretoria.
- 28 SOUTH AFRICAN REVENUE SERVICE (2006) "Income tax tables 2001-2006", <http://sars.co.za> [Accessed on 5 March 2007].
- 29 STATISTICS SA (2006) "The consumer price index and annual inflation rate on a monthly basis", <http://statssa.co.za.com> [Accessed on 23 November 2006].
- 30 THE WITNESS (2007) "Umgeni lowers rates randage", *The Witness* 2 June 2007: 4.
- 31 VAN SCHALKWYK, H.D.; VAN ROOYEN, C.J. & JOOSTE, A. (1994) "Possible effects of an agricultural land tax in South Africa", *Agrekon*, 33(4): 206-211.
- 32 WIKIPEDIA (2006) "KwaZulu-Natal", <http://en.wikipedia.org/wiki/KwaZulu-Natal> [Accessed on 10 November 2006]

## Appendix 1

RIM Analysis: Sugarcane and timber farm in the Mtonjaneni municipality, KZN (2002-2006), (2006=100)

Year	2006	2005	2004	2003	2002	Real mean
	R	R	R	R	R	R
<b>Revenue</b>						
Cane sales	9 991 606	8 352 398	9 861 739	8 246 881	6 641 931	
Marginal milling profits	5 949 039	4 914 983	6 200 187	6 060 052	4 734 215	
Timber sales	622 766	598 126	1 058 057	1 043 373	832 152	
Contracting income	3 314 111	2 716 854	2 575 039	1 143 456	1 075 564	
Seed income	1 513	122 453	28 456	0	0	
	104 177	0	0	0	0	
<b>Add: Other revenue</b>						
Rental	997 370	646 882	999 525	980 000	54 595	
Insurance received	965 398	577 499	981 300	980 000	53 375	
	31 972	69 383	18 225	0	1 220	
<b>Less: Variable costs</b>						
Business running costs	10 071 573	9 160 863	10 254 388	7 956 115	5 567 240	
Other variable costs	1 365 425	1 013 598	1 564 965	1 834 235	907 564	
Contracting charges	1 305 368	1 497 301	1 292 195	463 834	1 000 105	
Fertilizer	2 490 955	2 376 581	1 982 391	2 300 463	1 624 430	
Rent paid	575 072	335 039	482 821	1 086 400	450 170	
Seed	950 000	900 000	672 000	0	0	
Transport & loading	31 480	51 289	107 377	23 012	0	
Chemicals	1 729 301	1 624 722	2 259 594	1 639 658	1 166 389	
Repairs & maintenance	652 155	426 826	646 704	225 048	237 105	
	971 817	935 507	1 246 341	383 465	181 477	

<b>Less: Fixed costs</b>									
Depreciation - plant & equipment	283 039	274 689	196 063	124 458	119 311				
<b>Add: Other receipts</b>									
Interest received	583 751	607 062	86 176	22 799	15 133				
<b>Accounting profit</b>									
Nominal accounting profit	1 218 115	170 790	496 989	1 169 107	1 025 108				816 022
Real accounting profit before income tax	1 218 115	178 838	537 867	1 283 323	1 190 602				881 748
Real accounting profit after income tax	773 869	134 924	352 744	792 201	708 279				552 403
<b>Less: Opportunity costs</b>									
Real opportunity cost of management a	405 000	405 000	405 000	405 000	405 000				405 000
<b>Return to risk and land (economic profit)</b>	368 869	-270 076	-52 256	387 201	303 279				147 403

<sup>a</sup>Note: Real opportunity cost of management = Estimated annual real after-tax income in next best line of work multiplied by the farmer's subjective estimate of the probability that he/she will secure that job.

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