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## POSSIBLE EFFECTS OF AN AGRICULTURAL LAND TAX IN SOUTH AFRICA

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The introduction of land tax as an instrument for redistributing wealth and land is frequently proposed. The possible effects of such a land tax should be taken into account before a decision on this matter is reached. A land tax may decline land values which will affect, the security value of financial institutions, the land market and the managerial incentives of farmers. Though it might be a sensible route for provincial governments to tax agricultural land as a source of revenue while it may contribute to land redistribution these effects should be discounted when decisions are made.

'n Grondbelasting as 'n instrument om die herverdeling van inkomste en grond te weeg te bring word toenemend genoem. Die moontlike effekte van 'n grondbelasting moet egter in berekening gebring word. 'n Grondbelasting kan grondpryse laat daal wat weer, sekuriteite van finansiële instellings, die grondmark en die bestuursaansporings van boere mag affekteer. Alhoewel dit 'n logiese weg vir provinsiale owerhede is om landbou grond te belas as 'n bron van inkomste, terwyl dit ook kan bydrae tot grondhervreiding moet hierdie effekte verdiskonteer word wanneer besluite geneem word.

### 1. Introduction

Current political events have given increased relevance to the issue of redistribution of wealth and land in the South African society (RDP, 1994). A key issue which should be debated, is how to achieve an equitable redistribution of wealth whilst satisfying the demands for a growing and healthy economy on a sustainable basis. Arguments for and against a land tax as an instrument for redistributing wealth and/or as an additional source of a much needed tax revenue are increasingly raised in the debate on land and economic reforms in South Africa (Franszen and Heyns, 1992).

Bird (1974) suggests three approaches to land reform: Total revolution, direct non-revolutionary reform, and vigorous and progressive taxation of land. Because of the high direct social, political and economic cost, the first and even second methods are seldom favoured. Land and other taxes are therefore often the preferred method "for altering land -use patterns in the rural areas...." and bring about a redistribution of land ownership.

Skinner (1991) states that the encouragement of land reform is a legitimate non-revenue objective of land taxation. Taxing large farm holdings at progressive rates (i.e. larger farms are taxed at higher tax rates) could force their breakup into several smaller farms although efforts to encourage land reform through this channel in a large number of countries have generally been unsuccessful. He suggest two reasons for this. First, tax rates have not been high or progressive enough to substantially affect land use and, second, land taxation is politically unpopular.

Van Schalkwyk and Groenewald (1993) showed that externalities like state policies and support services to the farming community get capitalized in market values. A land tax will exercise a declining effect on market values of land. This will reduce farmers access to bank credit (Franszen, 1994) because land values influence credit availability positive (Gabriel and Baker, 1980; Binswanger, Deininger and Feder, 1992; Boehlje and Eidman, 1984). Care should be taken not to push land prices to far down as this could lead to financial instability amongst creditors possible causing bankruptcy (Moore, 1991).

The above emphasizes the importance of understanding the land market and the effect of a land tax. This paper aims to quantify the possible effects of a land tax on land prices and state some possible policy issues related to the introduction of land tax in South Africa. The term "land tax" will be used in the narrow sense in the paper, referring only to recurring an annual levy on agricultural land.

### 2. Land tax in South Africa (1652-1994)

Franszen (1990) mentions that a tax was levied on agricultural land as early as 1677 by the Vereenigde Oost-Indische Compagnie of the Cape of Good Hope. Since 1714 a fixed annual fee or *recognetie* had to be paid in exchange for the right to use land.

According to Theron (1994) the former Natalia's (established in 1839) economy was mainly dependent on agriculture and therefore a land tax was an important source of income. Theron (1994) mentions that the first tax on agricultural land was introduced in 1839 and that a parliament decision on 14 April 1841 made provision for a progressive land tax. Tax was also levied on the transfer of land. A hut tax was levied with the intention to spread the tax burden more evenly among the population (Franszen, 1990). In the Orange Free State the largest portion of state income consisted of taxes that were levied on the ownership and transfer of land (Theron, 1994). Stamp duty on transfer deeds, a hut tax, land tax and property tax were levied in the Transvaal (Franszen, 1990). Landlords residing outside the Transvaal, whose properties were uninhabited, had to pay a double tax (Franszen, 1990).

Since 1910 when the union of South Africa was established many of the taxes on agricultural land have disappeared (Franszen, 1990 and Theron, 1994). Franszen (1992) mentions that until recently rural land in the Cape Province was included in the base of a Divisional Council levy but when the Regional Services Councils became operative the Divisional Councils were abolished and with them the only recent form of land tax in South Africa. Currently there is a transfer duty that is levied by the central government on the acquisition of immovable property at a maximum rate of 8% on values exceeding R250 000. Value-added tax, also levied by the central government, was introduced on 30 September 1991 and is levied at a standard rate of 14% where immovable property is acquired from a registered

vendor (Franszen, 1992 and Franszen, 1994). Franszen (1994) further states that property rates (tax) are levied on most urban land, that is land within municipal boundaries, but not on rural land. At present there is no capital gains tax or capital transfer tax in South Africa (Franszen, 1992).

### 3. Land tax and South African agricultural land prices

#### 3.1 The model

The possible effect of a land tax on land prices was calculated by using a structural model of land prices which includes the multi-dimensional effects of inflation on capital-erosion, savings-return erosion, and real debt reduction as well as the effect of changes in the opportunity cost of capital. The method of approximation and procedure is largely based on the computation of farm land price changes in the USA followed by Just and Miranowski (1993) and the RSA followed by Van Schalkwyk and Van Zyl (1993). The model is shown below. It provides a comprehensive framework for analyzing the relative importance of factors determining farmland prices. Free-form econometric investigations cannot estimate coefficients on all variables with sufficient precision to resolve the important issues.

$$\bar{P}_t = \frac{\rho(1 - \tau_t v_t \psi_g) \bar{P}^* + (1 - \tau_t) \bar{R}_t^* - \beta \phi^2 \bar{A} \Sigma_t}{f_t [1 - \tau_t v_t \psi_g + \chi_t (1 - \tau_t) + \psi_s Z_t + \psi_d f_t (1 - \Delta) Z_t]} \quad (1)$$

where

$$\begin{aligned} Z_t &= -(1 - \tau_t) [\chi_t - r_t - (1 + \chi_t) \Delta] / (1 - \Delta) \\ S_t &= (1 - \tau_t v_t \psi_g)^2 \rho^2 \omega_t + (1 - \tau_t)^2 \sigma_t + 2(1 - \tau_t v_t \psi_g)(1 - \tau_t) \xi_t, \end{aligned}$$

the variables are

$\bar{P}_t$	=	average land price resulting from transactions at the beginning of period t
$f_t$	=	1 plus the current rate of inflation at time t
$\tau_t$	=	the average tax rate on current income
$v_t$	=	the proportion of capital gains taxed in period t
$\bar{P}^*_t$	=	average land price expectation for the end of period t held at the beginning of period t
$\bar{R}^*_t$	=	average expected net returns to farming per hectare (including subsidies) for period t
$\bar{A}_t$	=	average farm size in period t
$\Sigma_t$	=	perceived variance of end-of-year wealth per hectare about beginning-of-year expectations
$\chi_t$	=	rate of interest earned on savings in period t
$r_t$	=	rate of interest paid on debt in period t
$Z_t$	=	effective cost of debt

$\psi_t$	=	property tax per hectare on real estate in period t
$\omega_t$	=	perceived variance of end-of-year land price
$\sigma_t$	=	perceived variance of net returns from farming per hectare (including subsidies)
$\xi_t$	=	perceived covariance of land price and net returns per hectare

the unknown parameters are:

$\beta$	=	coefficient of absolute risk aversion on profit
$\phi$	=	$b^*/(b^* + b)$ where $b^*$ is the absolute risk aversion coefficient on short-run variations in wealth
$\rho$	=	1 minus the rate of sales commissions on land transactions
$\Delta$	=	rate of finance charges and other transactions costs on new debt, and the indicators of strength of various regimes and phenomena are:
$\psi_g$	=	proportion of current land value attributable to capital gain
$\psi_s$	=	proportion of farmland in farms with a binding minimal savings constraint
$\psi_d$	=	proportion of farmland value financed by debt.

While the model appears rather complicated, the intuition is straight forward (Just and Miranowski, 1993): First, if all the complications of inflation ( $f_t = 1$ ), taxes ( $\tau_t = 0$ ,  $\psi_t = 0$ ), credit market imperfections ( $\chi_t = r_t$ ), transactions costs ( $\Delta = 0$ ,  $\rho = 1$ ), and risk aversion ( $\beta = 0$ ) are eliminated from the model, then this equation reduces to the standard discounting equation:

$$\bar{P}_t = \frac{\bar{P}^*_t + \bar{R}^*_t}{1 + \chi_t} \quad (2)$$

which in equilibrium ( $\bar{P}_t = \bar{P}^*_t$ ) yields  $\bar{P}_t = \bar{R}^*_t / \chi_t$ . Adding simple inflation considerations multiplies the right hand side of the discounting equation by  $f_t$  obtaining  $\bar{P}_t = f_t (\bar{P}^*_t + \bar{R}^*_t) / (1 + \chi_t)$  which in long-run equilibrium reduces to the same basic equation as does the model developed by Feldstein (1980). All of the additional effects in the model are justified as a modification of this equation. To see this, note that the numerator represents the value of holding a hectare of land while the denominator represents the opportunity cost of channelling a Rand's worth of wealth into land. In this context, the terms in the model can be examined and interpreted one by one (see Just and Miranowski, 1993).

The model was estimated by Van Schalkwyk and Van Zyl (1993) for different agro-economic regions and for South Africa as a whole. The property tax variable had a zero value in Van Schalkwyk and Van Zyl's (1993) estimations as South Africa presently has no land tax.

The possible effect of a land tax was measured with the model by imposing a land tax on land market prices at different rates. This was done in two steps:

- the estimated land tax payable was deducted from the net returns assuming that no down shifting from farmers to consumers, tenants etc. will occur; and

- the land tax variable in the model was substituted with the appropriate rate.

Van Schalkwyk and Van Zyl (1993) developed extrapolative expectations schemes to measure average expected per hectare land prices. These expectation schemes were adjusted by using a simple econometric model to include the lagged effect of land taxes on expected land prices.

### 3.2 Application

A land tax rate of respectively 1,0%, 2,0%, 3,0%, 4,0%, 5,0% and 8% was imposed on average South African land prices, as if it was effective from 1970. Table 1 shows the effect of the different land tax rates on real land prices. A 1% land tax rate will accordingly have an average negative effect of 6,24% on predicted real land prices. It must be noted that Table 1 represents a worst case scenario because the assumption is made that no down shifting from land owners to consumers, tenants, etc. will happen. Down shifting of a land tax can happen if farmers are able to discount the extra tax burden by other means for example by raising product prices, rent, etc. If this occurs the change in land prices may be much lower.

According to Bird (1974) the decline in land prices because of the land tax will make it possible for tenants or young farmers with low liquid assets to purchase land (Bird, 1974). Nieuwoudt (1987) criticised his view and contended if the tax is fully capitalised into land values it implies that land values fall by the same proportion as the fall in profits.

If the ratio between land values and after tax profits remain the same, then the farmer without capital is in no better position to purchase land. According to him land is cheaper but the young farmer needs to purchase more land in order to achieve the same total profit as the profit per ha is lower owing to the tax payable.

According to table 1 a 2% land tax rate will bring about a 12,32% fall in land prices, which means that the average South African real land value for 1991 would have declined from R 297,75 to R 218,40. The land tax payable on R 218,40 per hectare at 2% would have been R 4,37 per hectare which would have resulted in an almost equal percentage decline in nett returns i.e. 11,28% from R 38,72 to R 34,35. The difference between the fall in land values and nett returns is due to variable weather conditions. Market prices are set on longer term return expectations (Van Schalkwyk and Van Zyl, 1993) which eases the fluctuations out. These results thus supports Nieuwoudt's (1987) argument that although land will be cheaper farmers would not necessarily be in a better position after introducing a land tax. The land market will therefore not favour new entrants. This analysis and Nieuwoudt's argument however assume that farmers are operating at the extensive margin (Barlowe, 1978). This essentially constitutes a static analyses as it does not allow for innovation to superior production functions (i.e. technological innovation) while the assumption of present production at the extensive land use margin is also debateable. The impact of technological innovation and/or productivity in agriculture on nett farm incomes and therefore on land prices must however be analyzed before any statements can be made.

According to figure 1 land values will theoretically become zero if a land tax of 8% is imposed on land even though the ratio between rents and the value of land is about 5% (Nieuwoudt, 1980; Pasour, 1975). This is because farmers discount the negative effect of land taxes into lower land market values, thus the tax base on which land taxes are calculated declines.

### 4. Some implications of land tax

Taxes on land are a potential mean of obtaining revenue from the taxing of agriculture. Once initiated taxes are relatively easy to administer, they can easily be structured so as to relate to land use and capacity to pay and they are normally fixed costs which are not discouraging to production. However, an initial problem in introducing land tax is an accurate set of records of land ownership and in setting an equitable relationship between taxes on different types and quality of land. The issue of farm size, the costs of collection of tax, negative impact on security based agricultural finance and the possibilities to activate a land market can also be added to these difficulties. These are discussed below:

#### i) Farm size, land tax and land redistribution

Usually a land tax is set at a fix amount per unit of land. This feature causes tax to nominally bare more heavily upon those with larger holdings and hence presumably with higher income. Land taxes could also be made more closely related to ability to pay by increasing the rate with increased size of the farm. Such a policy would give an incentive to reduce farm size. This may be important in view of the potential need to stimulate small scale farming in South Africa. To provide for some measure of equitability, a small or zero tax per minimum farm size could be established. Such a land tax will rise as size increase. This would also be analogous to a progressive income tax.

A progressive land tax would allow an increased total tax take by falling more heavily on those better able to pay. A further advantage of a progressive land tax is that it would help meet the problem of under utilization of land resource on large farms. There is frequently an inverse relationship between size of farm and value of production per hectare. A highly progressive land tax would provide a cost pressure toward full utilization of land in large holdings i.e. production at the extensive margin (Barlowe, 1978). Those who could reap special advantages of size could pay the tax; others would be under increase pressure to sell land and invest in situations which do not carry special penalties for large scale operation.

Land taxes are normally fixed, therefore do not discourage increased production. Hence, if individual efforts to increase land productivity succeeds, the burden of the land tax decreases as a percentage of both gross and nett income. However, productivity in agriculture is in most cases also synonymous to using land more intensively. Depending on the type of intensification, the intensive use of land may have serious detrimental effects on the environment (i.e. Lauwers, 1994; Steyn, 1994; etc). Despite the economic rational for progressive land tax there are few countries which have applied it.

Table 1: The percentage effect of different land tax rates on real RSA land prices (1970 - 1991)

Year	Predicted land prices (R/hect) before a land tax	Negative effect of different land tax rates on real RSA land prices (%)					
		1%	2%	3%	4%	5%	8%
1970	380,40	2,35	4,79	7,30	9,78	12,06	52,21
1971	401,36	4,33	8,71	13,12	17,48	21,65	61,62
1972	427,58	6,03	12,01	17,91	23,63	28,93	82,03
1973	434,02	6,05	11,97	17,67	23,02	27,60	103,41
1974	464,01	6,31	12,43	18,33	23,94	29,04	80,39
1975	553,64	5,36	10,54	15,53	20,28	24,67	67,62
1976	550,92	4,86	9,53	14,01	18,24	22,07	61,44
1977	582,06	4,88	9,59	14,12	18,42	22,35	60,81
1978	556,48	5,43	10,70	15,81	20,69	25,21	68,20
1979	520,91	6,11	12,05	17,80	23,29	28,36	76,99
1980	479,36	6,47	12,73	18,76	24,50	29,74	81,82
1981	576,17	5,43	10,69	15,76	20,56	24,93	71,29
1982	460,55	6,42	12,65	18,65	24,33	29,51	90,22
1983	315,03	8,49	16,75	24,71	32,28	39,12	119,89
1984	289,74	8,60	16,98	25,12	32,92	40,12	117,99
1985	206,58	10,57	20,67	30,12	38,41	43,09	179,19
1986	377,21	6,04	11,80	17,15	21,78	24,18	109,08
1987	217,70	8,90	17,42	25,38	32,12	34,10	160,30
1988	341,24	5,44	10,79	16,05	21,10	25,71	92,22
1989	370,51	5,21	10,34	15,36	20,16	24,52	87,85
1990	267,20	6,91	13,73	20,42	26,84	32,67	119,38
1991	297,75	7,08	14,07	20,93	27,53	33,56	113,65
Average decrease		6,24	12,32	18,18	23,69	28,33	93,53

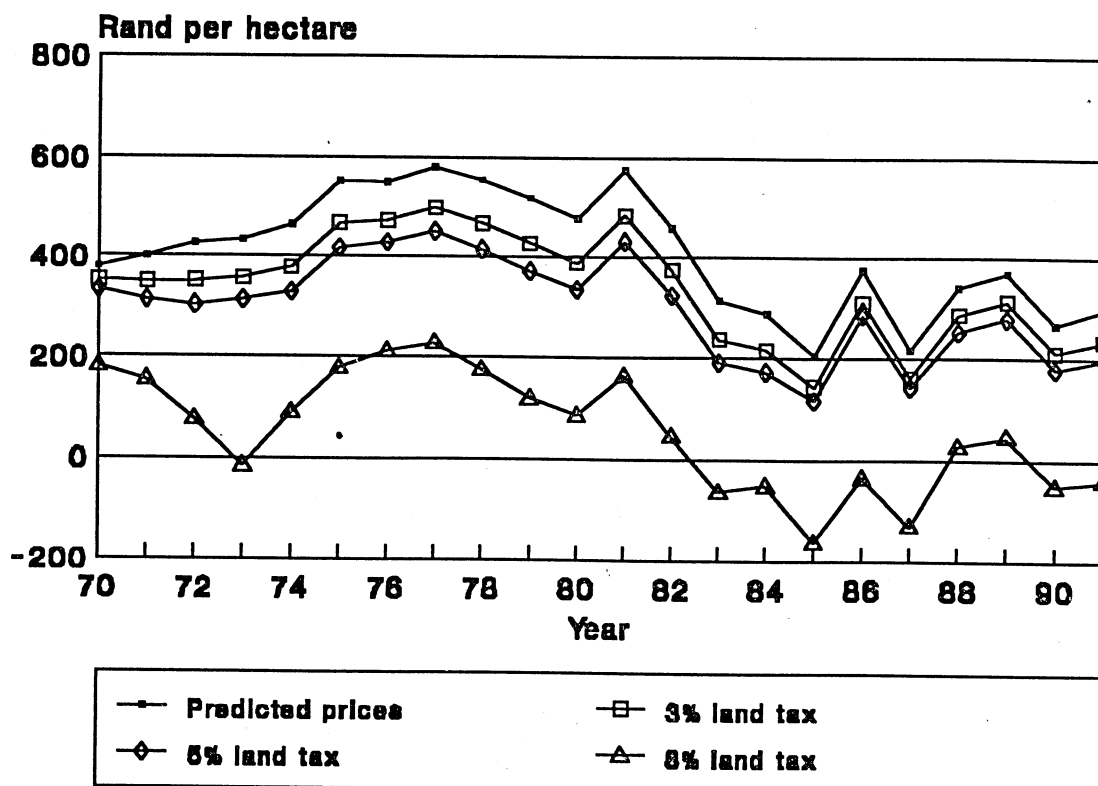


Figure 1: The effect of different land tax rates on real RSA land prices

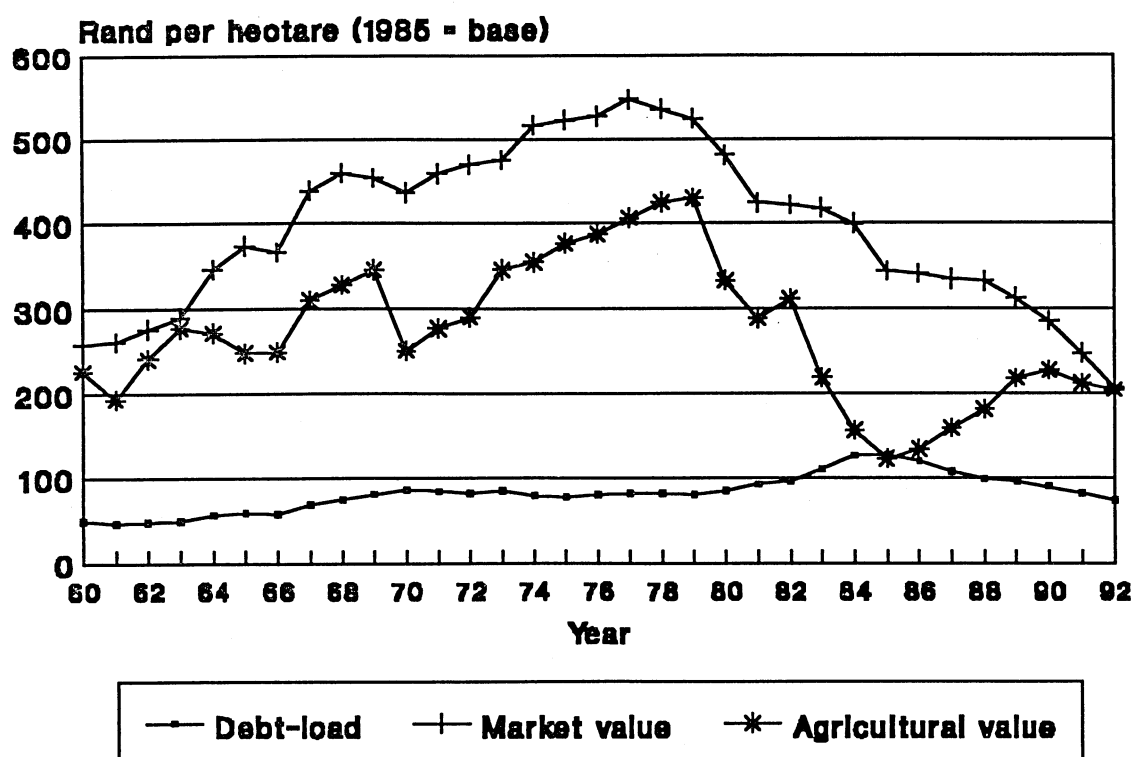


Figure 2: The difference between the agricultural debt-load, agricultural value and market value of land (R/ha)

These schemes also generally failed when it was applied in Jamaica, Columbia, Brazil, Bangladesh and Argentina (Strasma *et al*, 1987).

In view of South Africa's peculiar circumstances i.e. a need for land redistribution, arguments in favour of a system whereby tax is differentiated according to size with pressure on the larger scale farms may be advocated. A minimum tax per hectare within a certain lower size grouping and a higher tax rate for farms above this size limit may be considered. Size levels however, would have to be adjusted to account for land quality. This tax although not entirely progressive, may discriminate against high quality management who are in the position to take advantage of scale to reach higher levels of efficiency. The inverse relationship between scale efficiency and managerial ability was positively established by Van Schalkwyk *et al* (1993). Progressive land taxes are also likely to be associated with higher administration costs and protracted litigation. A trade-off between efficiency and equity must therefore be discounted when tax is used as a land redistribution mechanism in the South African agriculture.

#### i) Payment systems

A second issue relates to the system of tax payment. If land taxes are paid in cash they may have the advantage of encouraging commercialization of production. When faced with the need for cash payments of taxes farmers must increase their sales of commodities and conform to the changing pressures of price relationships. A fixed levy in cash however has the serious disadvantage that it will decline in real value with inflation that frequently accompanies rapid development.

Payment in kind is more difficult to administer than a cash payment system involving complex handling and storage operations. It may be easier to handle single cropping systems although this may introduce rigidities into farming systems.

Land taxes which are levied as a percentage of the crop have an apparent advantage to allow the tax take to increase as technological advance causes increased yields. However this type of levy has the disadvantage of being a variable levy which taxes the gains of initiative and thereby discourages that very initiative. The cost implications of tax determination and collection should not be underestimated.

#### iii) Security based agricultural finance

Financial institutions granting credit based on agricultural land as security should take the productive capacity of land as the security value as this will determine repayment ability (Van Schalkwyk *et al* (1992). Van Schalkwyk and Van Zyl (1994) showed that the gap between the agricultural and market value of land in general is decreasing. In some instances the market value of land might even be lower than the agricultural value. Financial institutions granting new credit should therefore base their security on the lowest of the market and the agricultural value of land. Figure 2 shows the difference between the market value of land, the agricultural value of land and the debt-load per hectare.

Van Schalkwyk and Van Zyl (1993) showed that policy instruments and macro variables like inflation, real savings and debt interest rates affects market prices. They showed further that the decline in the gap between the average market and agricultural value of land is

attributable to the withdrawal of some major policy support services to the farming community and inflationary conditions. The negative effect of the terms of trade was, however, partially countered by an annual growth in productivity of 4,63% since 1983. This had a positive effect on agricultural values, thus closing the gap between the market and agricultural value of land (Van Schalkwyk and Van Zyl, 1994).

A land tax will affect both the market and the agricultural value of land depending on the rate of the land tax. This will in turn affect solvency ratios of farmers and the security of financial institutions. The current gap between the market and agricultural value of land and the debt-load per hectare is more or less 64%. Financial institutions might however find that some regions and especially young and emerging farmers with low liquidity experience a much lower difference between their debt-load and land values and therefore a more insecure situation.

#### iv) Activating the land market?

From the analysis under point (3.2) it is clear that the introduction of a land tax will not necessarily activate a land market through increased purchases due to lower land prices as profit expectations will be affected equally negatively if compared with lower land prices. The movement towards intensification may however stimulate technical innovation and land exchange. The behaviour of technical innovation patterns will have to be analysed to reach a conclusive answer.

#### v) Other considerations

The impact of agricultural land taxation would have to be assessed against the above discussion. The tax base (i.e. productive capacity, market value, resource quality, etc) on which land taxes will be introduced, the administrative ability and cost to introduce and collect land taxes must also be investigated and weighed up against the possible income generated through this type of tax. Finally, if land taxes will be directed towards improvement in the areas where it has been collected in general, public support may be possible. Where this advantage is not observed or even perceived active tax evasion could be expected. The dedication of part of the tax burden of farmers to investment in the local environment suggest a positive direct impact.

#### 5 Conclusion

Whether or not a tax should be levied on agricultural land is a question with no simple answer. However, if it is introduced its effect on land values, *vis-a-viz* the security value of financial institutions, farm size, the land market, technological innovation, the environment and managerial initiative in agriculture should be taken into account. The impact of a land tax depends on the tax rate, the system of utilization of taxes, the system of collection and the system of introduction and available technical innovation to intensify land use.

This study showed that a 2% land tax will decrease land values with more or less 12%. This will bring about an equal decline in nett returns if no down shifting from farmers to consumers, tenants etc. occurs. This will not enhance the position of prospective buyers of agricultural land. Decreasing land prices may also negatively effect the security values of financial institutions. This

may hamper the ability of farmers to obtain credit and may in some instances lead to bankruptcy. Tax may however encourage production at the extensive margin, resulting in higher profits. The long term sustainability should however be assessed. Land tax may provide an incentive towards smaller size farms, which are optimally utilized. Highly efficient large farms which take advantage of their size to specialize may however be penalized. Though it might be a sensible route for provincial governments to tax agricultural land as a source of revenue the possible distortions which a land tax policy could bring about as pointed out in this study should also be considered when decisions are made.

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