CASH FLOW PROBLEM OF PURCHASING LAND BY POOR FARMERS

W L Nieuwoudt

University of Natal, South Africa

There is consensus that the redistribution of agricultural land to disadvantaged communities in South Africa is slow in spite of its urgency. The latest South African Government's approach, Land Redistribution for Agricultural Development (LRAD), has had a slow start but its delivery seems to be improving. One of the criticisms of the LRAD programme is that disadvantage farmers with no own contribution receives only R20 000 (US \$1=R6.92 in November 2003) which is not sufficient to purchase a viable farming enterprise. This limitation of the program can, however, be partly overcome by coupling LRAD with the subsidy program of the Land and Agricultural Bank of South Africa. In this contribution the current financing programs of purchasing land are evaluated in terms of how they cater for cash flow of the recipients. It is also suggested that the Government LRAD programme (based on grants), should be complemented by a further programme which is based on a declining interest rate subsidy for disadvantage farmers. Under this program disadvantaged farmers will be able to purchase land with no collateral. The declining subsidy approach, outlined in an earlier paper (Nieuwoudt et al., 1993; Nieuwoudt and Vink, 1995), will be revisited as this concept has been successfully adapted by sugar millers in KwaZulu-Natal (Lyne, 2001). According to Lyne (2001) during the period 1997-2000, market-driven land reform initiatives by sugar millers transferred more land in KwaZulu-Natal to disadvantaged farmers than did State initiatives (Lyne, 2001). Members of the Department of Land Affairs approached the author for comment on the feasibility of the State adopting a programme

similar to that described in the earlier study (Nieuwoudt and Vink, 1995). Their visit provided the motivation for this contribution.

1. CASH FLOW PROBLEM OF PURCHASING LAND

Potential farmers have a problem financing land purchases if they have limited equity capital. It has been stated that farm land can only be acquired through matrimony, parsimony or patrimony. The financing problem of buying a farm with no or limited own capital is well known. High inflation in South Africa has lead to high nominal interest rates which make it impossible for a farmer with no own collateral to repay a 100% bond from farm income. Inflation increases the immediate costs of capital (high nominal rates) but defers the returns (higher future rents). The interest rate on a mortgage bond in recent years has been close to 15% (nominal rate) while the rent return on agricultural land (land rent divided by market value of land) was about 5% which means that the maximum mortgage bond that a farmer could have serviced from farm income is 33.3% of market value of the farm. This also shows the cash flow problem that commercial farmers in South Africa face as the most recent (2001) debt/asset ratio is 33.7% (Directorate Agricultural Statistics, 2003).

Low inflation rates in the USA, EU, UK and Japan mean that nominal interest rates are low and farmers can service their debt from an almost 100% bond. On the other hand current inflation in Zimbabwe is about 450% and interest rates about 100%. The rent return on agricultural land in Zimbabwe may not be high as negative real interest rates are expected to inflate property prices (political uncertainty will depress property prices again). If a rent return of say 5% is assumed in Zimbabwe then it means: (a) that a prospective farmer has an impossible cash flow problem if land purchase is financed through a bond and if no credit assistance is provided. If his bond is say \$(Zim) 100 000 then his expected rent is \$(Zim) 5 000 but interest rate payment is \$(Zim) 100 000. The farmer will default on the loan unless other arrangements can be made and (b) interest rates far below inflation rates will cause credit rationing. Credit at 100% interest can not be used to purchase agricultural land. The author visited a successful black farmer in Zimbabwe in 1994 who told him that he purchased his farm by selling his taxi business. He could not have purchased the farm through mortgage bonds as interest rates even then were 31%. In a climate of high inflation, other approaches are possible such as inflation indexed bonds. In Israel it was common during times of high inflation to use a dual currency in the form of the USA \$ for loans etc. These options are, however, often not available to borrowers, a problem which is compounded if they are not familiar with sophisticated financial arrangements.

2. THEORETICAL CONSIDERATIONS

2.1 Rate of return on agricultural land (discount rate)

The present value of land can be expressed as:

$$NPV \quad R_o \quad \frac{R_o(1 \quad g)(1 \quad k)}{(1 \quad i)} \quad \dots \quad \frac{R_o(1 \quad g)^n (1 \quad k)^n}{(1 \quad i)^n} \tag{1}$$

Where *Ro* is expected constant annual rents in real terms, *g* is expected growth rate in real rents, *k* expected inflation rate in rents and *i* expected mortgage bond interest rate Let S = (1+g)(1+k)/(1+i). If S<1 then the series converges to:

$$PV = Ro + RoS + RoS^{2} + \dots + RoS^{n}$$

$$= Ro/(1-S) \tag{2}$$

The constant growth model, which is often used because of its simplicity, could be seen as an approximation of the above procedure. In this model, present value is expressed as

$$NPV = Ro/(i-g-k) \tag{3}$$

where (i-g-k) = r is the expected real discount rate. If equation (3) is compared with equation (2) then the term gk is deleted in (3), probably because it is very small, while the term (1+ i) is also omitted in (3) as its effect is relatively small.

The real discount rate r or rate of return can be expressed as land rent per ha divided by the market price of land per ha as in (4).

$$r = (i - g - k) = Ro/NPV \tag{4}$$

In equation (4) *Ro* (market rental rate) and NPV (market value of land) are observable. Early studies report rental values on agricultural land *(i-g-k)* in South Africa of about 5% of market value (Nieuwoudt, 1980; Van Schalkwyk, 1995). Support for a similar discount rate in the South African economy is available from other sources. A discount rate of 5% was used by actuaries in 1995 to calculate the lump sum value (present value) of expected pension annuities of staff of South African universities (and other institutions) when pensions were transferred out of the South African Government AIPF scheme. Recent data collected by the author indicates that current (2003) rental rates on agricultural land may be about 6% of market value while Darroch (2003) arrived at a similar figure. This increase from 5% to 6% may partly be attributed to the significant increase in real Land Bank (and other mortgage bond) interest rates in recent times from negative to positive (and high). The increased real

interest rates are expected to have reduced property prices, increasing the discount rate. Other possible reasons will be discussed.

Land invasions in Zimbabwe may also have depressed land prices in South Africa relative to rents. It is also possible that the introduction of the capital gains tax in South Africa may have depressed agricultural property prices somewhat in relation to rents. Feldstein's (1980) tried to explain the price of gold (which does not have an income stream) and land by the lower tax on asset appreciation (due to inflation) than on income. This difference is capitalised in the value of an asset (Feldstein, 1980). The introduction of a capital gains tax in South Africa is expected to have made properties such as land relatively less attractive. The expected introduction of an agricultural land tax will also reduce land values.

The problem of purchasing a farm is not a profitability problem. From a long run perspective farming may be as profitable as alternative investments of similar risks. The total return on an investment with growth potential is derived in equation (5).

$$R = \{(1+r)(1+d)-1\} * 100\%$$
(5)

where *r* is the real discount rate or rental rate as shown in equation (3) and *d* is the expected nominal growth rate in land rents (1+d) = (1+g)(1+k) (refer equation 1).

From 1965/68 to 1999/2002 net farm income in South Africa increased at a compound growth rate of 9.6% (Directorate Agricultural Statistics, 2003). Beginning and end periods were used to reduce the impact of annual income variations. Using a rental rate of 5% and a nominal increase in farm profits of 9.6% experienced, then it is estimated that the total return on an investment in land in South Africa for this period has been:

$R = \{(1.05)(1.096) - 1\} * 100\% = 15.08\%.$

During this period all consumer prices increased by a compound rate of 10% which indicates that an investment in agriculture was a sound investment from an income growth point of view. Certain sectors of South African Agriculture has in recent years experienced a painful period of adaptation to market forces, and the growth in income over a long period may paint an unrealistic rosy picture for the present.

For instance the area under maize ("corn") declined from over 5 million hectares in 1986/87 to 3.5 million hectares at present, while the area under wheat declined from over 2 million hectares (during 1971-1973, 1982 and 1988) to about 0.9 million hectares at present (The Directorate: Agricultural Statistics, 2003). The decline may be attributed to declines in real grain prices (aided by the removal of marketing boards) and expectations that the present government will not provide additional drought assistance to grain farmers. The previous government gave summer grain farmers significant drought assistance during the 1980's and once again in 1992. The South African crop insurance programme, whereby the State subsidised 25% of the premiums, also failed in 1989. These forces caused farmers to move out of grains in marginal cropping areas, where many farmers have successfully converted maize and wheat land to grazing. The conversion of crop land to grazing also caused the livestock factor to increase. This improved cash flow and introduced more stability for farmers in relatively higher risk production areas. It is significant that the summer grain area has not had a major crop failure because of drought in recent years. Most of the drought disaster payments in the past were allocated to farmers in this region. This assistance provided to agriculture is not reflected in farm income data but it will be reflected in land values. From a net worth point of view an investment in agriculture was a poor investment as

is evident from the significant drop in asset values which will be further discussed in the next section.

2.2 Binswanger model: Financing problem of land purchase by the poor

With population growing and demand for land increasing, some of the expected future real appreciation of the value of land is capitalised into the land price (Binswanger and Elgin, 1988 as quoted by Carter and Mesbah, 1990). Binswanger et al. (1992) state further that since unpledged land has collateral value, the equilibrium price of land will exceed the present discount value of the income stream. Therefore, the farm income of a small landholder using credit, at market rates, to buy land will not cover interest payments on the loan. Property bubbles are not uncommon (for instance in Japan in recent years) and may lead to a situation as described.

Thus if agricultural income is the only income derived from possessing land and if mortgage finance is available at market rates, the poor will not be able to purchase land at market prices without curtailing consumption considerable below their labour incomes.

The Binswanger model must assume that real capital gains are positive, otherwise expected real gains can not be positive. Real gains may, however, be negative, for instance real land values (deflated by CPI) in the South African Agriculture have fallen 77.6% between 1976 and 2001 which is the most recent data available (Directorate Agricultural Statistics, 2003 & 1991). Following Binswanger's logic the price of agricultural land in South Africa should be less than the present value of its income stream. That is, the rent (or net farm income) component as a ratio of the market value of land should be sufficiently large to compensate the landowner for possible real losses in asset values. Binswanger's

approach thus fails to explain the financing problem of resource poor farmers in South Africa.

If the "productivity value" of land is defined as the present value of its income stream then the above reasoning may indicate that this value is above its current market value. It is often contended by agricultural economists in South Africa that the "productivity value" of a farm is less than its market value which appears the direct opposite of the above conclusion. The use of the "productivity value" concept is cautioned in this contribution as such a value is not observed in the market place. It is calculated using unobserved expectations of interest rates, inflation rates etc and therefore subjective. In this calculation profits are often used which are also unobserved (opportunity costs are subjective). For this reason in this contribution, preference is given to the rent concept (which is observable and allow for all costs including the cost of expected risk).

The "productivity value" concept has been used in the debate on land redistribution in the sense that it is stated that commercial farmers want more for the land than what it is worth. This concept has been in use in South Africa for many years (Nieuwoudt, 1980) and originally applied by the Government Department of Agricultural Economics in the 1960's and 1970's. At the time the productivity value of a farm was calculated by dividing income per ha by the nominal interest rate, leading to statements that market prices far exceed the productivity value. That calculation assumes that inflation is zero and that there are no expected real gains in land value which are not realistic assumptions (refer equation 3).

Market assisted agricultural land redistribution may be not be out of reach for the South African economy as the value of all commercial land and fixed improvements in South African Agriculture amounted to R51 326 million in 2001 (Directorate Agricultural Statistics, 2003) which is less than the amount that the South African Government allocated for the present controversial arms deal. The current target is to redistribute 30% of farm land which makes it an even more reachable goal.

3. PROPOSED DECLINING INTEREST RATE SUBSIDY ON MORTGAGE BONDS

It was concluded that the discount rate or the real rate of return on farm land in South Africa is between 5% and 6% after allowance has been made for all costs including management and expected risk. This implies that the return to farm land + management + risk is greater than 5% to 6%. The implication is that bond repayments could be larger than calculated below on the basis of this rate of return. In the calculation of interest subsidies in Table 1 preference was given for the 5% discount rate as it was based on larger samples and also because it is a more conservative figure.

The cash flow problem of land poor farmers can be treated by interest rate subsidies as described in Table 1. In the first year the farmer pays 5% interest on the purchase price. The expected return to land is estimated at 5%, so the farmer should be able to meet mortgage bond repayments under normal weather conditions. Assuming mortgage bond interest rates of 15%, the farmer's own contribution is 33.3% of total interest payments. The interest rate in Table 1 is allowed to increase with an inflation rate of 12%.

-	Interest Rate Paid by Farmer	Farmers' Contribution
Year 1	5.0	(Percentage) 33.0
Year 2	5.6	37.3
Year 3	6.3	42.0
Year 4	7.0	46.7
Year 5	7.9	52.7
Year 6	8.8	58.7
Year 7	9.9	66.0
Year 8	11.1	74.0
Year 9	12.4	82.7
Year 10	13.9	92.7
Year 11	15.0	100.0

Table 1. Own Contribution if Subsidy is Phased out.

The cost to the farmer for the first 11 years would be similar to if he/she rents the land. The only difference is that he/she actually owns the land. After the 11 year period the interest cost will gradually decline with inflation in farmer profits. The phasing in of interest rates keeps the real cost of capital constant to the farmer as a result of inflation.

The subsidy is recommended to be for a fixed period, say 11 years. The phasing out of the subsidy will minimize the impact of capitalising the subsidy in asset values. It may be argued interest rates may change as inflation changes. This should not change the above repayment period if the inflation in rents is similar to the inflation in the economy because it is suggested above that interest rates be annually adjusted by the rate of inflation in rents. Similarly, current (2003) interest rates on mortgage bonds are lower (12%), but inflation in rents are also lower.

The principal still needs to be repaid after 11 years by which time inflation would have eroded the value of the bond substantially. If bond redemption is included in annual payments and even larger subsidy is needed.

4. CURRENT FINANCING VEHICLES IN SOUTH AFRICA FOR SMALL-SCALE FARMERS

The cash flow implications of important financing vehicles will be examined.

4.1 Land Redistribution for Agricultural Development (LRAD)

A disadvantaged farmer can apply for grants based on a sliding scale as shown in Table 2. The minimum grant is R20 000 which can be accessed with an own contribution of R5 000. In fact no financial contribution is required to obtain this grant as the own contribution can be seen as the value of his labour input. The maximum grant is R100 000, which will require an own contribution of at least R400 000.

The table shows that a farmer with no own funds can only access R20 000 which is not sufficient to purchase a viable farm. This draw back can be partially overcome by borrowing funds from the Land Bank which will be discussed in the next section.

Own contribution	Matching grant	Proportion of total cost	
R	R	%	
		Own contribution	Grant
5 000	20 000	20	80
35 000	40 871	46	54
145 000	68 888	68	32
400 000	100 000	80	20

Table 2. Sliding scale of LRAD Grants

Source: Ministry of Agriculture and Land Affairs (2001).

This program has been in operation for about 10 years (George, 2003). The farmer must, however, make an own contribution of 20% irrespective of the size of the loan. Under normal conditions this Land Bank loan can be coupled to LRAD but because the Land Bank has overspent, this coupling is not at the moment possible. With coupling it is possible for a farmer with no own funds to purchase a farm of R500 000. This is accomplished as follows. He purchases a farm for R500 000 by borrowing R400 000 from the Land Bank at 10% interest (he can borrow 80% of market price) (George, 2003). The farmer does not have the R100 000 own contribution to borrow R400 000 from the Land Bank but he uses the R400 000 that he borrows from the Land Bank to qualify for a R100 000 LRAD grant (see Table 2). The LRAD grant can be utilised as his own contribution in order to access the loan from

the Land Bank. The steps are clearly interlinked. If a farmer has cattle or outside income then he may be in a better position to repay his loan.

Combining the features of LRAD (receiving a grant) and borrowing the remainder from the Land Bank at 10% is very attractive and popular and it is no surprise that the Land Bank has, according to George (2003), overspent on this program. This coupling is very popular according to George (2003). According to the writer of this contribution the Land Bank has not overspent but not sufficient funds have been made available for this program as there is definitely a need for it. It would be a shame if land redistribution in South Africa is constraint by a lack of funds. As has been stated if the funds for the arms deal had been used all the commercial farm land in South Africa could have been bought out.

With R500 000 a farmer with no collateral, can enter the commercial sector, albeit at a smaller scale. This is a great improvement on the R20 000 which he receives under the LRAD program. In a globalized economy some PDI's should be placed in a position as other commercial farmers as the South African farming sector must compete with other food exporters such as the United States of America. Commercial farms in more developed countries and in South Africa have increased in size in recent decades. For instance, the number of farms in the USA fell from roughly 6 million in 1940 to 2 million today (Gardner, 2000) with concomitant increases in farm sizes. Previously disadvantaged farmers in South Africa will have to be accommodated on both small and large farms.

Even the very attractive coupling scheme described above has negative cash flow implications as the farmer may not be able to repay interest in the early years. The profit (rent) from a farm of R500 000 is estimated at about R25 000 (5% of R500 000) while the interest payment (excluding principal payment) amounts to R40 000 (10% of R400 000).

13

It is suggested that the Land Bank interest rates be reduced in the early years and that they be gradually increased to market rates. The implication is that a farmer who enters agriculture with such a small contribution may at first have to use a portion of profits attributed to management and risk for interest payments. That means a more modest life style than what he could afford according to his opportunity income. It is likely that the farmer is initially placed in a situation where he can not survive financially especially if he experiences a drought earlier on.

4.3. Sugar Miller's Approach

Sugar Millers in KwaZulu-Natal sold more than R100 million worth of land to small growers using the following procedure. The sugar millers gave 18% of the purchase price of farms they sold to previously disadvantaged buyers to Ithala Bank to reduce the then interest rate of 16.5% to 10% in the first year on mortgage loans the buyers obtained from Ithala Bank. This enabled Ithala Bank to grant them an interest rate subsidy in order to overcome the cash flow problem associated with the early years after buying land. Given a rate of return of 5% in agriculture and nominal interest rates then of 16.5%, a cash flow problem arises for a resource poor farmer if the mortgage bond exceeds 30.3% of the purchase price of land (5% of R100 = 16.5% of R30.3). Most of these farmers could only contribute between 5% and 10% of the purchase price of the farms that they bought (Mashatola and Darroch, 2003). The interest subsidy was phased out over six years as the farmers' nominal returns were expected to increase in line with anticipated inflation. This financing approach was partly based on a theoretical paper discussing the cash flow problem under inflationary conditions (Nieuwoudt *et al*, 1993).

The approach by the private sector is laudable but it is somewhat ambitious to require farmers to repay 10% of the purchase price in the first year. Given some studies showing that the rental return in agriculture is around 5% (Nieuwoudt, 1980; Van Schalkwyk, 1995), it is recommended that in order to avoid a cash flow problem, farmers should not be required to pay more than this in the first year. It simply means that a greater subsidy is required to facilitate the transfer of land. It is not surprising that about 20% of clients are in arrears on their graduated payments, although this figure would have risen to 30% if some loans had not been rescheduled in 2001 (van der Heever, 2002). Perhaps farmers should not be required to repay (as at present) the principal in the early years, but only interest. After about 10 years the subsidy on the interest payment can fall away; inflation in farm profits will have eliminated the cash flow problem associated with the repayment of principal.

4.4 Commercial banks

Commercial banks are the biggest lender to the South African agricultural industry as 42.6% of farming debt is owned to them (Directorate Agricultural Statistics, 2003). Because of their involvement in agriculture all commercial banks have extensive agricultural divisions and also branches and expertise in farming areas.

A representative for a commercial bank informed the author that the small scale borrower must at least have 50% collateral (although some deviation is possible) to access funds from the bank (otherwise the loan can not be repaid) and almost no individual has it (Lishman, 2003). Funds are lend to the bank at 3% below the BA rate through the Khula Trust (a charity), so loans are subsidised. The bank adds a margin and lends to small farmers at about 10% to 10.5% interest. This means that the loan can be redeemed if collateral is 50% as

interest payment as a percentage of the total farm value is 5% to 5.25%. This scheme can be coupled to LRAD (as is the case with the Land Bank scheme) providing the farmer with some own contribution. The 50% collateral requirement implies that a farmer with no own contribution can only purchase a farm for about R40000 (R20 000 LRAD grant and R20 000 loan), which is not much. Farmers must thus pool their funds or enter into an equity share scheme. Small farmers with no own funds can not buy a viable farm using this scheme. The above scheme is clearly unattractive to the individual farmer. It is suggested that Government provide greater subsidies in the earlier years in order to bring down interest rates to about 5%, as is discussed in this contribution. With this subsidy banks may be inclined to relax requirements on own contribution.

5 PAST FINANCIAL SUPPORT TO EMERGING WHITE FARMERS

Comprehensive financial support was available to white farmers under previous governments. Farmers were divided into three categories with the third category being the group who needed the most assistance. The third category of farmers did not own land and was thus in a similar position to that of current PDI's. These farmers were assisted as follows: The farmers could rent the farm with the option to purchase for five years. The rent was negotiated. After five years or before that time the farmer must decide whether to purchase or not. The interest rate on the bond when the farm was purchased was 5% for a period that could be as long as 20 years. This interest rate was later increased to 8% and then to 12% (Jacobs, 2003). The farmer was expected to have cattle and implements. If land rent is assumed as 5% (as in this study) and the interest rate is 5%, then land rents will exceed interest payments after the second year, with the gap also increasing over time. From a cash

flow point of view this is clearly very attractive to a prospective buyer. With later interest rates of 8% and 12%, cash flow is expected to have been a problem. Dr AS Jacobs who is probably the best authority on financial services available to farmers this past half century agree with the author that current financial assistance to PDI's do not go far enough and that these farmers may be placed in a no win situation initially.

6. FURTHER EVALUATION OF A SUBSIDY APPROACH

The major attractiveness of a subsidy approach (SA) is that it caters for the cash flow problem of very poor farmers with no collateral (no own contribution). These farmers are financially assisted to purchase a viable farm. There are other related issues.

(1) Under LRAD the farmer has an incentive after a short while to sell and take his money. Under SA, the benefit is spread over a number of years and the farmer has the incentive to continue farming. (2) Any programme (LRAD or SA) to assist the purchase of land may be capitalised in higher land values, at least in the short run. With SA, the subsidy is phased out, and long term land prices should therefore not be affected. (3) A subsidy programme for land purchases has been criticized in the sense that it distorts resource markets (Binswanger, 1992). Civil servants and university staff in South Africa still receive a housing allowance which has a far less reason for existence. The World Bank is very critical of any subsidies and rightly so. However, the land redistribution in SA should outweigh the negative aspect of such an approach. In mitigation, if subsidies already exist in the economy, then it can not be said that a further subsidy leads to lower social welfare (Friedman, 1962).

7 CONCLUDING COMMENTS

Only 3.5 % of farm land has been redistributed in KwaZulu-Natal by the end of 2002 since democratic elections in 1994 which is disappointing and reason for concern (the figure for the country as a whole was not available). This figure is small as about 4% of farm land changes hands every year through the market. It is financially not possible and unwise in South Africa to buy a farm with no own contribution and a 100% bond due to negative cash flow although farming is a profitable investment in the long run. Previously Disadvantaged Individuals (PDI's) have a cash flow problem purchasing land as high inflation rates in South Africa have lead to high nominal interest rates. Nominal interest rates in recent years of about 15% have been significantly higher than the expected return on farm land of about 5%. Inflation increases the immediate cost of capital (nominal interest rate) but defers returns (future rents) which is a major problem in land purchases in South Africa and far more so in Zimbabwe. In Zimbabwe interest rates of about 100% make it impossible to finance the purchase of land through a bond.

Current redistribution financial vehicles in South Africa do not cater sufficiently for this cash flow problem that recipients will encounter and recipients may be placed in a situation where probability of default on the loan is high. The option of coupling Land bank loans with LRAD Grants is very attractive to potential farmers as it allows them to access more funds and also to purchase a more viable enterprise. It is a major concern that the Land Bank has run out of funds for this financial vehicle as it appears to the author the only avenue open to disadvantaged farmers with no collateral to purchase a viable farm. It is, however, a good approach to expect an own contribution from the recipient as this lowers the moral hazard of the loan, but this is not always possible. Even if PDI's use this coupling option then they may

experience initially cash flow problems and it is suggested that these farmers should receive greater subsidies initially.

The market strategy adopted by the Sugar Millers in KwaZulu-Natal is highly commendable but overambitious as PDI's have to pay 10% of the purchase price in the first year. Greater subsidies are required and also a longer repayment period. It is not suggested that any of the current strategies be abolished but more attention should be given to expected cash flow. It is further suggested that the Government adopt a phasing out interest subsidy program which could complement LRAD. The latter program would require no own contribution from the recipient. It is also suggested that Government should give financial institutions (such as commercial banks) greater subsidies on loans to PDI's in the earlier years of repayment. This may provide an incentive to banks to relax the current 50% collateral that they require on a loan. Financial assistance provided to white farmers to purchase land under the previous dispensation should be studied. It appears as if this assistance was more financially supportive than the current financial vehicles available to PDI's.

8 REFERENCES

BINSWANGER, H (1991). Private Communication. World Bank, Washington.

DARROCH, MAG. (2003). Private Communication. Department Agricultural Economics. University of Natal, Pietermaritburg.

DIRECTORATE: AGRICULTURAL STATISTICS. (2003). *Abstract of Agricultural Statistics*. Pretoria: Directorate Agricultural Information Services, Department of Agriculture.

DIRECTORATE: AGRICULTURAL STATISTICS. (1991). *Abstract of Agricultural Statistics*. Pretoria: Directorate Agricultural Information Services, Department of Agriculture. FELDSTEIN, M. (1980). Inflation, tax rules, and the prices of land and gold. *Journal of Public Economics 14: 309-317*.

FRIEDMAN, M. (1962). Price theory. Aldine: Chicago.

GARDNER, B.L. (2000). Economic growth and low income in agriculture. *American Journal of Agricultural Economics*, 82(5): 1059-1074.

GEORGE, K. (2003). Private Communication. Land and Agricultural Bank of South Africa, Pietermaritzburg.

JACOBS, AS. (2003). Private Communication. Land and Agricultural Bank of South Africa, Pretoria. <u>ASJacobs@landbank.co.za</u>

LISHMAN, J (2003). Private Communication. ABSA bank Pietermaritzburg.

LYNE M.C. (2001). Combining public and private resources to accelerate market-based land redistribution in South Africa. Unpublished paper, University of Natal, Pietermaritzburg.

MASHATOLA, M.C. & DARROCH, M.A.G. (2003). Factors affecting the loan status of sugarcane farmers using a graduated mortgage loan repayment scheme in KwaZulu-Natal. *Agrekon*, 42(4) forthcoming.

MINISTRY OF AGRICULTURE AND LAND AFFAIRS (2001). Land Redistribution for Agricultural Development, A sub-programme of the Land Redistribution Programme. National Department of Agriculture, Pretoria

NIEUWOUDT, W.L. (1980). Value and rent of farm land. South African Journal of *Economics*, 48(4): 389-397.

______, SCOTT, T.G., SIMKINS, C.E.W. & VINK, N. (1993). *Financing land redistribution in South Africa: Putting theory into practice.* Proceedings of the Land Redistribution Options Conference, Johannesburg, South Africa, 12-15 October, 1993, pp61-69. Land and Agriculture Policy Centre: Johannesburg.

_____ &VINK, N. (1995). Financing land purchase by small-scale farmers. Development Southern Africa Vol 12(4): 509-517.

VAN SCHALKWYK, H.D. (1995). *Modelling South African agricultural land prices*. PhD thesis, University of Pretoria.