

**LAND REDISTRIBUTION IN KWAZULU-NATAL: AN ANALYSIS OF
FARMLAND TRANSACTIONS FROM 1997 UNTIL 2002**

By

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ABSTRACT

Apartheid and colonialism left deep imprints on contemporary South African society. Nowhere are these more compellingly apparent than in the highly skewed distribution of land between whites and blacks. At the beginning of the 1990's, it was estimated that 12 million black people lived on only 17.1 million hectares of land, whilst 60,000 white commercial farmers occupied 86.2 million hectares. Since democratisation in 1994 various modes of land redistribution have emerged in South Africa to redistribute farmland to previously disadvantaged people.

In 1994, an African National Congress (ANC)-led government initiated a land redistribution programme by offering Settlement/Land Acquisition Grants (SLAG) to previously disadvantaged South Africans to purchase formerly white-owned farms on a willing buyer-willing seller basis. The aim of SLAG was to redistribute 30 per cent of the country's commercial farmland to previously disadvantaged South Africans within five years. However, by the end of the first five years less than two per cent of white-owned farmland was transferred to previously disadvantaged South Africans. Government responded by introducing a new grant programme, the Land Redistribution for Agricultural Development (LRAD) programme in August 2001 with a less ambitious objective of transferring 30 per cent of white-owned farmland to previously disadvantaged South Africans over 15 years (i.e. two percent per annum).

In addition to the government's land redistribution programme, private and semi-private initiatives have emerged to redistribute farmland to previously disadvantaged people. The BASIS Collaborative Research Support Programme sponsored by the U.S. Agency for International Development (USAID) has monitored government (SLAG) and private farmland transactions in the province of KwaZulu-Natal since 1997. This study builds on these previous analyses of farmland transactions by comparing the performance of LRAD relative to private transactions in transferring farmland to previously disadvantaged South Africans during 2002, and contrasts the results with those from years 1997 to 2001.

Results from the study indicate that the launch of LRAD in 2001 had a significant impact on land redistribution in 2002. In KwaZulu-Natal, the rate of land redistribution doubled from 0.5 per cent in 2001 to one percent in 2002. The results also show that LRAD has not only succeeded in drawing private resources into the land reform process, but has also been more successful in targeting women than the earlier SLAG programme. Findings further show that unlike the earlier (SLAG) programme, LRAD offers larger grants to wealthier and more-creditworthy beneficiaries and is therefore conducive to establishing farms owned and operated by individuals or by small groups of individuals. A small area (1,454 hectares) was transferred back to previously advantaged owners in 2002. Such transactions were not detected before 2002 and should be monitored to identify the underlining reasons for these sales. It is also recommended that research should be conducted to ascertain whether improvements in the rate of land redistribution in KwaZulu-Natal during 2002 will be sustained in the future.

DECLARATIONS

I hereby certify, that unless specifically indicated to the contrary in the text, this dissertation is the result of my own original work and has not been submitted for a degree at any other university

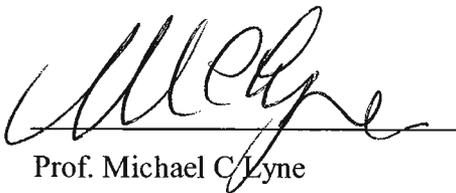


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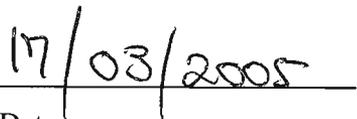


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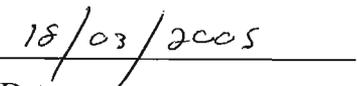
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INTRODUCTION

The deracialisation of land holding in South Africa is viewed as an urgent imperative for political stability and growth of the economy. At the beginning of the 1990's, it was estimated that 12 million black people lived on only 17.1 million hectares of land, whilst 60,000 white commercial farmers occupied 86.2 million hectares (Baber, 1991: 54). This highly skewed distribution of land in South Africa was legally entrenched by the Natives Land Act of 1913. This Act designated about eight per cent of the country's agricultural land as reserves, which became the only areas that could be legally farmed by Africans. With the transition to democracy in 1994, expectations were high that an African National Congress (ANC)-led government would address the apartheid legacy of land shortages and redress poverty in rural areas by providing agricultural opportunities. Such expectations were reinforced by the 1994 Reconstruction and Development Programme (RDP) released as part of the ANC's election manifesto that included a commitment to redistribute 30 per cent of the country's commercial farmland to previously disadvantaged South Africans within five years (ANC, 1994).

In 1994, an ANC-led government initiated a land redistribution programme by offering Settlement/Land Acquisition Grants (SLAG) to previously disadvantaged South Africans to purchase formerly white-owned farms on a willing buyer-willing seller basis. A means test applied to SLAG applicants precluded individuals with a monthly household income greater than R1,500. Consequently, the relatively wealthy had to purchase land privately. By the end of 2000, the SLAG redistribution programme had transferred about 780,407

hectares to previously disadvantaged households, which represented only three per cent of the 25 million hectares that the government had initially hoped to redistribute during this period (NLC, 2000a), and the opportunities anticipated for beneficiaries were not realised as very few income-generating projects were established (LIMA, 1998). The government, through the Ministry of Agriculture and Land Affairs (MALA), responded by introducing a new redistribution programme in 2001, the Land Redistribution for Agricultural Development (LRAD) programme aimed at transferring 30 per cent of white-owned farmland to previously disadvantaged South Africans over 15 years (MALA, 2001). In addition, at least one-third of the land redistributed by LRAD is intended to benefit women.

Before the inception of LRAD, disadvantaged buyers could finance land purchases in two ways, the poorest qualified for cash grants from the government, but the relatively wealthy had to purchase land privately. Means testing was abandoned under the LRAD programme. Since August 2001, aspiring farmers have been encouraged to purchase land by combining a (larger) LRAD grant with equity and mortgage loan finance. Although the programme was introduced during August 2001, no LRAD-assisted farmland transfers were recorded in KwaZulu-Natal until 2002.

Empirical evidence about the rate of land redistribution is scarce because very little is known about private land purchases. The BASIS Collaborative Research Support Programme sponsored by the U.S. Agency for International Development (USAID) has monitored government (SLAG) and private farmland transactions in KwaZulu-Natal since 1997 (Graham & Lyne, 1999a; Graham & Lyne, 1999b; Lyne & Darroch, 2003). This study builds on these previous analyses of farmland transactions by comparing the performance of LRAD relative to private transactions in transferring farmland to

previously disadvantaged South Africans during 2002, and contrasts the results with those from years 1997-2001. The study also examines whether LRAD has been more successful in engaging financial institutions than the earlier SLAG programme as well as the characteristics of farmland acquired by previously disadvantaged females compared to their male counterparts. The objective is to generate objective information about land redistribution in KwaZulu-Natal and the performance of government's LRAD programme relative to private transactions and the earlier SLAG programme. The study uses discriminant analysis to determine the performance of different modes of land redistribution with respect to various farm and gender characteristics associated with land redistribution. The study also analyses reverse land transfers detected in 2002, where farmland transferred from previously disadvantaged individuals to historically more advantaged ones. The objective is to determine the rate of reverse transfers and to contrast the farmland characteristics of reverse transfers with those of redistributive farmland transfers.

The thesis is structured as follows: Chapter 1 gives an overview of government's land reform policy, and the extent to which these policies have been implemented with respect to land redistribution. The chapter also identifies private and semi-private modes of land redistribution that have emerged to deal with apartheid legacies. Chapter 2 presents the methodology used to identify land transactions that transferred ownership from previously advantaged to previously disadvantaged people in 2002. This is followed by an analysis of the 2002 census survey. Chapter 3 presents the results from discriminant analysis used to establish the performance of the different market modes of redistribution observed in KwaZulu-Natal over the period 1997-2002. Chapter 4 analyses reverse land transactions. The study ends with conclusions and policy recommendations drawn from the research findings.

CHAPTER 1

LAND REFORM POLICY IN SOUTH AFRICA

The evolution of the ANC government's approach to the land question in South Africa since 1994 can be traced through two policy documents. First, the Reconstruction and Development Programme (RDP) which unequivocally states, "abolition of the Land Acts cannot redress inequities in land distribution. Only a tiny minority of black people can afford land on the free market. Therefore State intervention in the form of a national land reform programme should be the driving force of not only redressing past injustices but also to build the rural economy" (ANC, 1994: 19-22). Second, the Constitution of South Africa – adopted in 1996 – provides the framework for land policy in the following clause of section 25 in the Bill of Rights:

"The State must take reasonable legislative and other measures, within its available resources, to foster conditions which enable citizens to gain access to land on an equitable basis. A person or community whose tenure of land is legally insecure as a result of past racially discriminatory laws or practices is entitled, to the extent provided by an Act of Parliament, either to tenure which is legally secure or to comparable redress. A person or community dispossessed of property after June 1913 as a result of past racially discriminatory laws is entitled to the extent provided by an Act of Parliament, either to restitution of that property or to equitable redress" (RSA Constitution, 1996).

These two policy documents provided the backbone of the 1997 white paper on land reform which details the ANC government's land reform programme in the post-1994

period. This programme has three components, namely; land restitution, tenure reform and land redistribution.

1.1 Land restitution

It is estimated that more than 3.5 million black people in rural and urban areas were forcibly dispossessed of their land during the years of apartheid (DLA, 2000). Restitution was introduced in 1994 with the aim of returning land or compensating people who lost their land as a result of racist land laws. This principle is seen as an important component of reconciliation in South Africa.

The Restitution of Land Rights Act, Act 22 of 1994, deals with restitution claims. This Act is implemented by the Commission on Restitution of Land Rights and a special court, the Land Claims Court with powers equivalent to those of the High Court. A restitution claim qualifies for investigation if the claimant was dispossessed of a right to land after June 1913 as a result of racially discriminating laws, or if the claimant was not paid just compensation when his or her land was expropriated under the Expropriation Act, Act 63 of 1975. Initially claims had to be lodged before 1 May 1998, but this deadline was later extended to 31 December 1998. In the end, a total of 67,531 claims were lodged with the Land Claims Commission before the December cut off date (NLC, 2000b). The Act makes provision for three broad categories of relief for claimants: restoration of the land under claim, granting of alternative land, or financial compensation (DLA, 1997a). The Commission investigates the merits of each claim, and mediates and settles disputes arising from such claims. However, if it is not possible to settle a claim by way of mediation and negotiation, the matter is referred to the Land Claims Court.

The restitution process turned out to be legalistic, bureaucratic and very slow. By the end of 1998, only 28 claims had been settled (Agricultural News, 2000). However, following amendments to the Restitution of Land Rights Act in 1997 and 1999 (giving claimants direct access to the Land Claims Court without first going to the Commission, and delegating the power to resolve uncontroversial claims to regional Commissions) and an instruction to the Commission by President Thabo Mbeki to finalise all land claims by the end of 2005, the rate at which claims are processed has improved remarkably. Recent data (DLA, 2004) show that, 48,463 claims, or 71 per cent of all claims lodged by the extended deadline, have been settled, and a total of 571,103 hectares of land has been restored. Despite the increase in delivery, budget allocations to land reform, may render it impossible to settle all restitution claims by the end of 2005. Although the restitution budget has been increased from R375 million in 2002/3 to R800 million in 2003/4 and R993 million in 2004/5, which is a sign of the political will and commitment to settle all outstanding claims by 2005, land reform experts estimate that it will cost at least R10 billion to settle the remaining claims (Mail & Guardian, 2004). The Chief Land Claims Commissioner acknowledges that the budget allocations are inadequate adding that the Commission needs about R1.2 billion for claims that are prioritized for settlement during 2004 alone (DLA, 2003a).

Most settled claims are in urban areas and many involve the payment of financial compensation rather than the return of land (Lahiff, 2001). Very few rural claims particularly in provinces with the best quality agricultural land have been settled. By March 2003 only 635 claims had been settled in Mpumalanga and 777 in Northern Province, compared to 11,045 and 7,373 claims settled in the Eastern Cape and Gauteng

respectively (DLA, 2003b). It is likely that most of the latter claims stemmed from forced removals in Johannesburg, Port Elizabeth and East London.

The National Land Committee (NLC) has criticised the prioritisation of urban claims over rural claims as a publicity tool because urban claims tend to be high profile cases, earning government better publicity (NLC, 2000b). However, recent policy statements by the Minister of Agriculture and Land Affairs suggest that the DLA is shifting its focus towards settling rural claims (DLA, 2003c). Unfortunately, rural land claims are dogged by a number of challenges, including the problem of getting relevant documentation to verify claims, the fact that rural claims are almost always disputed by current landowners, and claimants' strong preferences to return to the land. Commercial farmers in Mpumalanga and Northern Province established a fund in 2000 to defend their property rights against claims (Financial Mail, 2000a), increasing the prospect of lengthy delays in resolving these claims.

1.2 Tenure reform

Land tenure is defined by the terms and conditions on which land is held, used and transacted (DeWet, 1987). In South Africa, tenure reform has two main components. One is the reform of tenure arrangements in communal areas, mainly of the former homelands, and the other relates to the security of tenure of farm workers and labour tenants residing on white-owned commercial farms. Tenure reform in the former homelands is outside the scope of this study as it does not involve the redistribution of farmland from whites to previously disadvantaged owners.

Labour tenants, like most farm workers, reside on the farms where they work but do not receive a wage. Instead they are paid in terms of rights to grazing, arable and residential land. Farm workers across the country have expressed a need for residential land that is not tied to employment (Marcus *et al*, 1996). Amongst labour tenants there is a strong demand for arable and grazing land. In addition, both groups want improved security of tenure (Marcus *et al*, 1996). The NLC (2000a) argues that many black families have been living on white-owned commercial farms for generations, yet they continue to face arbitrary evictions.

Since 1994 two Acts have been legislated to address this issue. The Extension of Security of Tenure Act (commonly known as ESTA), Act 62 of 1997, protects farm workers against unlawful eviction. Landowners wishing to evict workers or their families can do so only in accordance with law and by court order. Occupiers of rural land who have worked on a farm for longer than ten years and have either reached the age of 60 years or are unable to provide labour due to ill health, injury or disability may not be evicted. Section 4 of ESTA allows farm dwellers to apply for government grants to purchase land (DLA, 1997b).

Labour tenancy remains widespread in KwaZulu-Natal and Mpumalanga despite active state intervention to outlaw it between 1960 and 1980 (Lahiff, 2001). It is estimated that there are at least 1.2 million labour tenants in KwaZulu-Natal, and over 20,000 in Mpumalanga (Marcus *et al*, 1996). Chapter 2 of the Labour Tenants Act, Act 3 of 1996, provides for protective tenure. Tenants cannot be evicted simply because the owner decides to give them notice unless they have breached the contract or are guilty of misconduct. Chapter 3 of the Act deals with the right of labour tenants to acquire land

that they occupy or use (DLA, 1997b). The Act is having the desired effects in provinces where labour tenants are concentrated, although at first it was resisted by white farmers. By June 2002, 2,654 out of 6,000 valid labour tenants claims had been settled in KwaZulu-Natal (DLA, 2002).

1.3 Land redistribution

In line with the neo-liberal macroeconomic policies of government (eg. its Growth, Employment and Redistribution strategy), the land reform programme is also based on respect for private property and minimal state intervention in markets, including land markets. Rather than assuming an active role in the redistribution process, the government decided not to buy land itself but to offer cash grants to eligible beneficiaries (the urban landless and rural poor, labour tenants, farm workers and emerging farmers) to purchase land. In other words, the redistribution programme is market-based involving willing buyers and sellers.

Between 1995 and 1999, households with a joint monthly income of less than R1,500 could apply for a Settlement/Land Acquisition Grant (SLAG) of R15,000 (later increased to R16,000) to buy land. Most projects involved groups of applicants pooling their grants to buy formerly white-owned farms. This was largely due to the Sub-division of Agricultural Land Act, Act 70 of 1970, that not only constrains the subdivision of farms into smaller parcels of land but also prohibits co-ownership in undivided shares of farmland by individuals other than husband and wife. Groups of buyers had to establish a legal entity, usually a Community Land Trust (CLT) or Communal Property Association (CPA), to take ownership of the land. These legal entities have also been established by groups receiving land under restitution and tenure reform programmes (labour tenants

and farm workers). The delay in repealing the Sub-division Act is attributed to the absence of zoning legislation regulating the conversion of farmland into residential or commercial use (Graham, 2000:19). In the meantime subdivision of farmland requires approval by the Minister of Agriculture and Land Affairs.

The size of SLAG beneficiary groups typically ranged from 40-120 households (LIMA, 1998) depending on the cost of the farm. Case studies of these land reform projects raised concerns about the consequences of group settlement arrangements. LIMA (1998:55-60) reported that large beneficiary user groups find it difficult to establish management structures and to define and enforce rules of land use. These group settlement structures also entrenched the free-rider problem, and consequently did not establish conditions for effective land use or creditworthiness. In some cases mismanagement of the property forced the beneficiaries to sell their land (Turner & Ibsen, 2000: 10). To avoid these problems, some groups of farm workers followed a non-user approach, using their grants to purchase equity in existing commercial farming enterprises. These equity-sharing schemes have also been able to attract loan finance to complement equity invested by worker-beneficiaries and the previous (white) owner (Knight & Lyne, 2003).

The redistribution programme soon fell short of the RDP target of redistributing 30 per cent of commercial farmland within five years. Less than two per cent of white-owned farmland was transferred to previously disadvantaged South Africans between 1995 and 1999 (NLC, 2000a). The land reform programme also aimed “ at achieving a better quality of life for the most disadvantaged by giving households the opportunity to engage in productive land use in a manner which promotes both equity and efficiency” (DLA, 1997a: 7). However, the grant programme had little impact on reducing poverty and

gender inequality. In September 1999 it was estimated that only 15 per cent of 50,152 beneficiary households were female headed (NLC, 2000c) and few income generating projects were established (LIMA, 1998: 63). The SLAG programme did not require its beneficiaries to make a financial contribution towards the purchase of land. As a result, households applied for SLAG even if they were not committed to farming. Most beneficiaries took up residential sites and went on with their multiple rural livelihood survival strategies (Turner & Ibsen, 2000).

According to government, one of the reasons for the disappointing results was over-reliance on willing sellers. Agriculture and Land Affairs Minister, the honourable Thoko Didiza, claimed that while government demonstrated a willingness to negotiate land prices it did not receive the same level of commitment from the majority of landowners they negotiated with (Agricultural News, 2000). On the other hand, the commercial farmers' agricultural union, AgriSA, argued that its members offered land to prospective beneficiaries but deals collapsed because it took between one and four years for the transaction to be completed (Financial Mail, 2000b).

Other reasons cited as causes of the poor performance of the SLAG programme are:

- Excessive centralization of administration that required ministerial approval for every project and a cumbersome grant approval procedure (Kirsten & Van Zyl, 1999).
- Poor coordination between the DLA and provincial and national Departments of Agriculture leading to a lack of appropriate assistance to help beneficiaries build their lives and production on the land once it was theirs (Lahiff, 2001). Without this assistance the long term success of most of the land redistribution projects was severely handicapped.

- Unsuitability of the programme for emerging farmers. The means test applied to determine eligibility precluded individuals with a monthly household income greater than R1,500 (Lyne & Darroch, 2003).

Upon taking over the land portfolio in June 1999, Minister Didiza commissioned a sweeping review of the redistribution programme, calling for it to be broadened to cater for those aspiring to become full-time farmers and for closer links between DLA and national/provincial Departments of Agriculture. As part of the review, the Minister imposed a moratorium on further Settlement/Land Acquisition Grants early in 2000, which was later lifted in 2002.

A new grant programme, entitled the Land Redistribution for Agricultural Development (LRAD) programme was launched in August 2001 with a less ambitious objective of redistributing 30 per cent of the country's agricultural land over 15 years (National Department Agriculture, 2001). The programme is implemented jointly by the DLA and National Department of Agriculture (NDA). The DLA provides funds for land acquisition while the NDA provides training and extension support to beneficiaries. The NDA is yet to start providing training to beneficiaries, which could hamper efficient use of newly acquired farms.

LRAD transactions are exempt from the Subdivision of Agricultural Land Act, Act 70 of 1970 (MALA, 2001:10). However Lyne and Darroch (2003) argue that despite the exemption of grant transactions, the costs associated with subdivision (eg. land survey) are still prohibitively high and discourage existing owners from selling (affordable) portions of their land to emerging farmers. Moreover, the exemption applies only to

government-assisted transfers and, therefore does nothing to improve market access for private buyers.

LRAD differs from the SLAG programme in that there is no means test. Beneficiaries do not have to be poor to qualify for a minimum grant of R20,000 and those who have more savings and who can raise bigger loans to finance their farms qualify for larger grants, the maximum grant being R100,000. The actual size of the grant an applicant gets depends on the amount of equity and debt capital the applicant is able to contribute to the enterprise. An own contribution of R400,000 leverages the maximum grant of R100,000. This marks a distinct shift in the redistribution policy away from poverty alleviation and group settlement in favour of settling prospective farmers on their own farms. LRAD grants can also be used by farm workers to purchase equity in the farming enterprises where they are employed.

The shift away from poverty alleviation is not without its critics. According to Lahiff (2001), the minimum own contribution (R5,000) required of each beneficiary to qualify for the minimum grant of R20,000 will tend to favour applicants who already have a reasonably strong asset base, and exclude the poor and landless. In a similar vein, Nkuzi (2000) an affiliate of NLC, argues that the average wage for farm workers in the Northern Province is about R300 per month, or R3,600 per year. Such people are unlikely to accumulate R5,000 in cash to qualify for the minimum grant. In practice, the required own contribution has not disqualified poor applicants because labour supplied by the applicant is treated as a contribution in kind (sweat equity).

Lahiff (2001) further argues that no mechanisms have been put in place to ensure that women fully participate in the programme despite the fact that they outnumber men almost universally in rural areas. The LRAD policy has tried to promote access to land for women-headed households by emphasising that “women can apply for grants to acquire land individually, or can pool their grants with whom they choose, therefore augmenting their control of the manner in which they benefit from the LRAD programme. Also, women-only projects are allowed and encouraged, and altogether not less than one third of the transferred land resources must accrue to women” (National Department of Agriculture, 2001:8). Nevertheless, gender activists argue that the programme remains unspecific as to how gender bias and deep rooted socio-economic obstacles to female participation will be overcome. According to Turner and Ibsen (2000:32), the programme provides little evidence to make its target of transferring at least one-third of redistributed land to women seem credible. Given that over 70 per cent of the country’s poorest people live in rural areas, and most of these households are headed by women (Kepe & Cousins, 2002), it is imperative that land reform programmes specifically target this group through affirmative action measures. For example, a predetermined share of the money allocated to LRAD should be dedicated to women. Patterns of customary rights and laws pervasive in rural areas usually mean that women are elbowed out by men if they are not specifically targeted (DLA, 1997a).

1.4 Other land redistribution initiatives

In addition to the government’s land redistribution programme, private and semi-private initiatives have emerged to redistribute farmland to previously disadvantaged people. These initiatives include private land purchases and equity-sharing schemes.

1.4.1 Private land purchases

Few disadvantaged South Africans can afford to buy commercial farms without mortgage loans. However, conventional mortgage loans amortized with constant payments of principal plus interest create severe cash flow (liquidity) problems for borrowers during the early years of their enterprise when inflation rates are high (Nieuwoudt & Vink, 1995).

According to Nieuwoudt & Vink (1995) the cash flow problem arises because inflation increases nominal interest rates on conventional mortgage loans while deferring returns (future returns on land are increased by inflation). This creates temporary but severe cash flow problems for borrowers who are unable to make a substantial down-payment on the purchase price of the farm. The liquidity problem diminishes over time as inflation raises future earnings relative to the fixed loan repayments. In other words, the farmers' debt repayment capacity improves over time in line with inflation.

This temporary cash flow problem could be removed by providing an interest rate subsidy that diminishes at the expected rate of inflation over a finite period of time (Nieuwoudt & Vink, 1995). The subsidy allows for a below-market interest rate to be charged in the early years of the loan making it possible for the new farmer to meet his or her instalment payments from the limited cash flow earned by the enterprise during its early critical years.

Nieuwoudt and Vink (1995) recommend a finite interest rate subsidy that is phased out with the expected increase in inflation (*ie* the nominal interest rate the farmer pays gradually increases each year at the expected rate of inflation until it equals the prevailing

market rate). In their case study, Nieuwoudt and Vink (1995) show that the interest rate subsidy will phase out after 11 years if the annual rate of inflation is 12 per cent and the buyer pays an affordable five per cent interest rate on the full purchase price in the first year. After 11 years the buyer pays the full annual interest rate on the loan for the remaining period.

A variant of this graduated repayment concept has been used in KwaZulu-Natal by private sugar millers to sell farmland to emerging commercial farmers since 1995. In 1996, Illovo Sugar Company invited applications for 20 medium scale sugar-cane farms from previously disadvantaged individuals. However, none of the more than 100 applicants could afford a down-payment that would reduce the mortgage loan to a level that could be serviced from sugar-cane farming (Graham & Lyne, 1999c). To mitigate this problem, the miller agreed to sell the land at market-related prices to the applicants and to pass on 18 per cent of the purchase price to the financier, Ithala Finance and Development Corporation. Ithala invests these funds and uses the capital and interest to finance a finite diminishing interest rate subsidy on the mortgage loan (Simms, 1996).

In effect, Illovo Sugar Company discounted the price of its land by 18 per cent and Ithala used this private subsidy to reduce the mortgage loan rate from the long-term annual rate of 16.5 per cent to ten percent in the first year. The subsidy then declines to zero at the end of year six in line with expected increases in nominal income associated with an annual inflation rate of roughly ten per cent (Simms, 1996). The buyer then pays the full annual interest rate of 16.5 per cent for the remaining 14 years of the 20-year loan period. Since its inception this scheme has helped approximately 142 emerging farmers to acquire medium-sized sugar-cane farms in KwaZulu-Natal (Sunday Tribune, 2003).

A partial solution for solving the cash flow problem would be to defer all or part of the farmer's debt repayments during the critical early years. However, commercial lenders are usually unwilling to defer debt repayments, even if interest charges are fully capitalised and the credit-worthiness of the enterprise improves, as deferment transfers the cash flow problem from the borrower to the lending institution (DLA, 1999). To address this issue, the Department of Land Affairs established the Land Reform Empowerment Facility (LREF) in 1999. The LREF wholesales unsubsidised loans with a deferred repayment schedule to commercial banks that lend, on similar terms, to clients financing land purchases or equity-sharing projects (DLA, 1999). The client submits a business plan to a commercial bank to evaluate. If the enterprise is profitable but cannot be financed with the conventional term loan due to a temporary cash flow problem, the bank designs a loan with a deferred repayment schedule and applies to the LREF for a matching loan with the same repayment schedule but with interest charged at the wholesale rate. In this way, the bank transfers the liquidity problem from its client to the LREF.

Besides broadening private sector lenders' participation in the land redistribution effort, the LREF bears virtually no risk as it lends only to registered banks, and incurs low administration costs as the loans are assessed for financial viability by the risk bearing banks. The LREF'S own valuation is limited to an assessment of redistribution criteria. Response to the LERF has been positive, with loan disbursements reaching the target of R15 million set for the first year within just eight months of its launch. According to Lyne *et al* (2000) this positive response by banks can be attributed to two factors. First, the ability of the LREF to improve the risk profile of its target beneficiaries by inheriting

their initial cash flow problem. Second, the discounts on wholesale interest rates charged by the LREF implicitly subsidise the cost of capital to banks.

1.4.2 Farm worker equity-sharing schemes

Knight and Lyne (2002) define farm worker equity-sharing schemes (FWES) as farming operations in which the original owner, farm workers and other investors own financial equity in the form of tradable shares that define their voting and benefit rights (profits and capital gains). The first equity-sharing scheme in South Africa was the Whitehall apple farm in 1994 (Eckert *et al.*, 1996). Today there are over 50 farm worker equity-sharing projects in South Africa (Knight & Lyne, 2002), mostly in the Western Cape Province. Equity-sharing saves on a range of transaction costs such as subdivision costs, and transfer fees (Van Rooyen & Njobe, 1996), and has the advantage of redistributing wealth and income in excess of that attributed to just land. FWES also provide farm workers with an opportunity to enter capital intensive farming industries (eg. fruit, wine, forestry), which otherwise would be impossible due to indivisible resources and the high cost of entry. According to Hamman and Ewert (1999), the cost of entry into the wine sector is more than four times the value of a Settlement/Land Acquisition Grant, excluding land purchase. This, combined with the long lead-in period of four years before the first harvest can be picked (in the deciduous fruit sector it may take up to ten years before a profit is realised), effectively prevents aspiring farmers from entering such capital intensive industries as owner-operators.

In 1998, the Surplus People's Project (SPP) identified a number of concerns regarding equity-sharing schemes related to worker participation during establishment, beneficiaries' expectations, power relations between worker-shareholders and the original owner, transfer of skills, labour relations, position of employees who are not

shareholders, gender issues, tenure security and issues concerning entry to and exit from a project (Knight & Lyne, 2002). A later study of eight equity-share schemes conducted by Knight (2003) in the Western Cape showed that many of the concerns raised by the SPP had been corrected in the more successful projects. Worker-shareholders in these eight schemes had purchased net farm assets worth R7 million (measured in constant 2001 prices) representing 3.5-50 per cent of total shareholding. Whereas Hall *et al.* (2001) argue that FWES might be failing to meet the objectives of redistributing ownership, Knight and Lyne (2002) showed that this was not viewed as a serious problem by beneficiaries interviewed in their study. Likewise, while Hall *et al.* (2001) argue that FWES fail to improve gender equality, Knight and Lyne (2002) show that women made up over 50 per cent of shareholders at 63 per cent of the eight projects that they studied.

Initially, farm workers financed their equity in the company with mortgage loans leading to the usual cash flow problems. However, this changed in 1996 when the DLA allowed farm workers to finance equity with SLAG grants, and in May 1999 when it launched the Land Reform Empowerment Facility. The LREF approved R27.2 million to finance equity-sharing projects in its first year of operation (Lyne & Darroch, 2003). The new LRAD programme also supports FWESs. A good example is the recent transfer of Heidelberg farm by a commercial farmer to the Nkosana Trust in Mpumalanga Province during October 2003. The trust has seven trustees and 200 beneficiaries who are all part of the labour force. The DLA provided LRAD grants worth R10.8 million and the Land Bank provided a loan of R9.6 million. In addition, the Standard Bank of South Africa approved a R1 million overdraft for working capital. The previous owner was contracted to ensure that skills transfer takes place.

CHAPTER 2

AN ANALYSIS OF FARMLAND TRANSACTIONS OF 1997-2002

2.1 Data sources

Data for this study were drawn from annual census surveys of the deeds of transfer recorded for farmland in KwaZulu-Natal from 1997-2002. Lyne and Darroch (2003) previously analysed data from 1997–2001 census surveys. The South African Deeds Registry maintains a database of all land transactions involving transfer of title. A transfer deed records information about the buyer, the seller, the area transacted, the region where the farm is located, the market price paid (unless the transfer was the result of bequest, donation or legal claim) and, where relevant, the size of mortgage loan(s) and name of the lender(s).

Land transactions recorded by the Deeds Registry in 2002 were filtered and stratified by race, gender and mode of land acquisition (see Figure 1)¹. Under the filtration process, all transactions listed separately by the Deeds Registry for each subdivision of land, but acquired by the same owner, were consolidated. Then all transactions involving areas smaller than one hectare and those with per hectare prices exceeding that commanded by the best quality agricultural land in KwaZulu-Natal (R 30,000) were removed in an attempt to exclude transfers of rural land to residential and industrial uses.

Transactions involving land transfers from one formerly disadvantaged owner to another were removed unless the land transferred from males to females. The remaining farmland transfers were then classified as ‘advantaged to advantaged’, ‘advantaged to

¹ The stratification of 2002 land transactions differed from the stratification applied to the 1997-2001 census surveys (see Graham & Lyne, 1999a) in order to investigate transfers financed with a combination of LRAD grant and private mortgage loans.

disadvantaged' and 'disadvantaged to advantaged' based on the race and gender of the previous and new owners. The 'advantaged to disadvantaged' transactions were then categorized into five strata according to mode of land acquisition, namely **grant only**², **mortgage loan plus LRAD grant financed**, **mortgage financed**, **cash purchases** and **non-market transfers**.

The term 'advantaged' refers to legal and juristic persons that had the right to transact in land prior to 1994 (i.e. whites, government departments and white-owned corporate entities). The 'disadvantaged' group comprises of those persons excluded from land markets on the basis of racial segregation (i.e. blacks, Indians and coloureds). In addition, transfers from previously disadvantaged men to previously disadvantaged women were retained within the previously disadvantaged category so that the definition of 'disadvantaged' refers to all individuals who were previously excluded from land markets on the basis of racial and, to some extent, gender segregation.

It is important to note that the transfer deeds do not explicitly show the race and gender of either the seller or the buyer. Without this information the race and gender of the buyers and sellers was established on the basis of their names. Where land had been acquired by corporate entities such as close corporations, records from the Registrar of Companies were used to determine whether or not the land had transferred to disadvantaged beneficiaries. While every effort was made to correctly identify advantaged and disadvantaged groups, the author accepts that some transactions may have been misclassified. As a result, the true annual rate of land redistribution in KwaZulu-Natal may be understated.

² Grant only refers to land transfers partially or entirely financed with government SLAG or LRAD grants but without additional loan finance.

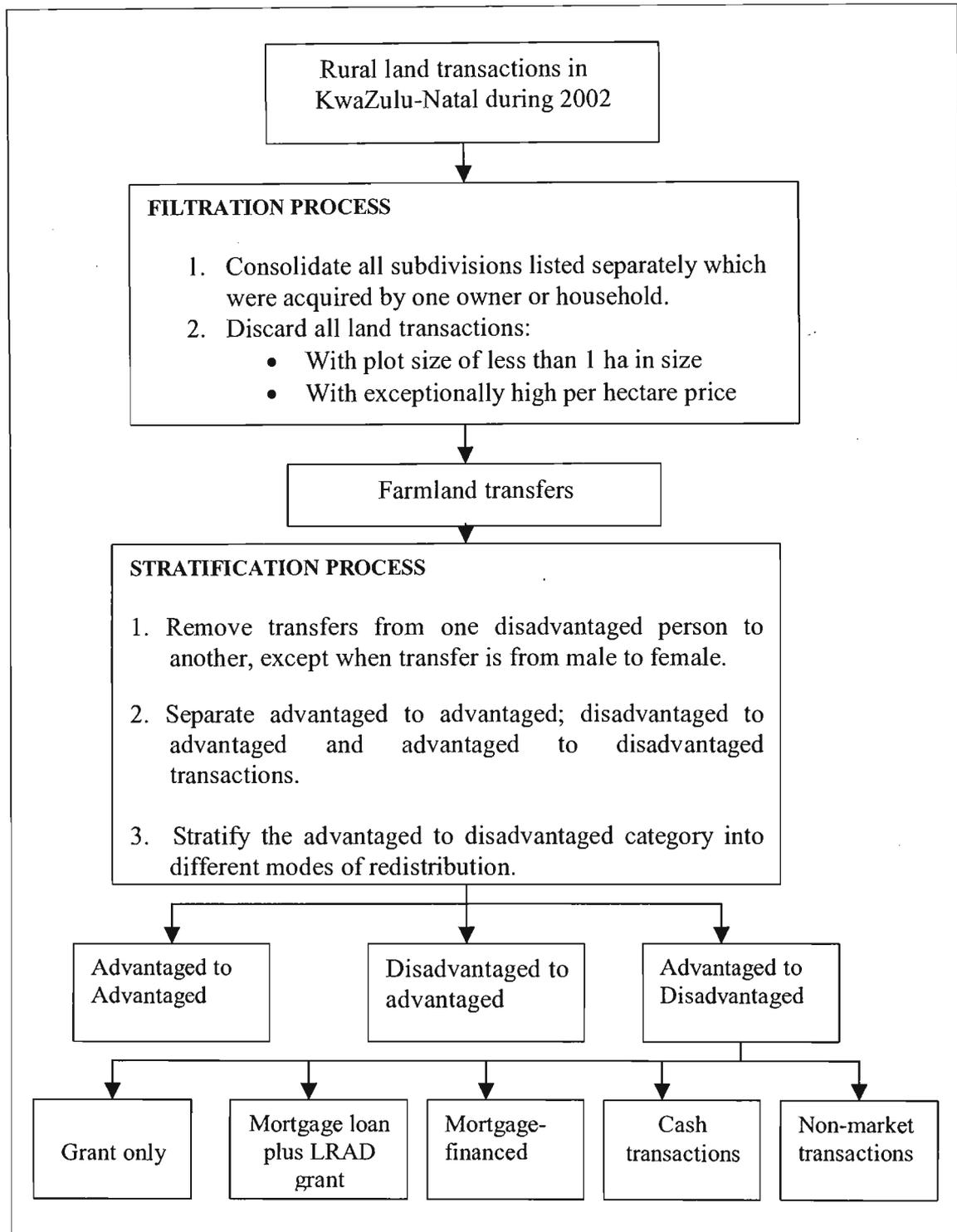


Figure 1: Filtration and stratification of land transaction census data in KwaZulu-Natal, 2002

Of the **3,156** rural land transactions recorded in 2002, the filtration process yielded **1010** 'farmland transfers'. These were then separated into three groups based on the race of the seller and new owner, 'advantaged to advantaged' (**787**), 'disadvantaged to advantaged' (**51**), and 'advantaged to disadvantaged' (**172**). The 172 'advantaged to disadvantaged' transactions were then categorized into five strata according to mode of redistribution, namely **grant only** (46), **mortgage** financed (10), **mortgage loan plus LRAD grant** financed (14), **cash** purchases (76) and **non-market** transfers (26) (Appendix 1).

2.2 The rate of land redistribution

The total area of all farmland transferred to new owners in KwaZulu-Natal annually during 1997-2002 is presented in Table 1. At the time of South Africa's political democratisation in 1994, there were some 5.3 million hectares of land available for redistribution in KwaZulu-Natal (Lyne & Darroch, 2003), comprised of commercial farmland and state owned land, including public protected nature conservation areas. It is estimated that 2,167,822 hectares, or 40 per cent, of this land transferred to new owners (advantaged and disadvantaged groups) during 1997-2002. The total area of farmland transacted in KwaZulu-Natal during 2002 is similar to the mean annual area transacted during the preceding five years.

The annual rate of farmland redistribution was computed by expressing the area acquired by previously disadvantaged entrants as a percentage of the area originally available for redistribution in KwaZulu-Natal. Trends in the rate of land redistribution are illustrated in Figure 2. Transfers to previously disadvantaged South Africans accounted for 177,895 hectares representing about 8.2 per cent of total farmland transferred, or 3.4 per cent of the total area originally available for redistribution. The rate of farmland redistribution declined to its lowest level of 0.33 per cent in 2000 following a moratorium on the SLAG

programme early that year. The rate of redistribution improved to 0.52 per cent in 2001 after the moratorium was lifted and, following the launch of LRAD, doubled to 1.06 per cent in 2002.

Table 1: Estimated annual rates of land redistribution in KwaZulu-Natal, 1997-2002

Study year	1997	1998	1999	2000	2001	2002
1 Area of farmland originally available for redistribution (Ha)	5,308,559	5,308,559	5,308,559	5,308,559	5,308,559	5,308,559
2 Area of land transacted (Ha)	372,995	603,522	306,433	300,799	267,233	316,840
3 Area of farmland acquired by, or for, disadvantaged people (Ha)	22,934	17,772	36,109	17,345	27,324	56,411
4 Rate of land redistribution (%) $([3/1] * 100)$	0.43	0.34	0.68	0.33	0.52	1.06
Cumulative rate of land redistribution (%)	0.43	0.77	1.45	1.78	2.30	3.36

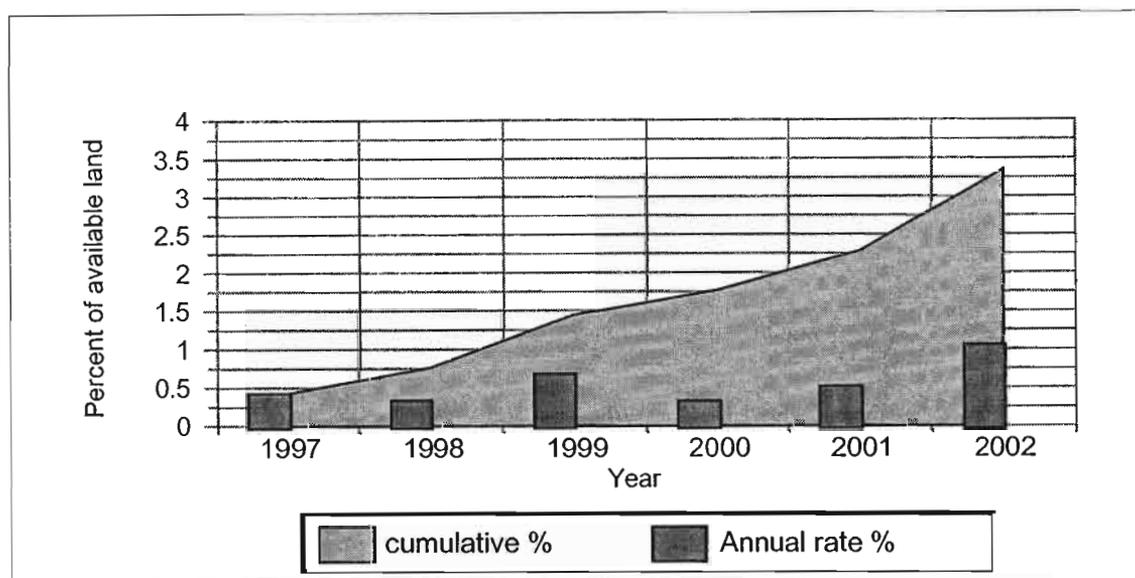


Figure 2: Estimated annual and cumulative rates of farmland redistribution to previously disadvantaged owners in KwaZulu-Natal, 1997-2002

Despite this recent improvement, the rate of land redistribution is still well short of the government's target. Possible reasons for this are discussed in section 2.4. To reach a level of 30 per cent over 15 years would require an average transfer of about 106,000 hectares per annum in KwaZulu-Natal, about twice the amount transferred during 2002.

2.3 Characteristics of farmland acquired by advantaged and disadvantaged owners

Table 2 compares the mean area of all farms, and the mean price of all purchased farms, acquired by previously advantaged and disadvantaged people in KwaZulu-Natal over the period 1997-2002. The table also compares the weighted price of land purchased by members of these groups. All prices are expressed in real terms using 2000 as the base year. The t-values test for differences in the mean characteristics of farms acquired by the advantaged and disadvantaged groups.

Table 2: Characteristics of farmland acquired by previously advantaged and disadvantaged owners in KwaZulu-Natal, 1997-2002 (at constant 2000 prices)

Farm characteristic	Year	Advantaged	Disadvantaged	t-value
Mean farm area (Ha) for all farms transacted	1997	365	125	3.6 ^{***}
	1998	1,007	100	2.4 ^{**}
	1999	287	114	6.7 ^{***}
	2000	268	109	5.7 ^{***}
	2001	294	179	3.8 ^{***}
	2002	329	337	0.18
Mean real price (R) for all farms purchased	1997	1,193,882	532,775	1.4
	1998	754,373	318,086	4.4 ^{**}
	1999	879,400	312,339	3.4 ^{***}
	2000	638,808	355,668	3.6 ^{***}
	2001	652,318	382,006	3.3 ^{***}
	2002	754,749	518,451	2.8 ^{**}
Weighted real land price (R/Ha) for all farms purchased	1997	2,554	2,796	
	1998	1,442	1,791	
	1999	2,761	1,678	
	2000	2,337	2,326	
	2001	1,993	1,660	
	2002	2,006	1,159	

Note: *** and ** denote statistical significance at the 1 and 5 percent level of probability, respectively.

During 2002, and for the first time during the 1997-2002 study period, the mean area of farms acquired by the disadvantaged group was not significantly lower than for the advantaged group. Despite this increase in relative farm size, the mean price paid for farms by the previously disadvantaged group remained significantly lower than for the

advantaged group. To the extent that the weighted price of land per hectare reflects land quality, the average quality of farmland bought by disadvantaged entrants during 2002 was not only lower than that purchased by the advantaged group, but has also declined relative to the mean quality of farmland purchased by this group between 1997-2001. The moratorium on SLAG during 2000 and 2001 appears to have restricted purchases by groups of disadvantaged people, raising the weighted price paid for land during these two years. After the moratorium was lifted, a backlog of SLAG-assisted purchases was processed during 2002, lowering the weighted price of land purchased by disadvantaged buyers that year. Higher weighted prices paid for land by the disadvantaged group during earlier years of the study may be the result of interest rate subsidies offered by private sugar millers to emerging farmers in 1997 and 1998 to buy high quality sugar-cane farms (Mashatola and Darroch, 2003). Relationships between mode of purchase and characteristics of land acquired by disadvantaged groups are discussed in section 2.4.

2.4 Modes of land redistribution

Modes of land redistribution identified in the 1997-2001 census surveys were government SLAG-assisted land purchases, private purchases (mortgage loan and private cash), and non-market transfers (bequests, and donations). In addition to these modes, the 2002 census survey identified land transfers financed using a government LRAD grant combined with own equity and a mortgage loan. Table 3 compares characteristics of farmland acquired by disadvantaged owners for each mode of land redistribution during 1997-2002. Figures 3, 4, 5 and 6 illustrate how these characteristics have varied within the study period. All financial values in Table 3 and Figures 5 and 6 are expressed in constant 2000 prices.

Table 3: Characteristics of farmland acquired by disadvantaged owners by mode of redistribution in KwaZulu-Natal, 1997-2002 (constant 2000 prices)

Farm characteristic	Grant only	Mortgage loan plus LRAD grant	Private mortgage loan	Private cash	Private non-market	Total
Number of transactions	135	14	200	360	459	1,168
Total area of land (Ha)	73,745	3,404	38,587	44,542	17,617	177,895
Total market value of land (R million)	51.92	14,22	144.87	63.3		274.31
Mean area of farms (Ha)	546	243	193	124	38	
Weighted farmland price (R/Ha)	734	4,176	3,835	1,427		

Although farmland purchased only with government grants transferred over 41 per cent of all the land redistributed, these transfers involved land of poor agricultural quality relative to private market transactions. This can be attributed to the high proportion of group purchases under the SLAG programme where the beneficiaries were primarily interested in maximizing land area for residential and grazing purposes. Since August 2001, aspiring farmers have been encouraged to purchase land by combining an LRAD grant with equity and mortgage loan finance. This mode of redistribution accounted for six per cent of the total area acquired by previously disadvantaged owners in 2002. Fourteen farms were acquired using combined grant and loan finance, transferring 3,404 hectares with a market value of about R14.22 million to the previously disadvantaged. At a weighted price of R4,176 per hectare, the quality of farmland redistributed via this mode was significantly higher than that of other government-assisted transfers and cash purchases, and is similar in quality to land purchased privately with mortgage loans. These public-private partnerships in financing land have been further enhanced by the recent recapitalisation of the Land Reform Empowerment Facility (LREF). The LREF improves the risk profile of its target beneficiaries by wholesaling loans with a deferred repayment schedule to commercial banks that lend, on similar terms, to clients financing land purchases or equity-sharing projects.

Ithala Development Finance Corporation (Ithala) financed 11 of these 14 transactions and three were financed by the Land Bank. None were financed by private commercial banks. One of the biggest frustrations voiced by Ithala is that grant funds are not readily accessible, resulting in delays which often cause potential deals to collapse as sellers find other buyers who are not reliant on grants. Apart from wasting Ithala's resources (assessing business plans and preparing grant applications for prospective clients) it seems that the lack of funds is more apparent than real. This anomaly has arisen because the Land Bank, which enjoys the privilege of being the only bank permitted to approve LRAD applications, has not processed many of the deals for which it has approved grants. In financial year 2001/02, the Land Bank received R50 million from the Department of Land Affairs (DLA) to award LRAD grants contingent upon loan funding. In the same period, the Land Bank approved 152 LRAD applications. Of these approvals, only 14 applicants had received their loans and grants by March 2002 (DLA, 2002). Consequently, grant funding allocated to the remaining 138 approvals was unavailable to other banks and remained unspent at the end of the financial year – a situation that will persist if these approved deals eventually collapse. Historical under-spending by the DLA is an ongoing problem. According to Lahiff (2001), the national real level of funding allocated to land reform grants by the Treasury declined by 23 per cent between 1998 and 2001 owing to persistent under-spending of provincial budgets.

The number of land redistribution transactions has remained consistently between 150 and 200 transactions per year throughout the study period, except for 1999 when over 300 redistributive transactions were recorded. Figure 3, however, shows distinct trends in the relative proportions of land transferred by each mode of land redistribution between 1997 - 2002. The number and relative proportion of private non-market and

mortgage loan transactions, which respectively account for almost 40 and 18 per cent of total transactions, decreased since 1999 and respectively accounted for only 15 and nine per cent of transactions during 2002. The decline in the number of transactions financed with mortgage loans since 1999 coincides with the decline in the number of subsidised mortgage loans made to medium-scale sugar-cane growers. By contrast, the moratorium on the SLAG programme reduced the number of government-assisted transfers during 2000 and 2001. The relative proportion of government-assisted transfers increased during 2002, including 14 transactions financed with a combination of LRAD grants, private equity and mortgage finance. The number of private cash transactions per year has remained relatively steady throughout the study period (ranging between 50 and 70).

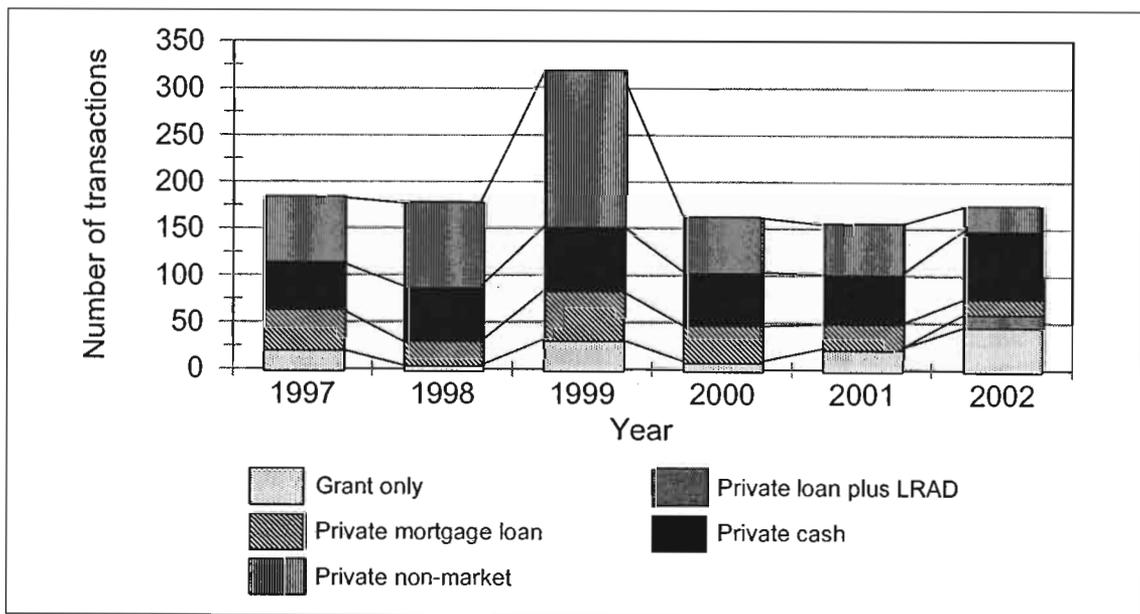


Figure 3: Annual farmland transactions by mode of redistribution to disadvantaged owners in KwaZulu-Natal, 1997-2002

Although non-market transactions are the most numerous, the total area of farmland transferred via these transactions is small relative to market and government-assisted purchases. Over the period 1997–2002 the total area of farmland redistributed by private purchases (83,129 hectares made up of 44,542 hectares via cash purchase and 38,587 hectares via mortgage loans) exceeded that redistributed via government grants (73,745 hectares). Figure 4 shows that the area purchased only with government grants increased steadily after the moratorium on SLAG grants was lifted, peaking in 2002. During 2002 government-assisted transfers redistributed more land than private market purchases (32,028 hectares versus 22,863 hectares). It appears that LRAD is largely responsible for the improved rate of land redistribution observed in KwaZulu-Natal during 2002. Possible reasons for this improvement include decentralization of the powers for implementation and project approval. Provincial governments have now replaced the DLA as the key approval and implementing agencies (MALA, 2001:8). This has shortened the decision chain reducing lengthy delays that hampered the SLAG programme.

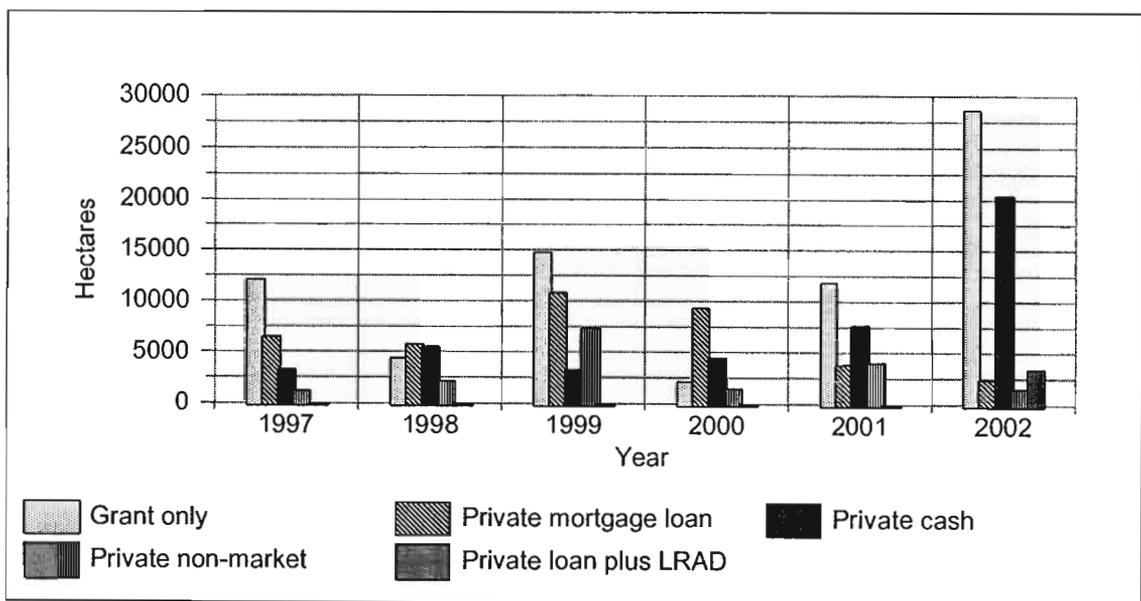


Figure 4: Annual area of land by mode of redistribution to previously disadvantaged owners in KwaZulu-Natal, 1997-2002

The number of transactions financed with mortgage loans peaked in 1999, but dipped sharply in 2001 when Ithala did not offer subsidised mortgage to medium-scale sugarcane growers. Historically, the purchase of medium-scale cane farms accounted for a relatively large proportion of land transfers financed with private mortgage loans. The interest rate subsidies provided by sugar millers and administered by Ithala prior to 2002 were designed to help new landowners avoid debt-induced cash flow problems in times of high inflation (Mashatola and Darroch, 2003).

On average, beneficiaries of government grants purchased the largest farms (mean of 546 hectares), while bequests and donations transferred the smallest farms (mean of 38 hectares) to previously disadvantaged South Africans. Within the set of private purchases, the census results during 1997-2002 show that the mean size of farms financed with own cash was small relative to those financed with mortgage loans (119 versus 189 hectares). These observations are consistent with Nieuwoudt and Vink's (1995) argument that buyers with limited equity cannot finance large farms using conventional mortgage loans due to cash flow problems. Instead they pay cash for relatively cheaper farms. The 2002 census survey shows that the size of farms financed with mortgage loans and those financed with a combination of LRAD and mortgage loans were, on average, smaller than those financed with own cash (152 and 243 hectares respectively versus 280 hectares). However, the farms purchased with cash were of much lower quality than those financed with mortgage loans (R1153/ha vs. R4198/ha).

Figure 5 shows the contrast in land wealth transferred by the different modes of redistribution in KwaZulu-Natal during 1997-2002. From 1997 to 2001, private mortgage loans redistributed more land wealth than other market transactions. In 2002, mortgage loans (including LRAD-leveraged mortgage loans) continued to redistribute the greatest

wealth compared to other market transactions. However, the proportion of land wealth redistributed by government grant-financed transactions increased from an average of 17 per cent during 1997-2001 to 24 per cent in 2002, excluding transactions financed using LRAD leveraged mortgage loans. This reflects the large increase in the number and area of government grant-financed transactions in 2002.

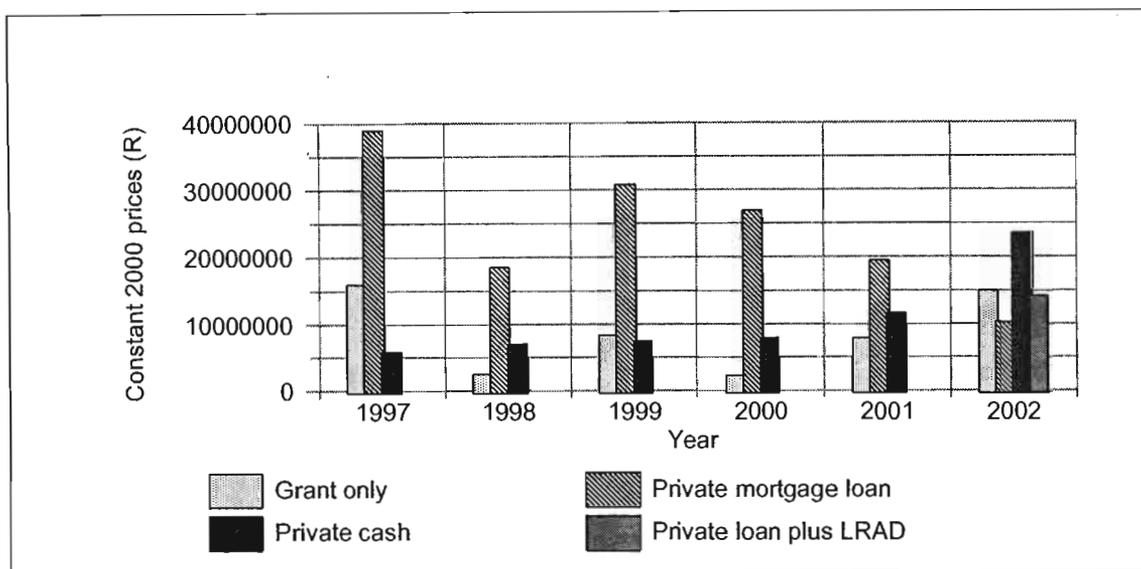


Figure 5: Market value of farmland by mode of land redistribution to disadvantaged owners in KwaZulu-Natal, 1997-2002

Despite considerable recent growth in the wealth transferred through government-assisted land purchases, land financed only with government grants is still of relatively poor agricultural quality. Figure 6 shows that in all years of the study the weighted price of farmland purchased with government grants was substantially lower than for other modes of transfer, and decreased in 2002 after the moratorium on SLAG grants was lifted. In future, as group purchases financed with SLAG are superseded by individual purchases co-financed with LRAD grants and private mortgage loans, it is expected that beneficiaries of government grants will acquire farms of relatively better agricultural quality. In 2002, the weighted price of land co-financed with LRAD grants and mortgage loans was virtually the same as that financed with own equity and mortgage loans. As

was intended, LRAD grants were used by some farmers to supplement their own equity contributions, enabling them to access the loan finance required to purchase quality farmland.

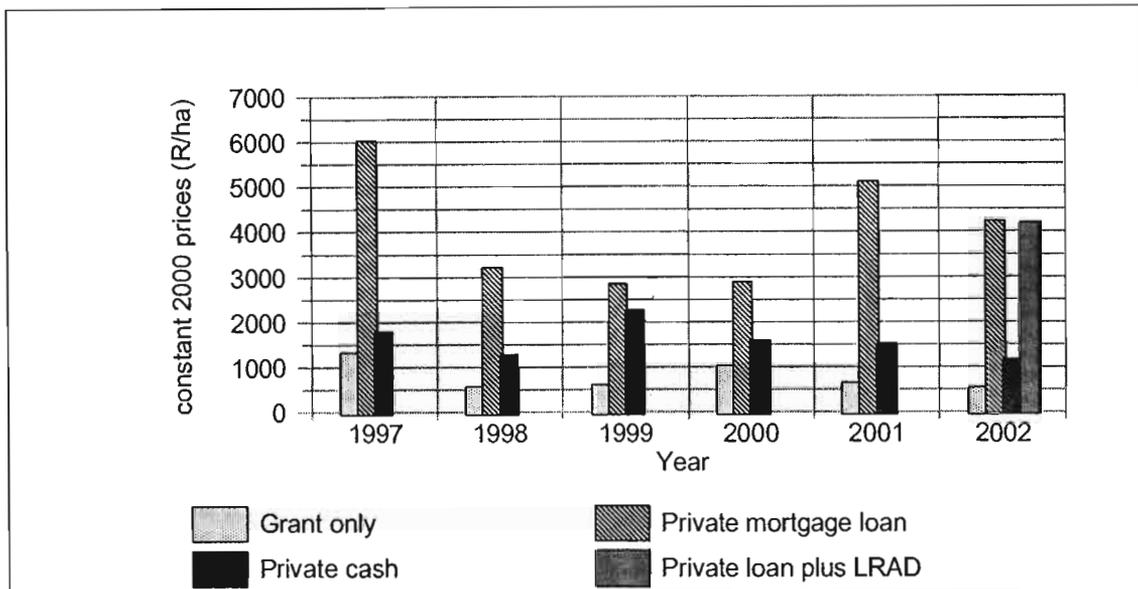


Figure 6: Weighted farmland price (R/ha) by mode of land redistribution to previously disadvantaged owners in KwaZulu-Natal, 1997-2002

2.5 Land redistribution by gender type

Table 4 compares land transactions according to gender and mode of land purchase. It shows that women (as sole owners or married co-owners) are well represented in the overall number of transactions involving previously disadvantaged South Africans, particularly those involving bequests. Women accounted for 478 out of 1,159 transactions involving disadvantaged owners (41 per cent) compared to 412 (36 per cent) for men only and 269 (23 per cent) for corporate³ owners. Of the market transactions, women were well represented in cash-financed transactions, but were under-represented in transactions financed with mortgage loans. In 2002, however, women were involved in 50 per cent of all transactions co-financed with LRAD grants and mortgage loans. This

³ A corporate owner is a juristic entity representing the interests of one or more people.

may explain why the quality of land acquired by women in 2002 was higher than in previous census surveys (R4,381/ ha versus R3,040/ha). This also suggests that LRAD targeted women much more effectively than did the SLAG programme and could improve women's access to mortgage loans in the future.

Table 4: Distribution of land transactions by gender in KwaZulu-Natal, 1997-2002

	Male owners	Female owners or married co-owners	Corporate owners
Cases	412	478	269
Grant only (%)	0	0	100
Private cash (%)	43	36	21
Private bond (%)	49	29	22
Mortgage loan plus LRAD grant (%)	43	50	7
Private non-market (%)	32	65	3
All transactions (%)	36	41	23

Table 5 shows that the total area of farmland acquired solely by men during 1997-2002 was higher than that acquired by women as sole owners or married co-owners (35,356 versus 25,615 hectares). Farms acquired by women were also, on average, smaller (53 hectares) than those acquired by their male counterparts (86 hectares) largely because the areas inherited by women tended to be relatively small. Figure 7 shows that with the exception of 1997 and 1999, men purchased almost twice the total area purchased by women. Overall, corporate entrants acquired more land than males and females combined over the six-year study period. In 2002, corporate entities accounted for 85 per cent of the farmland transferred to previously disadvantaged South Africans in KwaZulu-Natal.

The gender representation of these corporate entities is not known but it seems likely that they favour men. This is certainly true of the Community Land Trusts and Communal Property Associations established by government to represent the interests of beneficiaries that pooled their SLAG grants to purchase land collectively (DLA, 2001). That these groups were primarily interested in maximizing land area for residential and

grazing purposes is evidenced by the poor quality of land purchased by corporate entities (R1223/ha) compared to that purchased by men only (R2534/ha) and women as owners or married co-owners (R3049/ha).

Table 5: Farmland characteristics by gender in KwaZulu-Natal, 1997-2002 (constant 2000 prices)

Farm characteristics	Male owners	Female owners or married co-owners	Corporate owners
Mean area of farms (Ha)	86 n = 412	53 n = 478	434 n = 269
Total area of land (Ha)	35356 n = 412	25615 n = 478	116696 n = 269
Total market value of purchased land (R million)	80 n = 283	55,91 n = 215	137,73 n = 255
Weighted land price (R/ Ha)	2534 n = 281	3049 n = 213	1223 n = 254

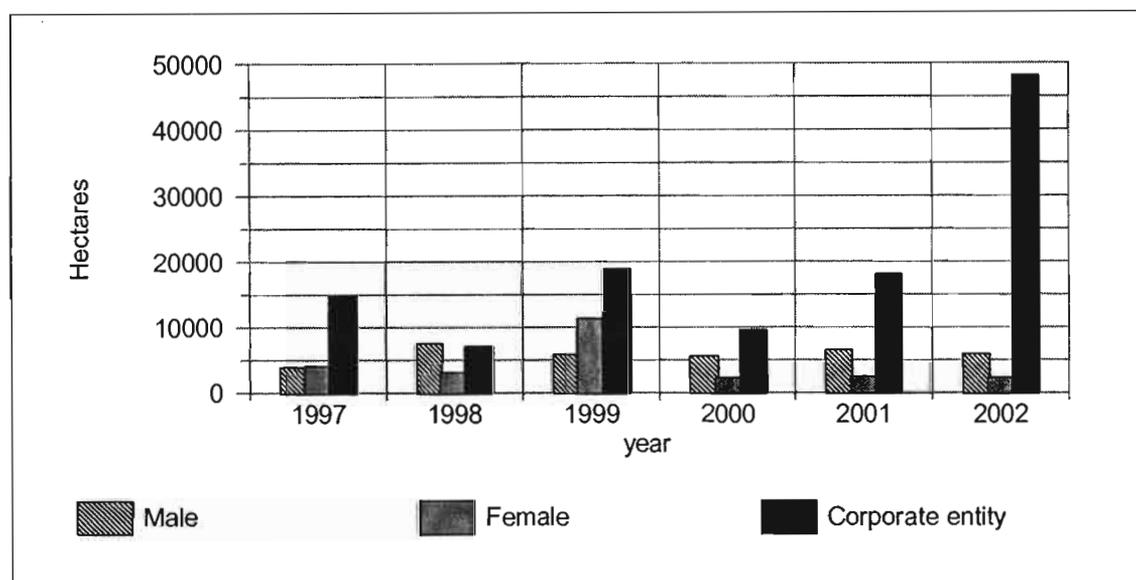


Figure 7: Total area of farmland transacted by category of disadvantaged owners in KwaZulu-Natal, 1997-2002

Farm worker equity-sharing schemes could help correct the gender imbalance as women are usually well represented amongst farm workers. Despite the success of these projects in other parts of the country such schemes have not yet taken hold in KwaZulu-Natal. No grant funded equity-sharing schemes were known to be operating in the Province during the study period (Lyne, 2003).

CHAPTER 3

DISCRIMINANT ANALYSIS OF MARKET MODES OF LAND REDISTRIBUTION

A linear discriminant model was estimated to identify farm and gender characteristics associated with three different market modes of land redistribution (transactions financed with government grants, own cash or mortgage loans) using data drawn from the 'advantaged to disadvantaged' subset of the deeds of transfer recorded in KwaZulu-Natal from 1997 to 2002 (Appendix 2). Parameters showing the relative strength and direction (positive or negative) of partial relationships estimated for these characteristics shed light on the performance of each mode of land redistribution.

3.1 The data

The following variables were considered in this analysis:

MODE OF LAND REDISTRIBUTION: As noted in section 2.1 the transfer deeds do not explicitly record the mode of redistribution except for non-market transactions and those financed with mortgage loans. Transactions involving farms purchased by a Communal Property Association or Community Land Trust were financed only with government grants. Transactions co-financed with LRAD grants and mortgage loans were identified from lists provided by the lenders (Land Bank and Ithala Development Finance Corporation). The remaining market transactions were classified as own cash transactions.

Of the 1167 transactions that redistributed farmland to previously disadvantaged South Africans in KwaZulu-Natal during 1997-2002, 459 cases were excluded as they were non-market transfers. The remaining 708 transactions were categorised as; government grant only (n = 135), mortgage loan (n=200), mortgage loan plus LRAD grant (n=14) and own cash (n=359). The 'mortgage loan plus LRAD grant' transactions were then combined with the mortgage loan group because the former share the characteristics of private transactions co-financed with mortgage loans and own equity as they are assessed by commercial banks.

AREA: Hectares of land purchased by the new owner.

QUALITY: The quality of farmland purchased by the new owner was estimated by the price paid per hectare on the assumption that market prices accurately reflect the land's earning potential (Standard Bank, 1999:37-40).

REGION: Following Lyne & Ortmann (1996), KwaZulu-Natal was divided into three geographic zones, namely; the Coastal Belt, Midlands and Lowveld. The Lowveld accounts for a small part of the province and is typically located in river valleys that are remote from towns. Each observed market transaction was then allocated to one of these zones using location codes recorded on the transfer deed.

GENDER: The transfer deeds do not record the gender of new landowners. In the absence of this information, the gender of buyers who were natural persons was established primarily on the basis of their names. As noted in section 2.1, this process is not entirely accurate for sole owners. However, in the case of married co-owners, the names of both the husband and wife are recorded.

3.2 Linear discriminant analysis (LDA)

LDA is a statistical technique used to distinguish between two or more groups using characteristics on which the groups are expected to differ (Manly, 1994: 107). Groups are forced to be as statistically different as possible by forming a weighted linear combination of the discriminating variables (SPSS, 1994). The weights are estimated so that they result in the 'best' separation between the groups.

A linear discriminant function can be represented as:

$$D_i = \beta_1 Z_{i1} + \beta_2 Z_{i2} + \dots + \beta_p Z_{ip}$$

Where;

D_i is the score of the discriminant function for the i^{th} respondent,

β_p are the standardised weights or coefficients to be estimated,

Z_{ip} are the standardised values of the p discriminating variables.

The standardised weighting coefficients (β_p) reflect the relative importance of each discriminating variable (Z_{ip}). Variables with relatively larger β_p contribute more to the discrimination of groups. Two statistics are commonly used to gauge the importance of a discriminant function. The first is Wilks' Lambda, an inverse measure of the function's discriminating power; the smaller the value of Wilks' Lambda the better the discriminating power of the function. The second is the correct classification rate. This shows how well the discriminant model predicts the actual group membership of the original observations. For a three-group study like this, only two discriminant functions can be extracted - with the first function accounting for the largest proportion of the differences among the three groups. Table 6 summarises the discriminating variables included in the analysis.

Table 6: Discriminating variables included in the analysis

Variable	Description
LN(AREA)	Natural log of farm size measured in hectares
LN(QUALITY)	Quality of farmland measured as the natural log of price paid per hectare (R/Ha) in constant 2000 Rands
(D ₁₁)	Dummy variable scoring one if the farm purchased falls within the Coastal Belt or zero if located in the Midlands or Lowveld
(D ₁₂)	Dummy variable scoring one if the farm purchased falls within the Midlands and zero if located in the Coastal Belt or Lowveld
(D ₂₁)	Dummy variable scoring one if the new owner is a corporate entity and zero if a natural person or married couple
(D ₂₂)	Dummy variable scoring one if the new owner is a male and zero if a corporate entity or woman as either sole owner or married co-owner

LN(AREA): Farms financed with government grants are expected to be larger in area than those financed with mortgage loans or own cash. Beneficiaries of the SLAG programme tended to purchase extensive but low quality farms because their main objective was to accommodate the residential and grazing needs of a large group of households by pooling their small grants (Turner & Ibsen, 2000:10-11). Farms purchased with own cash are expected to be amongst the smallest as few people, especially the previously disadvantaged, have sufficient savings to pay cash for a large farm. Low levels of equity capital are also expected to constrain the size of farms financed with mortgage loans because commercial banks usually require a debt/equity ratio of less than one. The variable AREA was transformed to natural logarithms to reduce skewness in its distribution.

LN(QUALITY): Farmland purchased with mortgage loans or own cash is expected to be of higher agricultural quality than land financed only from government grants - partly because groups of SLAG beneficiaries required large areas for residential and grazing purposes and partly because co-ownership of more expensive cropland created social problems in its allocation to beneficiaries, or free-rider problems in its collective use

(Lyne & Graham, 2001). The variable QUALITY - measured in terms of real price paid per hectare - was also transformed to natural logarithms to improve the symmetry of its distribution.

REGION: Regional dummies were included to capture bias in the location of public and private land redistribution programmes. For example, it is well documented that the SLAG programme was piloted in the Midlands and Lowveld of KwaZulu-Natal near the towns of Estcourt and Weenen owing to conflict between commercial farmers and labour tenants, and that the medium-scale sugar-cane farmer programme subsidised by private sugar millers is located in the Coastal Belt (Graham, 2000). Two regional dummy variables (D_{11} and D_{12}) were included in the analysis to distinguish transactions in the Coastal and Midlands regions from those in the Lowveld - the default category.

GENDER: Two 'gender' dummies account for three categories of owner. Dummy variable D_{21} scores a one if the buyer is a corporate entity, and zero otherwise. D_{22} scores a one if the buyer is a male as sole owner, and zero otherwise. The default category is therefore comprised of women as sole owners or married co-owners. The incidence of corporate ownership is expected to be highest for farms financed only from government grants. Under the SLAG programme, beneficiaries had to pool their small grants and purchase farms collectively in order to avoid the high costs of surveying and registering subdivisions. However, the Subdivision of Agricultural Land Act, Act 70 of 1970, prohibits co-ownership of farmland in undivided shares by natural persons other than husband and wife. Consequently, each beneficiary group had to establish a juristic entity, usually a Communal Property Association or a Community Land Trust, to take ownership of the land. According to the DLA (2001) women are under-represented in these corporate entities. For farms financed with own cash or mortgage loans, the

incidence of female ownership is expected to be relatively low as previously disadvantaged women typically lack savings and creditworthiness as a result of discriminatory customs and social practices (DLA, 1997a). In addition, the contractual status of women married under customary law before 1998 was limited to a legal state of perpetual minority. Under the Recognition of Customary Marriages Act, Act 120 of 1998, a customary marriage entrenches equality and, unless stated in an ante-nuptial contract, is a marriage in community of property (DHA, 2000).

3.3 Results

The descriptive statistics presented in Table 7 show significant univariate differences in the mean values of all the discriminating variables. The direction of these differences is consistent with *a priori* expectations.

Table 7: Mean farm and gender characteristics by mode of redistribution in KwaZulu-Natal, 1997-2002

Variable	Own cash	Mortgage including mortgage +LRAD	Government grant only	F-value
Cases	(333)	(210)	(129)	
LN(AREA)	3.41	4.48	5.62	93.90 ^{***}
LN(QUALITY)	7.81	8.59	6.71	86.41 ^{***}
D ₁₁	0.39	0.37	0.25	6.06 ^{***}
D ₁₂	0.54	0.49	0.72	9.23 ^{***}
D ₂₁	0.22	0.21	1.00	233.87 ^{***}
D ₂₂	0.47	0.50	0.00	60.18 ^{***}

^{***} implies significance at the one per cent level of probability

Discriminant functions were estimated with SPSS v11.5 (2002) using a stepwise procedure that entered explanatory variables only if they were statistically significant at the 20 per cent level of probability or better. Collinearity between discriminating

variables did not appear to be a problem as the lowest tolerance level for any of the variables was 0.74.

Results of the analysis are presented in Table 8. Function 1 accounts for 68 per cent of the differences among the three modes of redistribution, while Function 2 accounts for 32 per cent. Wilk's Lambda is statistically significant for both functions. Together, these functions reduce Wilk's Lambda to 0.37 and correctly classify 71 per cent of transactions financed with own cash, 71 per cent of transactions financed with mortgage loans, and 92 per cent of farms purchased with government grants when prior probabilities of group membership are set equal to group size. The overall rate of correct classification is 75 per cent, indicating that a considerable amount of discriminatory information is accounted for by the explanatory variables.

Table 8: Estimated discriminant functions and group means distinguishing three different modes of land redistribution, 1997-2002

Discriminating Variable	Standardised Coefficients		Mode of land redistribution	Group centroids	
	Function 1 'pre 2000'	Function 2 '2000'		Function 1 'pre 2000'	Function 2 '2000'
LN(QUALITY)	0.71 ^{***}	0.89 ^{***}	Mortgage including LRAD + mortgage	0.90	0.74
LN(AREA)	0.42 ^{***}	1.17 ^{***}			
D ₁₁	-0.15	-0.28	Government grant only	-1.81	0.47
D ₁₂	-0.11	-0.37			
D ₂₁	-0.91 ^{***}	0.14 ^{***}	Own cash	0.14	-0.65
% of variance	68.00	32.00			
Wilks' Lambda	0.53 ^{***}	0.70 ^{***}			

^{***} implies significance at the one per cent level of probability.

According to the magnitude and signs of the standardised coefficients estimated for significant variables in the first discriminant function, it is clear that larger farms of better

quality tend to be purchased by individual owners rather than by groups registered as a corporate entity. The group centroids suggest that this function distinguishes farms financed with government grants from those financed with mortgage loans or (to a lesser extent) cash reserves over the period 1997-2001 when the SLAG programme discouraged private investment by creating models of collective ownership that did not establish conditions for efficient land use or creditworthiness (Lyne & Graham, 2001; Graham & Darroch, 2001).

The significant coefficients estimated for Function 2 show a strengthening of the positive relationship between farm size and quality, and a weak positive relationship with corporate ownership. In this case, the group centroids suggest that Function 2 is characterised mainly by transactions in 2002 when SLAG was replaced by LRAD. Under LRAD, corporate ownership tends to be characterised by small groups (of family members) with benefit rights proportional to individual investment rather than large groups of land reform beneficiaries with equal rights to use the land. A narrowing of the gap between the centroids predicted for loan and grant financed transactions suggests that LRAD beneficiaries who did not raise mortgage loans might have invested substantial savings of their own to purchase larger and better quality farms. This outcome was unlikely under SLAG owing to the means test and free-rider problems created by the type of collective action that SLAG entrenched.

Interestingly, there is no significant relationship between mode of redistribution and the gender of natural persons who used their own cash or mortgage loans to finance family farms. Also there appears to be no significant relationship between geographic location and mode redistribution, but this might be due to inadequate measures of location that do not accurately capture differences in access to grant and loan finance.

CHAPTER 4

REVERSE LAND TRANSFERS

For the first time during the 1997 – 2002 study period, the 2002 KwaZulu-Natal farmland census study identified and analysed reverse land transfer, where land transferred from previously disadvantaged individuals to historically more advantaged ones (Appendix 3). As noted in section 2.1, the disadvantaged group consists of those people who were excluded from land markets on the basis of racial and- to some extent- gender segregation before 1994, while the advantaged group comprises of persons (natural and juristic) that had the right to transact in land prior to 1994. Of the 316,840 hectares of farmland transacted in KwaZulu-Natal during 2002, 1,454 hectares or 0.46 per cent was transferred from previously disadvantaged individuals to historically advantaged ones. This is small compared to redistributive transfers that transferred about 38 times more land (56,411 hectares) to previously disadvantaged individuals in 2002. Evidence of the existence of a secondary market for redistributed land is a healthy sign, as land wealth and its collateral value would disappear in the absence of a land market.

The characteristics of reverse land transfers are shown in Table 9. Of the 51 transactions that transferred farmland from disadvantaged to advantaged individuals, 17 were non-market transfers. Of the 34 market transactions the majority (25 transactions) were financed with cash, while mortgage loans financed five transactions. Overall the market transactions involved small farms averaging 36 hectares in area whereas redistributive transfers recorded in 2002 averaged 229 hectares. This suggests that some new entrants sold portions of their farms perhaps to generate liquidity.

Table 9: Characteristics of farmland transfers from disadvantaged owners to advantaged individuals by mode of redistribution in KwaZulu-Natal, 2002 (constant 2000 prices)

Farm characteristic	Private mortgage loan	Private cash	Private non-market	Total
Number of transactions	5	29	17	51
Total area of land (Ha)	269	945	240	1454
Total market value of land (R million)	0.65	3.7		4.35
Mean area of farms (Ha)	54	33	14	
Weighted farmland price (R/Ha)	2,420	3,913		

No land was transferred from government land reform beneficiaries to previously advantaged people. This is not unexpected because the group settlement schemes under the SLAG programme prior to 2002 effectively removed land from the market. According to Lyne & Graham (2001), it is unlikely that farms acquired by large user groups (as in the case of SLAG projects) can command either a market value or collateral value as prospective buyers and lenders face a daunting task of dispossessing poor households.

CHAPTER 5

CONCLUSION AND POLICY RECOMMENDATIONS

The annual census surveys of farmland transfers show that about 56,411 hectares of the total commercial farmland transferred to new owners during 2002 in KwaZulu-Natal was transferred to previously disadvantaged South Africans. This represents 1.06 per cent of the farmland originally available for redistribution in 1994, the highest annual rate of land redistribution estimated for the Province since 1997 when the first survey was conducted. The improvement in the rate of redistribution could possibly be due to the launch of LRAD under which the authority to approve and implement land reform projects was decentralized from the national DLA to provincial departments, which shortened the decision chain reducing lengthy delays that hampered the SLAG programme. The increase in the rate of redistribution during 2002 may also be due to a backlog of SLAG-assisted transfers being processed during 2002 after a two-year moratorium.

The study also shows that during 2002, transactions financed only with government grants redistributed more land than private purchases (32,028 hectares versus 22,863 hectares). In addition, land wealth transferred to previously disadvantaged households through these grant transactions increased from 17 per cent during 1997-2001 to about 24 per cent in 2002. With regards to the performance of the three market modes of land redistribution, the results show that land transactions co-financed by private sector financial institutions transferred larger farms of better quality to emerging farmers than those financed solely from own cash or government grants. The results further indicate that the gap between land transfers financed by the private sector and those financed by

government grants narrowed considerably following the introduction of LRAD. This suggests that LRAD beneficiaries who did not raise mortgage loans might have invested substantial savings of their own in order to purchase larger, better quality farms. This was unlikely under SLAG due to the means test and free-rider problems created by group ownership that SLAG entrenched.

Early findings indicate that LRAD has succeeded in leveraging private resources to co-finance land reform beneficiaries that purchased their own, high quality farms. These public-private partnerships in financing land have been boosted by the recapitalisation of the LREF. Extending the privilege of approving LRAD grants for eligible clients whose loan applications have been assessed and found creditworthy by other banks other than the Land Bank could further enhance these public-private partnerships.

Initial results indicate that farms acquired under the SLAG programme were smaller and of much poorer quality than those acquired by beneficiaries under LRAD. The relative failure of SLAG in terms of transferring larger farms of better quality two likely causes two. First, the SLAG programme specifically targeted the relatively poor who did not have substantial savings of their own with which to co-finance farmland purchase. Second, the programme promoted models of collective farm ownership that entrenched free-rider problems, and consequently did not establish conditions for effective land use or creditworthiness. LRAD, by contrast, offers larger grants to wealthier farmers and is therefore more conducive to the establishment of individually-owned farms or enterprises owned by a small group of individuals.

Considering gender issues, women as sole owners or married co-owners accounted for the largest share (41 per cent) of all transactions during 1997-2002, largely because bequests favour women. Also, women are well represented in transactions co-financed

with LRAD grants and mortgage loans. This suggests that LRAD has been more successful in engaging women in land redistribution than was the SLAG programme during 1997-2001. Nevertheless, previously disadvantaged women gained less land than their male counterparts (25,615 versus 35,356 hectares) and, after removing non-market transactions, they gained much less land wealth compared to their male counterparts (R56 million versus R80 million). Policies and programmes that encourage the establishment of farmworker equity sharing schemes in KwaZulu-Natal could help correct the gender imbalance as women are usually well represented amongst farmworkers. While the results from discriminant analysis show no apparent gender bias in the use of cash or private mortgage loans to finance family farms, there is concern that women are under-represented in land transactions involving corporate buyers.

Replacing the Subdivision of Agricultural Land Act, Act 70 of 1970, with zoning regulations could increase the supply of smaller, more affordable properties for individual emergent farmers. Lyne and Darroch (2003) argue that this Act constrains the subdivision of farms into smaller parcels of land, preventing many emerging farmers from making private purchases. Although grant financed transactions can be exempted from the Act, costs associated with formal subdivision of agricultural land are prohibitively high. Besides, the exemption pertains only to government-assisted transfers and therefore does nothing to increase market access for private buyers.

The study found that a small part of farmland (0.5 per cent) transacted during 2002 in KwaZulu-Natal, transferred from previously disadvantaged individuals to historically advantaged ones. The existence of a secondary land market for redistributed land is a positive sign as the absence of a land market would diminish the market value (land

wealth) and collateral value of redistributed land as was the case with group settlement schemes under SLAG programme. However, while low levels of reverse transfers should be tolerated, should rates of reverse transfer rise significantly, it would be necessary to identify and address the underlying causes (eg. liquidity problems) rather than intervene in the market. Future research should ascertain whether improvements in the rate of land redistribution in KwaZulu-Natal during 2002 will be sustained in the future, and determine the extent to which these improvements could be attributed to the LRAD programme. It is also recommended that research should be conducted to compare the rate of land redistribution in KwaZulu-Natal with that achieved in other provinces of South Africa.

SUMMARY

As a result of the racist Natives Land Act of 1913, South Africa has a highly skewed land distribution with the white minority owning most of the agricultural land. Since democratisation in 1994 government and private modes of land redistribution have emerged to redistribute farmland to previously disadvantaged people. This study aimed at determining the performance of the LRAD programme relative to private transactions in KwaZulu-Natal during 2002 and contrasting the results with those of the earlier SLAG programme. The study also examined the performance of different market modes during 1997-2002 as well as the extent of reverse land transfers identified in the 2002 land transactions.

Early indications are that the LRAD programme had a dramatic impact on land redistribution during 2002 in KwaZulu-Natal. The rate of land redistribution doubled and for the first time since 1997 when the surveys commenced, transactions financed solely from government grants redistributed more land than did privately financed transactions. The study also shows that the LRAD programme is more successful in attracting women in land redistribution than was the SLAG programme. Under the SLAG programme during 1997-2001, previously disadvantaged women not only gained less land than their male counterparts they also gained less land wealth. In contrast fifty per cent of the transactions co-financed with LRAD grants and mortgage loans in KwaZulu-Natal during 2002 involved female buyers as owners or married co-owners. However, there is concern that women are not well represented in corporate entities. Farm worker equity-sharing schemes could help reduce this imbalance as women are well represented amongst farm workers.

Findings show that LRAD has also assisted in engaging financial institutions in co-financing previously disadvantaged entrants to purchase their own, high quality farms. Fourteen transactions were financed with a combination of LRAD and mortgage finance in 2002. The quality of land transferred using this mode of redistribution was greater than that financed solely with government grants and privately. One of the major barriers to these private-public partnerships in financing land redistribution is the shortage of grant funds. This shortage has arisen because the Land Bank, which enjoys the privilege of being the only bank permitted to approve LRAD applications, has not processed many deals for which it approved grants. Allowing banks other than the Land Bank, to approve LRAD grants for clients whose loan applications have been assessed and found credit worthy could enhance these public-private partnerships.

Discriminant analysis was used to establish the performance of the different modes of redistribution observed in KwaZulu-Natal over the period 1997-2002. The results show that the gap between land transfers financed by the private sector and those financed by government grants narrowed considerably following the introduction of the LRAD programme. The results also indicate that land transactions co-financed by commercial banks transferred larger farms of better quality to previously disadvantaged South Africans relative to those financed exclusively by own cash or government grants. A small portion of farmland (1,454 ha) of previously redistributed farmland transferred back to previously advantaged individuals. Such transactions were not detected before 2002 suggesting the onset of a trend worth monitoring to identify the underlying reasons for these transactions.

REFERENCES

- AGRICULTURAL NEWS. (2000). Land Redistribution and Farmer Settlement Programme. *Agricultural news*, 7 August: 2-3 Pretoria.
- ANC. (1994). Reconstruction and Development Programme. Umanyano publications, Johannesburg.
- BABER RAA. (1991). A property rights approach to the land question in South Africa. Unpublished MScAgric thesis, Department of Agricultural Economics, University of Natal, Pietermaritzburg.
- DEWET C. (1987). Land tenure and rural development: Some issues relating to the Transkei/ Ciskei region. *Development Southern Africa*, 4(3): 478-559.
- DLA. (2004). Cumulative statistics on settled restitution claims. Online: <http://land.pwv.gov.za/restitution> (accessed 18/04/04).
- DLA. (2003a). The Annual Report of the Commission on Restitution of Land Rights for April 2002 - March 2003. Government Printer. Pretoria.
- DLA. (2003b). Restitution Statistics. Online: <http://land.pwv.gov.za/restitution> (accessed 18/04/03).
- DLA. (2003c). Land Affairs budget vote speech by the Minister for Agriculture and Land affairs. Online: <http://land.pwv.gov.za/publications/news/speeches/Ministers%20NCOP%20Budget%20Speech%20-%2010%20April%202003.htm> (accessed 18/05/03)
- DLA. (2002). Annual report. Government printer. Pretoria.
- DLA. (2001). Monitoring and Evaluating the Quality of Life of Land Reform Beneficiaries 2000/2001. Department of Land Affairs, Government Printer. Pretoria.
- DLA. (2000). Background to restitution. Online: <http://land.pwv.gov.za/restitution> (accessed 18/02/03).
- DLA. (1999). Land Reform Credit Facility. Online: <http://land.pwv.gov.za/redistribution> (accessed 13/02/03).
- DLA. (1997a). White paper on Land Reform. Government Printer, Pretoria.
- DLA. (1997b). Extension of Security of Tenure Act 62 of 1997. Online: <http://land.pwv.gov.za/> (accessed on 14/04/03).
- DHA. (2000). Solemnisation and registration of civil marriages. Online: www.home-affairs.gov.za/civil-marriages.asp (accessed on 15/06/04).

ECKERT JB, HAMMAN JN & LOMBARD JP. (1996). Perceiving a new future: Empowering farm workers through equity sharing. *Development Southern Africa*, 13(5): 693-712.

FINANCIAL MAIL (2000a). A slow but sure process. *Financial Mail*, 28 April 2000: 24-25. Johannesburg.

FINANCIAL MAIL. (2000b). Government's not about to grab farms. *Financial Mail*, 27 October 2000: 41-42. Johannesburg.

GRAHAM AW & DARROCH MAG. (2001). Relationship between the mode of land redistribution, tenure security and agricultural credit use in KwaZulu-Natal. *Development Southern Africa*, 18(3): 295-308.

GRAHAM A. (2000). Land redistribution in KwaZulu-Natal: An analysis of farmland transactions recorded in 1997 and 1998. Unpublished MSc Agric thesis, Agricultural Economics, School of Agricultural Sciences and Agribusiness, University of Natal.

GRAHAM A & LYNE MC. (1999a). Land redistribution in KwaZulu-Natal: An analysis of farmland transactions in 1997. *Development Southern Africa*, 16(3): 435-445.

GRAHAM A & LYNE MC. (1999b). Land redistribution in KwaZulu-Natal: An analysis and comparison of farmland transactions in 1997 and 1998. *Agrekon*, 38(4): 516-525.

GRAHAM D & LYNE MC. (1999c). The cash flow problem and land redistribution in South Africa: Broadening the land market and economizing on government's role. *Agrekon*, 38 (Special issue): 343-352.

HALL R, KLEINBOOI K & MVAMBO N. (2001). What land reform has meant and could mean to farmworkers in South Africa. Unpublished paper presented at the Southern African Regional Poverty Network (SARPN) Conference on Land Reform and Poverty Alleviation in Southern Africa, 4-5 June 2001 Pretoria. Online: www.sarpn.org.za/Event/papers/Land/20010605Hall.pdf (accessed 14/08/04).

HAMMAN J & EWERT J. (1999). A historical irony in the making? State, private sector and land reform in the South African wine industry. *Development Southern Africa*, 16(3): 447-454.

KEPE T & COUSINS B. (2002). Radical land reform is key to sustainable rural development in South Africa. Online: www.uwc.ac.za/plaas/publications/policy/brief3.pdf (accessed 20/03/03).

KIRSTEN J & VAN ZYL J. (1999). Approaches and progress with land reform. *Agrekon*, 38(special issue): 326-341.

KNIGHT SL, LYNE MC & ROTH M. (2003). Best institutional arrangements for farm worker equity-share schemes in South Africa. *Agrekon*, 42(3): 228-251.

KNIGHT SL & LYNE MC. (2002). Perception of farm worker equity-share schemes in South Africa. *Agrekon*, 41(4): 356-374.

LAHIFF E. (2001). Land reform in South Africa: is it meeting the challenge? Online: www.uwc.ac.za/plaas/publications/ (accessed 20/03/03).

LIMA (1998). Options for government's settlement/land acquisition grant. Unpublished report, LIMA Rural Development Foundation, Umzumbe, South Africa.

LYNE MC & DARROCH MAG. (2003). Land redistribution in South Africa: Past performance and future policy. In: Nieuwoudt L. and Groenewald J. (eds), *The Challenge of Change: Agriculture, Land and the South African Economy*. University of Natal Press, Durban.

LYNE MC. (2003). Personal communication. Department of Agricultural Economics, University of Natal, Pietermaritzburg.

LYNE MC & GRAHAM DH. (2001). The impact of land redistribution on tenure security and agricultural performance in KwaZulu-Natal. *Agrekon*, 40(4): 656-668.

LYNE, MC. ZILLE, P & GRAHAM, D. (2000). Financing the market based redistribution of land to disadvantaged farmers and farm workers in South Africa: Recent performance of the Land Reform Credit Facility. Online: www.socresonline.org.uk (accessed on 12/02/03).

LYNE MC & ORTMANN G F. (1996). Estimating the potential for creating additional livelihoods on commercial farmland in KwaZulu-Natal. In Lipton M, Ellis F and Lipton M (eds), *Land, Labour and Livelihoods in Rural South Africa: Vol 2: KwaZulu-Natal and Northern Province*. Indicator Press, Durban.

MAIL & GUARDIAN. (2004). Land won't belong to all by 2005. *Mail & Guardian*, February 20-26 2004: 28.

MALA. (2001). Land Redistribution for Agricultural Development. A sub programme of the Land Redistribution Programme. Final draft document. Ministry of Agriculture and Land Affairs. Government printer. Pretoria.

MANLY BFJ. (1994). *Multivariate Statistical Methods: A Primer*. Second Edition, Chapman and Hall, London.

MARCUS T, EALES K & WILDSCHUT A. (1996). Down to earth. Land demand in the new South Africa. Indicator Press, Durban.

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

NATIONAL DEPARTMENT OF AGRICULTURE. (2001). Land redistribution for agricultural development. Online: www.nda.agric.za/ (accessed on 15/02/03).

NLC. (2000a). Land reform policy. Online: www.nlc.co.za/mdrefpo.htm (accessed on 20/02/03).

NLC. (2000b). Land Restitution. Online: www.nlc.co.za/mdresti.htm (accessed on 20/02/03).

NLC. (2000c). Land redistribution. Online: www.nlc.co.za/mdredis.htm (accessed on 20/02/03).

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

NKUZI. (2000). Response to the Ministry of Agriculture and Land Affairs' "Integrated programme of land redistribution and agricultural development in South Africa." Unpublished transcript. Prepared by the Nkuzi Development Association, Pietersburg.

RSA CONSTITUTION. (1996). One law for one nation. Online: www.polity.org.za/html/govdocs/constitution/saconst.html (accessed 03/04/03).

SIMMS P. (1996). A financial model to fund land redistribution in the sugar industry of KwaZulu-Natal. *Agrekon*, 35(4): 252-255.

SPSS v11.5. (2002). *SPSS 11.5 for Windows and Smart viewer*. SPSS Inc., Chicago.

SPSS. (1994). *SPSS Professional Statistics 6.1*. SPSS Inc. Chicago.

STANDARD BANK. (1999). *Finance and Farmers: A Financial Management Guide for Farmers*, Second Edition. Standard Bank of South Africa Limited, Johannesburg.

SUNDAY TRIBUNE. (2003). Team work empowers sugar farmers. *Sunday Tribune* 30 March 2003, Durban.

TURNER S & IBSEN H. (2000). Land and agrarian reform in South Africa: A status report. Unpublished report, Programme for Land and Agrarian Studies (PLAAS), University of the Western Cape, Cape Town, South Africa.

VAN ROOYEN J & NJOBE M. (1996). Access to land : Selecting the beneficiaries. In: Van Zyl J, Kirsten JF & Binswanger HP (eds), *Agricultural Land Reform in South Africa: Policies, Markets and Mechanisms*. Oxford press, Cape Town.

APPENDICES

Appendix 1: Land redistribution transactions data for 2002 in KwaZulu-Natal

Variable	Description
FEMALE	=1 if buyer is female, and 0 otherwise
JOINT	=1 if bought by husband & wife, and 0 otherwise
GRANT	=1 if financed with SLAG or LRAD grant but no loan finance, 0 otherwise
MORTGAGE	=1 if financed with mortgage loan, 0 otherwise
CASH	=1 if financed privately with cash, 0 otherwise
INHERIT	=1 if transfer was a non-market transfer, 0 otherwise
MORT-GRANT	=1 if financed with mortgage loan plus LRAD grant, 0 otherwise
PRICE	Market price paid for land (R)
BOND	Mortgage loan amount used to buy land (R)
AREA	Farm size (Ha)
Missing value	-1

FEMALE	JOINT	GRANT	MORTGAGE	CASH	INHERIT	MORT-GRANT	PRICE	BOND	AREA
0	0	1	0	0	0	0	195000	0	16.71
0	0	0	1	0	0	0	450000	250000	19.41
0	0	0	1	0	0	0	110000	60000	20.23
0	0	1	0	0	0	0	205000	0	20.80
0	0	1	0	0	0	0	55000	0	21.71
0	0	0	1	0	0	0	205000	205000	29.75
0	0	1	0	0	0	0	16500	0	30.80
0	0	1	0	0	0	0	98000	0	31.99
0	0	1	0	0	0	0	60000	0	46.88
0	0	1	0	0	0	0	46546	0	51.72
0	0	1	0	0	0	0	37200	0	62.22
0	0	1	0	0	0	0	32000	0	66.95
0	0	0	1	0	0	0	1200000	1400000	69.65
0	0	0	1	0	0	0	2000000	2000000	80.80
0	0	1	0	0	0	0	75000	0	84.86
0	0	1	0	0	0	0	47500	0	96.73
0	0	0	1	0	0	0	400000	400000	100.50
0	0	1	0	0	0	0	70400	0	115.83
0	0	1	0	0	0	0	94266	0	118.40
0	0	1	0	0	0	0	104292	0	139.56
0	0	0	1	0	0	0	1240000	1000000	163.67
0	0	1	0	0	0	0	145000	350000	192.04
0	0	0	1	0	0	0	3000000	150000	202.34

Appendix 1: Continued

FEMALE	JOINT	GRANT	MORTGAGE	CASH	INHERIT	MORT-GRANT	PRICE	BOND	AREA
0	0	1	0	0	0	0	170481	0	214.13
0	0	0	1	0	0	0	450000	450000	223.74
0	0	1	0	0	0	0	180000	0	242.10
0	0	1	0	0	0	0	375000	0	249.19
0	0	1	0	0	0	0	189668	0	270.95
0	0	1	0	0	0	0	221400	0	276.15
0	0	1	0	0	0	0	184000	0	313.47
0	0	1	0	0	0	0	163508	0	327.17
0	0	1	0	0	0	0	150000	0	335.41
0	0	1	0	0	0	0	180000	0	373.44
0	0	0	1	0	0	0	900000	1210002	398.52
0	0	0	1	0	0	0	230000	155000	415.46
0	0	1	0	0	0	0	210141	0	420.28
0	0	1	0	0	0	0	194750	0	490.28
0	0	1	0	0	0	0	205000	0	554.82
0	0	0	1	0	0	0	700000	1300000	573.73
0	0	1	0	0	0	0	300000	0	600.64
0	0	1	0	0	0	0	335000	0	629.29
0	0	1	0	0	0	0	947642	0	631.76
0	0	1	0	0	0	0	775000	0	651.63
0	0	1	0	0	0	0	425000	0	655.64
0	0	1	0	0	0	0		0	755.67
0	0	1	0	0	0	0	578224	0	798.65
0	0	1	0	0	0	0	342000	0	912.91
0	0	1	0	0	0	0	328274	0	937.68
0	0	1	0	0	0	0	732028	0	953.86
0	0	1	0	0	0	0	788110	0	1025.88
0	0	1	0	0	0	0	530400	0	1108.80
0	0	1	0	0	0	0	1897724	0	1265.15
0	0	1	0	0	0	0	934514	0	1354.93
0	0	1	0	0	0	0	1209804	0	1444.26
0	0	1	0	0	0	0	795600	0	1673.06
0	0	1	0	0	0	0	1570058	0	2044.59
0	0	1	0	0	0	0	1258000	0	6014.77
0	0	0	0	0	1	0		0	2.11
0	0	0	0	0	1	0		0	6.80
0	0	0	0	0	1	0		0	150.94
0	0	0	0	0	1	0		0	964.53
0	0	0	0	1	0	0	30000	0	2.05
0	0	0	0	1	0	0	48000	0	2.12
0	0	0	0	1	0	0	150000	0	5.56
0	0	0	0	1	0	0	20000	0	6.23
0	0	0	0	1	0	0	35000	0	6.76
0	0	0	0	1	0	0	50000	0	7.21
0	0	0	0	1	0	0	155000	0	8.19
0	0	0	0	1	0	0	55000	0	8.24
0	0	0	0	1	0	0	130000	0	9.14
0	0	0	0	1	0	0	43693	0	9.93

Appendix 1: Continued

FEMALE	JOINT	GRANT	MORTGAGE	CASH	INHERIT	MORT-GRANT	PRICE	BOND	AREA
0	0	0	0	1	0	0	60000	0	10.58
0	0	0	0	1	0	0	200000	0	15.54
0	0	0	0	1	0	0	250000	0	19.55
0	0	0	0	1	0	0	250000	0	20.58
0	0	0	0	1	0	0	50000	0	21.47
0	0	0	0	1	0	0	85000	0	22.34
0	0	0	0	1	0	0	170000	0	31.92
0	0	0	0	1	0	0	85000	0	38.65
0	0	0	0	1	0	0	16015	0	42.96
0	0	1	0	1	0	0	50000	0	50.00
0	0	0	0	1	0	0	265000	0	51.50
0	0	0	0	1	0	0	150000	0	60.91
0	0	0	0	1	0	0	2656000	0	66.03
0	0	0	0	1	0	0	50000	0	85.82
0	0	0	0	1	0	0	40000	0	100.00
0	0	0	0	1	0	0	720000	0	124.56
0	0	0	0	1	0	0	110000	0	161.87
0	0	0	0	1	0	0	160000	0	196.27
0	0	0	0	1	0	0	170000	0	205.12
0	0	0	0	1	0	0	150000	0	244.28
0	0	0	0	1	0	0	150000	0	249.72
0	0	0	0	1	0	0	250000	0	292.66
0	0	0	0	1	0	0	960000	0	302.94
0	0	0	0	1	0	0	360000	0	303.37
0	0	0	0	1	0	0	324000	0	323.75
0	0	0	0	1	0	0	240000	0	327.72
0	0	0	0	1	0	0	320000	0	328.52
0	0	0	0	1	0	0	340000	0	349.89
0	0	0	0	1	0	0	430000	0	357.85
0	0	0	0	1	0	0	490000	0	375.22
0	0	0	0	1	0	0	400000	0	389.56
0	0	0	0	1	0	0	197000	0	394.49
0	0	0	0	1	0	0	520000	0	401.25
0	0	0	0	1	0	0	340000	0	405.62
0	0	0	0	1	0	0	640000	0	409.90
0	0	0	0	1	0	0	520000	0	415.42
0	0	0	0	1	0	0	435000	0	523.29
0	0	0	0	1	0	0	1150000	0	607.31
0	0	0	0	1	0	0	436850	0	624.87
0	0	0	0	1	0	0	342000	0	648.55
0	0	0	0	1	0	0	376756	0	694.94
0	0	0	0	1	0	0	283683	0	700.68
0	0	0	0	1	0	0	1350000	0	813.60
0	0	0	0	1	0	0	1140000	0	869.62
0	0	0	0	1	0	0	700000	0	872.94
0	0	0	0	1	0	0	900000	0	938.47
0	0	0	0	1	0	0	693149	0	991.57
0	0	0	0	1	0	0	2600000	0	1212.52

Appendix 1: Continued

FEMALE	JOINT	GRANT	MORTGAGE	CASH	INHERIT	MORT-GRANT	PRICE	BOND	AREA
0	0	0	0	1	0	0	1520000	0	1435.93
0	1	0	0	0	0	1	380000	392000	38.45
0	0	0	0	0	0	1	550000	310000	61.64
0	0	0	0	0	0	1	1068403	712902	145.61
0	1	0	0	0	0	1	938997	621548	155.02
0	0	0	0	0	0	1	1271891	825082	155.46
0	0	0	0	0	0	1	1032465	649629	159.11
0	1	0	0	0	0	1	1268818	826911	167.99
0	0	0	0	0	0	1	2000000	960000	203.96
0	1	0	0	0	0	1	1239337	817861	259.25
0	0	0	0	0	0	1	1373438	896049	460.49
0	0	0	0	0	0	1	1919512	801796	1108.41
1	0	0	1	0	0	0	-1	3000	5.67
1	0	0	1	0	0	0	85000	85000	24.54
1	0	0	1	0	0	0	310000	107500	38.94
1	0	0	1	0	0	0	715000	669750	72.30
1	0	0	0	0	1	0	0	0	1.21
1	0	0	0	0	1	0	0	0	1.42
1	0	0	0	0	1	0	0	0	2.23
1	0	0	0	0	1	0	0	0	2.39
1	0	0	0	0	1	0	0	0	2.54
1	0	0	0	0	1	0	0	0	4.47
1	0	0	0	0	1	0	0	0	4.86
1	0	0	0	0	1	0	0	0	8.51
1	0	0	0	0	1	0	0	0	8.82
1	0	0	0	0	1	0	0	0	11.23
1	0	0	0	0	1	0	0	0	11.62
1	0	0	0	0	1	0	0	0	13.03
1	0	0	0	0	1	0	0	0	14.39
1	0	0	0	0	1	0	0	0	15.71
1	0	0	0	0	1	0	0	0	17.92
1	0	0	0	0	1	0	0	0	21.46
1	0	0	0	0	1	0	0	0	30.18
1	0	0	0	0	1	0	0	0	32.81
1	0	0	0	0	1	0	0	0	38.52
1	0	0	0	0	1	0	0	0	58.24
1	0	0	0	0	1	0	0	0	93.83
1	0	0	0	1	0	0	4794	0	4.47
1	0	0	0	1	0	0	50000	0	5.10
1	0	0	0	1	0	0	160000	0	6.27
1	0	0	0	1	0	0	10000	0	8.79
1	0	0	0	1	0	0	3000	0	9.21
1	0	0	0	1	0	0	135000	0	10.80
1	0	0	0	1	0	0	50000	0	10.92
1	0	0	0	1	0	0	32000	0	13.18
1	0	0	0	1	0	0	200000	0	20.23
1	0	0	0	1	0	0	120000	0	24.77
1	0	0	0	1	0	0	215000	0	35.56

Appendix 1: Continued

FEMALE	JOINT	GRANT	MORTGAGE	CASH	INHERIT	MORT-GRANT	PRICE	BOND	AREA
1	0	0	0	1	0	0	160875	0	208.85
1	0	0	0	1	0	0	250000	0	323.74
1	0	0	0	0	0	1	1181251	797963	136.02
1	0	0	0	0	0	1	1211688	804330	146.90
1	0	0	0	0	0	1	1096319	687941	206.01

Appendix 2: Farm and gender characteristics of farmland acquired by disadvantaged owners by market modes of redistribution in KwaZulu-Natal, data for the period 1997-2002

Variable	Description
MODE	Mode of land redistribution except non-market transactions =1 if land purchase was financed with own cash. =2 if land purchase was financed with either mortgage loan or mortgage loan plus LRAD grant. =3 if land purchase was financed with government grant without loan finance.
CE	Corporate entity =1 if buyer is a corporate entity , 0 if male or female.
FEMALE	=1 if buyer is female or married co-owner , 0 if male or corporate entity.
MALE	=1 if buyer is male , 0 if female or married co-owner or corporate entity.
AREA	Farm size measured in hectares
R QUALITY	Quality of farmland measured as price paid per hectare (R/Ha) in constant 2000 Rands.
COASTAL	=1 if land purchased lies in the Coastal Belt , 0 if located in Midlands or Lowveld.
MIDLANDS	=1 if land purchased is located in the Midlands , 0 if located in Coastal Belt or lowveld.
LOWVELD	=1 if land purchased is located in the Lowveld , 0 if located in Coastal Belt or Midlands.
Missing value	-1

MODE	CE	FEMALE	MALE	AREA	R QUALITY	COASTAL	MIDLANDS	LOWVELD
1	0	0	1	2.28	4175.44	-1	-1	-1
1	0	0	1	10.73	2218.08	-1	-1	-1
1	0	0	1	10.80	14324.07	-1	-1	-1
2	0	0	1	6.28	13266.44	-1	-1	-1

Appendix 2: Continued

MODE	CE	FEMALE	MALE	AREA	R QUALITY	COASTAL	MIDLANDS	LOWVELD
2	0	0	1	8.09	12496.91	-1	-1	-1
1	0	0	1	29.62	3898.76	0	0	1
1	0	0	1	32.36	194.71	0	0	1
1	0	0	1	32.36	546.88	0	0	1
1	0	0	1	40.65	51.66	0	0	1
1	0	0	1	41.44	253.38	0	0	1
1	0	0	1	53.93	194.70	0	0	1
1	0	0	1	60.70	1037.84	0	0	1
1	0	0	1	68.56	2144.04	0	0	1
1	0	0	1	70.35	6865.62	0	0	1
1	0	0	1	74.21	183.91	0	0	1
1	0	0	1	119.61	8701.90	0	0	1
2	0	0	1	26.19	14031.70	0	0	1
2	0	0	1	27.21	10611.71	0	0	1
2	0	0	1	28.33	59.31	0	0	1
2	0	0	1	40.47	1738.38	0	0	1
2	0	0	1	40.47	2724.33	0	0	1
2	0	0	1	40.47	9055.17	0	0	1
2	0	0	1	46.29	1134.20	0	0	1
2	0	0	1	103.21	7007.80	0	0	1
2	0	0	1	121.25	2944.42	0	0	1
2	0	0	1	124.00	10195.69	0	0	1
2	0	0	1	130.69	8592.47	0	0	1
2	0	0	1	146.36	6888.86	0	0	1
2	0	0	1	165.35	6032.06	0	0	1
2	0	0	1	167.52	9615.45	0	0	1
2	0	0	1	201.20	6379.65	0	0	1
2	0	0	1	255.50	1050.00	0	0	1
2	0	0	1	61.64	7674.06	0	1	0
2	0	0	1	145.61	6310.18	0	1	0
2	0	0	1	155.46	7036.15	0	1	0
2	0	0	1	159.11	5580.60	0	1	0
2	0	0	1	460.49	2564.97	0	1	0
2	0	0	1	1108.41	1489.32	0	1	0
1	0	0	1	-1.00	-10000.00	0	1	0
1	0	0	1	-1.00	-490000.00	0	1	0
1	0	0	1	2.02	12355.44	0	1	0
1	0	0	1	2.07	15428.49	0	1	0
1	0	0	1	2.30	39567.88	0	1	0
1	0	0	1	2.90	41281.56	0	1	0
1	0	0	1	3.83	5218.80	0	1	0
1	0	0	1	4.31	69.79	0	1	0
1	0	0	1	4.31	6956.20	0	1	0
1	0	0	1	4.77	19597.48	0	1	0
1	0	0	1	5.17	9676.98	0	1	0
1	0	0	1	8.28	10868.38	0	1	0
1	0	0	1	8.60	1744.10	0	1	0
1	0	0	1	9.71	8238.93	0	1	0

Appendix 2: Continued

MODE	CE	FEMALE	MALE	AREA	R QUALITY	COASTAL	MIDLANDS	LOWVELD
1	0	0	1	10.98	1002.04	0	1	0
1	0	0	1	15.00	1000.00	0	1	0
1	0	0	1	21.47	3493.72	0	1	0
1	0	0	1	87.43	1601.26	0	1	0
1	0	0	1	88.24	1671.64	0	1	0
1	0	0	1	89.95	1111.77	0	1	0
1	0	0	1	115.58	735.42	0	1	0
1	0	0	1	116.74	642.44	0	1	0
1	0	0	1	171.31	992.38	0	1	0
1	0	0	1	171.72	815.26	0	1	0
1	0	0	1	210.20	1189.33	0	1	0
1	0	0	1	210.92	711.18	0	1	0
1	0	0	1	246.53	580.05	0	1	0
1	0	0	1	2.1779	7223.47	0	1	0
1	0	0	1	5.144	8942.46	0	1	0
1	0	0	1	8.247	2008.00	0	1	0
1	0	0	1	8.937	6691.28	0	1	0
1	0	0	1	12.3512	9683.27	0	1	0
1	0	0	1	17.4383	7386.04	0	1	0
1	0	0	1	18.1284	6495.88	0	1	0
1	0	0	1	19.6422	11709.48	0	1	0
1	0	0	1	20.5568	13426.21	0	1	0
1	0	0	1	42.5355	2416.39	0	1	0
1	0	0	1	45.39	1013.44	0	1	0
1	0	0	1	45.428	1012.59	0	1	0
1	0	0	1	45.49	808.97	0	1	0
1	0	0	1	45.8486	1083.57	0	1	0
1	0	0	1	54.6654	589.04	0	1	0
1	0	0	1	74.1404	5238.54	0	1	0
1	0	0	1	79.9295	2302.03	0	1	0
1	0	0	1	88.4862	519.86	0	1	0
1	0	0	1	91.2129	3227.61	0	1	0
1	0	0	1	97.5391	1414.82	0	1	0
1	0	0	1	121.4058	2273.37	0	1	0
1	0	0	1	171.9474	856.08	0	1	0
1	0	0	1	195.3551	329.66	0	1	0
1	0	0	1	202.343	227.34	0	1	0
1	0	0	1	208.8483	220.26	0	1	0
1	0	0	1	257.5749	892.94	0	1	0
1	0	0	1	282.2802	554.06	0	1	0
1	0	0	1	326.8911	900.61	0	1	0
1	0	0	1	347.2988	132.45	0	1	0
1	0	0	1	2.05	12598.27	0	1	0
1	0	0	1	2.12	19446.01	0	1	0
1	0	0	1	5.56	23195.60	0	1	0
1	0	0	1	6.23	2759.95	0	1	0
1	0	0	1	6.76	4455.89	0	1	0
1	0	0	1	7.21	5961.46	0	1	0

Appendix 2: Continued

MODE	CE	FEMALE	MALE	AREA	R QUALITY	COASTAL	MIDLANDS	LOWVELD
1	0	0	1	8.19	16283.90	0	1	0
1	0	0	1	8.24	5743.08	0	1	0
1	0	0	1	9.93	3783.74	0	1	0
1	0	0	1	10.58	4877.13	0	1	0
1	0	0	1	15.54	11068.14	0	1	0
1	0	0	1	19.55	10998.51	0	1	0
1	0	0	1	20.58	10445.11	0	1	0
1	0	0	1	21.47	2003.13	0	1	0
1	0	0	1	22.34	3271.69	0	1	0
1	0	0	1	38.65	1891.47	0	1	0
1	0	0	1	42.96	320.56	0	1	0
1	0	0	1	51.50	4425.10	0	1	0
1	0	0	1	85.82	501.03	0	1	0
1	0	0	1	161.87	584.40	0	1	0
1	0	0	1	205.12	712.75	0	1	0
1	0	0	1	303.37	1020.55	0	1	0
1	0	0	1	323.75	860.67	0	1	0
1	0	0	1	648.55	453.51	0	1	0
1	0	0	1	1544.43	657.77	0	1	0
2	0	0	1	283.28	926.64	0	1	0
2	0	0	1	394.02	772.80	0	1	0
2	0	0	1	468.19	784.93	0	1	0
2	0	0	1	630.38	1165.96	0	1	0
2	0	0	1	3.14	44657.10	0	1	0
2	0	0	1	5.17	40582.85	0	1	0
2	0	0	1	7.97	20087.63	0	1	0
2	0	0	1	10.28	14589.59	0	1	0
2	0	0	1	12.90	19382.55	0	1	0
2	0	0	1	17.52	19977.05	0	1	0
2	0	0	1	20.04	16217.97	0	1	0
2	0	0	1	21.86	15418.82	0	1	0
2	0	0	1	23.82	11336.73	0	1	0
2	0	0	1	33.11	6040.78	0	1	0
2	0	0	1	40.47	1235.53	0	1	0
2	0	0	1	87.64	3765.46	0	1	0
2	0	0	1	164.27	1387.98	0	1	0
2	0	0	1	208.01	1009.58	0	1	0
2	0	0	1	257.92	969.29	0	1	0
2	0	0	1	437.32	628.83	0	1	0
2	0	0	1	579.65	569.31	0	1	0
2	0	0	1	1728.07	344.69	0	1	0
2	0	0	1	17.0056	13524.96	0	1	0
2	0	0	1	20.2723	12253.17	0	1	0
2	0	0	1	20.3822	20988.90	0	1	0
2	0	0	1	21.8567	5892.93	0	1	0
2	0	0	1	26.7707	9450.63	0	1	0
2	0	0	1	42.2126	5448.61	0	1	0
2	0	0	1	58.997	6344.89	0	1	0

Appendix 2: Continued

MODE	CE	FEMALE	MALE	AREA	R QUALITY	COASTAL	MIDLANDS	LOWVELD
2	0	0	1	68.491	8328.10	0	1	0
2	0	0	1	105.2909	10244.95	0	1	0
2	0	0	1	150.6014	3787.48	0	1	0
2	0	0	1	171.1719	537.47	0	1	0
2	0	0	1	181.6533	1198.41	0	1	0
2	0	0	1	217.1422	2542.11	0	1	0
2	0	0	1	312.1992	6876.71	0	1	0
2	0	0	1	480.5537	918.94	0	1	0
2	0	0	1	526.2864	734.20	0	1	0
2	0	0	1	20.23	4675.23	0	1	0
2	0	0	1	29.75	5925.87	0	1	0
2	0	0	1	69.65	14817.37	0	1	0
1	0	0	1	13.94	7682.93	1	0	0
1	0	0	1	19.05	6871.39	1	0	0
1	0	0	1	20.23	4705.88	1	0	0
1	0	0	1	20.56	3009.73	1	0	0
1	0	0	1	22.48	2699.73	1	0	0
1	0	0	1	25.83	3224.93	1	0	0
1	0	0	1	28.23	8641.52	1	0	0
1	0	0	1	40.47	44.11	1	0	0
1	0	0	1	46.53	62.51	1	0	0
1	0	0	1	66.25	538.87	1	0	0
1	0	0	1	1.95	11403.91	1	0	0
1	0	0	1	2.03	13694.24	1	0	0
1	0	0	1	2.12	20955.26	1	0	0
1	0	0	1	2.66	10413.54	1	0	0
1	0	0	1	3.24	6857.57	1	0	0
1	0	0	1	4.05	20571.81	1	0	0
1	0	0	1	4.05	2194.27	1	0	0
1	0	0	1	4.09	407.38	1	0	0
1	0	0	1	4.45	17454.79	1	0	0
1	0	0	1	4.65	954.04	1	0	0
1	0	0	1	4.73	939.28	1	0	0
1	0	0	1	4.86	5714.34	1	0	0
1	0	0	1	4.91	21498.47	1	0	0
1	0	0	1	5.16	818.11	1	0	0
1	0	0	1	6.07	10971.45	1	0	0
1	0	0	1	6.07	11885.74	1	0	0
1	0	0	1	6.42	726.25	1	0	0
1	0	0	1	7.28	609.53	1	0	0
1	0	0	1	8.22	2699.32	1	0	0
1	0	0	1	8.63	11573.08	1	0	0
1	0	0	1	8.67	2690.07	1	0	0
1	0	0	1	8.94	6210.14	1	0	0
1	0	0	1	9.77	13637.48	1	0	0
1	0	0	1	12.14	2742.86	1	0	0
1	0	0	1	16.32	2380.33	1	0	0
1	0	0	1	19.26	7492.06	1	0	0

Appendix 2: Continued

MODE	CE	FEMALE	MALE	AREA	R QUALITY	COASTAL	MIDLANDS	LOWVELD
1	0	0	1	20.27	8760.42	1	0	0
1	0	0	1	21.00	4229.46	1	0	0
1	0	0	1	21.05	13185.40	1	0	0
1	0	0	1	21.57	5146.58	1	0	0
1	0	0	1	35.67	1039.28	1	0	0
1	0	0	1	49.13	2937.33	1	0	0
1	0	0	1	59.85	649.13	1	0	0
1	0	0	1	80.94	3154.30	1	0	0
1	0	0	1	98.50	112.69	1	0	0
1	0	0	1	183.02	1394.90	1	0	0
1	0	0	1	232.91	381.26	1	0	0
1	0	0	1	243.65	546.69	1	0	0
1	0	0	1	272.23	937.81	1	0	0
1	0	0	1	331.87	876.30	1	0	0
1	0	0	1	1634.17	203.77	1	0	0
1	0	0	1	1.91	21934.41	1	0	0
1	0	0	1	2.36	8014.93	1	0	0
1	0	0	1	2.66	9850.65	1	0	0
1	0	0	1	2.66	9850.65	1	0	0
1	0	0	1	2.66	9850.65	1	0	0
1	0	0	1	2.66	11820.77	1	0	0
1	0	0	1	2.74	38328.16	1	0	0
1	0	0	1	3.04	20731.19	1	0	0
1	0	0	1	3.12	21859.59	1	0	0
1	0	0	1	3.88	39227.56	1	0	0
1	0	0	1	4.04	9094.06	1	0	0
1	0	0	1	4.05	15557.48	1	0	0
1	0	0	1	4.16	630.80	1	0	0
1	0	0	1	7.76	541.10	1	0	0
1	0	0	1	11.74	2075.68	1	0	0
1	0	0	1	18.28	4019.80	1	0	0
2	0	0	1	20.63	15572.14	1	0	0
2	0	0	1	21.74	10949.07	1	0	0
2	0	0	1	28.98	10264.28	1	0	0
2	0	0	1	42.29	8386.43	1	0	0
2	0	0	1	58.98	4539.75	1	0	0
2	0	0	1	83.05	3582.05	1	0	0
2	0	0	1	97.11	8159.59	1	0	0
2	0	0	1	98.63	14873.64	1	0	0
2	0	0	1	108.68	11528.49	1	0	0
2	0	0	1	111.88	11864.48	1	0	0
2	0	0	1	117.97	10649.44	1	0	0
2	0	0	1	127.62	6991.66	1	0	0
2	0	0	1	152.79	1869.21	1	0	0
2	0	0	1	156.07	7637.51	1	0	0
2	0	0	1	160.63	5665.56	1	0	0
2	0	0	1	163.75	9702.53	1	0	0
2	0	0	1	164.20	7409.46	1	0	0

Appendix 2: Continued

MODE	CE	FEMALE	MALE	AREA	R QUALITY	COASTAL	MIDLANDS	LOWVELD
2	0	0	1	182.48	6697.12	1	0	0
2	0	0	1	202.34	2058.39	1	0	0
2	0	0	1	221.51	9149.78	1	0	0
2	0	0	1	299.41	6357.76	1	0	0
2	0	0	1	709.21	797.01	1	0	0
2	0	0	1	9.61	2308.92	1	0	0
2	0	0	1	20.46	13563.65	1	0	0
2	0	0	1	52.95	4717.14	1	0	0
2	0	0	1	69.37	9936.85	1	0	0
2	0	0	1	85.36	9206.35	1	0	0
2	0	0	1	94.31	6321.27	1	0	0
2	0	0	1	96.40	8049.16	1	0	0
2	0	0	1	97.29	9994.46	1	0	0
2	0	0	1	99.65	8599.55	1	0	0
2	0	0	1	165.92	4997.19	1	0	0
2	0	0	1	174.67	7690.77	1	0	0
2	0	0	1	204.87	617.66	1	0	0
2	0	0	1	339.61	2997.84	1	0	0
2	0	0	1	383.59	3713.70	1	0	0
2	0	0	1	762.89	552.90	1	0	0
2	0	0	1	2.55	22680.86	1	0	0
2	0	0	1	4.92	31980.34	1	0	0
2	0	0	1	5.17	10160.83	1	0	0
2	0	0	1	6.07	15567.60	1	0	0
2	0	0	1	10.79	19460.66	1	0	0
1	1	0	0	11.58	10276.34	-1	-1	-1
1	1	0	0	76.16	1378.64	0	0	1
1	1	0	0	99.23	6825.15	0	0	1
1	1	0	0	172.09	1037.28	0	0	1
2	1	0	0	124.42	3206.98	0	0	1
2	1	0	0	220.04	9104.89	0	0	1
2	1	0	0	203.96	8432.96	0	1	0
1	1	0	0	371.19	1313.10	0	1	0
1	1	0	0	3.24	24710.42	0	1	0
1	1	0	0	10.24	2930.40	0	1	0
1	1	0	0	35.23	2466.28	0	1	0
1	1	0	0	71.31	799.88	0	1	0
1	1	0	0	9.14	12226.60	0	1	0
1	1	0	0	31.92	4579.77	0	1	0
1	1	0	0	60.91	2117.95	0	1	0
1	1	0	0	66.03	34591.35	0	1	0
1	1	0	0	100.00	344.00	0	1	0
1	1	0	0	124.56	4971.06	0	1	0
1	1	0	0	196.27	701.09	0	1	0
1	1	0	0	244.28	528.09	0	1	0
1	1	0	0	249.72	516.59	0	1	0
1	1	0	0	292.66	734.63	0	1	0
1	1	0	0	302.94	2725.32	0	1	0

Appendix 2: Continued

MODE	CE	FEMALE	MALE	AREA	R QUALITY	COASTAL	MIDLANDS	LOWVELD
1	1	0	0	327.72	629.81	0	1	0
1	1	0	0	328.52	837.71	0	1	0
1	1	0	0	349.89	835.70	0	1	0
1	1	0	0	357.85	1033.40	0	1	0
1	1	0	0	375.22	1123.07	0	1	0
1	1	0	0	389.56	883.06	0	1	0
1	1	0	0	394.49	429.47	0	1	0
1	1	0	0	401.25	1114.51	0	1	0
1	1	0	0	405.62	720.88	0	1	0
1	1	0	0	409.90	1342.77	0	1	0
1	1	0	0	415.42	1076.49	0	1	0
1	1	0	0	523.29	714.91	0	1	0
1	1	0	0	607.31	1628.50	0	1	0
1	1	0	0	624.87	601.23	0	1	0
1	1	0	0	694.94	466.24	0	1	0
1	1	0	0	700.68	348.19	0	1	0
1	1	0	0	813.60	1427.00	0	1	0
1	1	0	0	869.62	1127.39	0	1	0
1	1	0	0	872.94	689.62	0	1	0
1	1	0	0	938.47	824.75	0	1	0
1	1	0	0	991.57	601.17	0	1	0
1	1	0	0	1212.52	1844.09	0	1	0
1	1	0	0	1435.93	910.35	0	1	0
2	1	0	0	500.57	503.42	0	1	0
2	1	0	0	1368.40	818.44	0	1	0
2	1	0	0	19.15	28726.33	0	1	0
2	1	0	0	20.27	8138.18	0	1	0
2	1	0	0	72.50	2758.62	0	1	0
2	1	0	0	181.10	2551.06	0	1	0
2	1	0	0	214.87	1140.70	0	1	0
2	1	0	0	231.58	23176.53	0	1	0
2	1	0	0	312.35	4322.05	0	1	0
2	1	0	0	312.92	5752.34	0	1	0
2	1	0	0	352.69	2423.42	0	1	0
2	1	0	0	500.46	6394.15	0	1	0
2	1	0	0	746.12	2680.53	0	1	0
2	1	0	0	1059.32	489.00	0	1	0
2	1	0	0	1169.66	1074.50	0	1	0
2	1	0	0	19.41	19939.20	0	1	0
2	1	0	0	80.80	21288.21	0	1	0
2	1	0	0	100.50	3422.89	0	1	0
2	1	0	0	163.67	6515.61	0	1	0
2	1	0	0	202.34	12750.63	0	1	0
2	1	0	0	223.74	1729.68	0	1	0
2	1	0	0	398.52	1942.18	0	1	0
2	1	0	0	415.46	476.10	0	1	0
2	1	0	0	573.73	1049.27	0	1	0
3	1	0	0	4.33	19485.35	0	1	0

Appendix 2: Continued

MODE	CE	FEMALE	MALE	AREA	R QUALITY	COASTAL	MIDLANDS	LOWVELD
3	1	0	0	10.00	5749.60	0	1	0
3	1	0	0	17.63	11233.09	0	1	0
3	1	0	0	193.58	2117.96	0	1	0
3	1	0	0	206.67	1741.93	0	1	0
3	1	0	0	299.24	83.73	0	1	0
3	1	0	0	394.91	1101.51	0	1	0
3	1	0	0	414.44	1085.81	0	1	0
3	1	0	0	592.46	303.82	0	1	0
3	1	0	0	16.71	10036.15	0	1	0
3	1	0	0	20.80	8476.57	0	1	0
3	1	0	0	21.71	2178.28	0	1	0
3	1	0	0	30.80	460.73	0	1	0
3	1	0	0	31.99	2634.63	0	1	0
3	1	0	0	46.88	1100.71	0	1	0
3	1	0	0	51.72	773.98	0	1	0
3	1	0	0	62.22	514.18	0	1	0
3	1	0	0	66.95	411.03	0	1	0
3	1	0	0	84.86	760.07	0	1	0
3	1	0	0	96.73	422.32	0	1	0
3	1	0	0	115.83	522.69	0	1	0
3	1	0	0	118.40	684.71	0	1	0
3	1	0	0	139.56	642.66	0	1	0
3	1	0	0	192.04	649.35	0	1	0
3	1	0	0	214.13	684.71	0	1	0
3	1	0	0	242.10	639.40	0	1	0
3	1	0	0	249.19	1294.19	0	1	0
3	1	0	0	270.95	602.00	0	1	0
3	1	0	0	276.15	689.50	0	1	0
3	1	0	0	313.47	504.80	0	1	0
3	1	0	0	327.17	429.80	0	1	0
3	1	0	0	335.41	384.60	0	1	0
3	1	0	0	373.44	414.52	0	1	0
3	1	0	0	420.28	430.00	0	1	0
3	1	0	0	490.28	341.61	0	1	0
3	1	0	0	554.82	317.76	0	1	0
3	1	0	0	600.64	429.54	0	1	0
3	1	0	0	629.29	457.82	0	1	0
3	1	0	0	631.76	1290.00	0	1	0
3	1	0	0	651.63	1022.82	0	1	0
3	1	0	0	655.64	557.47	0	1	0
3	1	0	0	755.67	-1.00	0	1	0
3	1	0	0	798.65	622.64	0	1	0
3	1	0	0	912.91	322.18	0	1	0
3	1	0	0	937.68	301.08	0	1	0
3	1	0	0	953.86	659.99	0	1	0
3	1	0	0	1025.88	660.67	0	1	0
3	1	0	0	1108.80	411.39	0	1	0
3	1	0	0	1265.15	1290.00	0	1	0

Appendix 2: Continued

MODE	CE	FEMALE	MALE	AREA	R QUALITY	COASTAL	MIDLANDS	LOWVELD
3	1	0	0	1354.93	593.16	0	1	0
3	1	0	0	1444.26	720.39	0	1	0
3	1	0	0	1673.06	408.96	0	1	0
3	1	0	0	2044.59	660.40	0	1	0
3	1	0	0	6014.77	179.87	0	1	0
3	1	0	0	50.00	860.00	0	1	0
1	1	0	0	14.16	8824.15	1	0	0
1	1	0	0	20.36	3799.12	1	0	0
1	1	0	0	22.19	23059.94	1	0	0
1	1	0	0	436.75	190.73	1	0	0
1	1	0	0	729.82	195.66	1	0	0
1	1	0	0	929.65	729.63	1	0	0
1	1	0	0	3.91	11365.67	1	0	0
1	1	0	0	7.50	7312.47	1	0	0
1	1	0	0	8.44	21048.14	1	0	0
1	1	0	0	8.94	2484.06	1	0	0
1	1	0	0	18.46	867.96	1	0	0
1	1	0	0	26.24	867.13	1	0	0
1	1	0	0	113.31	783.68	1	0	0
1	1	0	0	769.50	527.95	1	0	0
1	1	0	0	845.98	1516.51	1	0	0
1	1	0	0	3.83	1369.93	1	0	0
2	1	0	0	21.51	14384.68	1	0	0
2	1	0	0	22.24	15520.58	1	0	0
2	1	0	0	79.70	11546.43	1	0	0
2	1	0	0	128.33	8851.54	1	0	0
2	1	0	0	228.69	8635.18	1	0	0
2	1	0	0	233.40	8964.91	1	0	0
2	1	0	0	29.25	7590.81	1	0	0
2	1	0	0	76.34	9123.51	1	0	0
2	1	0	0	830.24	1938.59	1	0	0
2	1	0	0	6.52	23485.97	1	0	0
2	1	0	0	6.75	13689.70	1	0	0
2	1	0	0	7.73	32608.27	1	0	0
3	1	0	0	47.89	8691.34	1	0	0
3	1	0	0	252.71	724.74	1	0	0
3	1	0	0	1308.47	591.02	1	0	0
3	1	0	0	2772.15	400.41	1	0	0
1	0	1	0	1.40	12750.00	-1	-1	-1
1	0	1	0	1.67	14251.50	-1	-1	-1
1	0	1	0	2.02	5891.09	-1	-1	-1
1	0	1	0	2.02	10603.96	-1	-1	-1
1	0	1	0	2.02	23564.36	-1	-1	-1
1	0	1	0	3.50	11900.00	-1	-1	-1
1	0	1	0	4.05	14691.36	-1	-1	-1
1	0	1	0	4.13	4322.03	-1	-1	-1
1	0	1	0	4.16	14302.88	-1	-1	-1
1	0	1	0	5.29	7873.35	-1	-1	-1

Appendix 2: Continued

MODE	CE	FEMALE	MALE	AREA	R QUALITY	COASTAL	MIDLANDS	LOWVELD
1	0	1	0	5.83	9185.25	-1	-1	-1
1	0	1	0	8.09	3677.38	-1	-1	-1
1	0	1	0	8.09	5001.24	-1	-1	-1
1	0	1	0	9.45	12592.59	-1	-1	-1
1	0	1	0	9.45	16370.37	-1	-1	-1
1	0	1	0	11.09	13949.50	-1	-1	-1
1	0	1	0	11.18	14369.41	-1	-1	-1
1	0	1	0	11.81	14106.69	-1	-1	-1
1	0	1	0	12.14	2940.69	-1	-1	-1
2	0	1	0	10.12	14702.98	-1	-1	-1
1	0	1	0	27.46	4205.52	0	0	1
1	0	1	0	35.89	965.50	0	0	1
1	0	1	0	41.94	1377.03	0	0	1
1	0	1	0	55.41	2273.97	0	0	1
1	0	1	0	67.85	928.50	0	0	1
1	0	1	0	150.00	651.00	0	0	1
1	0	1	0	161.87	778.38	0	0	1
2	0	1	0	23.88	30783.41	0	0	1
2	0	1	0	25.23	16646.26	0	0	1
2	0	1	0	38.61	1495.61	0	0	1
2	0	1	0	103.37	9882.31	0	0	1
2	0	1	0	122.82	10500.04	0	0	1
2	0	1	0	127.37	4946.03	0	0	1
2	0	1	0	133.95	6742.74	0	0	1
2	0	1	0	134.81	8029.90	0	0	1
2	0	1	0	196.59	5872.03	0	0	1
2	0	1	0	199.60	5898.27	0	0	1
2	0	1	0	257.17	3266.28	0	0	1
2	0	1	0	38.45	8500.43	0	1	0
2	0	1	0	136.02	7468.60	0	1	0
2	0	1	0	146.90	7093.83	0	1	0
2	0	1	0	155.02	5209.40	0	1	0
2	0	1	0	167.99	6495.60	0	1	0
2	0	1	0	206.01	4576.65	0	1	0
2	0	1	0	259.25	4111.23	0	1	0
1	0	1	0	1118.41	860.49	0	1	0
1	0	1	0	-1.00	-300000.00	0	1	0
1	0	1	0	3.64	27455.93	0	1	0
1	0	1	0	4.05	13571.87	0	1	0
1	0	1	0	4.31	69.79	0	1	0
1	0	1	0	4.33	20807.81	0	1	0
1	0	1	0	4.54	16075.05	0	1	0
1	0	1	0	5.78	4322.94	0	1	0
1	0	1	0	5.78	25937.65	0	1	0
1	0	1	0	10.12	2965.25	0	1	0
1	0	1	0	10.12	4942.08	0	1	0
1	0	1	0	13.18	758.81	0	1	0
1	0	1	0	13.18	2428.18	0	1	0

Appendix 2: Continued

MODE	CE	FEMALE	MALE	AREA	R QUALITY	COASTAL	MIDLANDS	LOWVELD
1	0	1	0	13.18	4097.55	0	1	0
1	0	1	0	19.58	214.54	0	1	0
1	0	1	0	20.23	271.82	0	1	0
1	0	1	0	20.56	2432.29	0	1	0
1	0	1	0	24.60	11786.70	0	1	0
1	0	1	0	32.85	1217.72	0	1	0
1	0	1	0	57.42	3134.53	0	1	0
1	0	1	0	59.45	2018.64	0	1	0
1	0	1	0	571.86	399.75	0	1	0
1	0	1	0	2.214	8310.75	0	1	0
1	0	1	0	4.48	3696.43	0	1	0
1	0	1	0	5.1558	8029.79	0	1	0
1	0	1	0	5.6315	7351.50	0	1	0
1	0	1	0	6.8923	133.48	0	1	0
1	0	1	0	10.5218	10492.50	0	1	0
1	0	1	0	16.3141	5752.08	0	1	0
1	0	1	0	20.7008	2222.14	0	1	0
1	0	1	0	40.4696	2273.31	0	1	0
1	0	1	0	85.504	271.15	0	1	0
1	0	1	0	161.8737	909.35	0	1	0
1	0	1	0	243.6491	453.11	0	1	0
1	0	1	0	248.8819	502.73	0	1	0
1	0	1	0	256.371	1435.42	0	1	0
1	0	1	0	4.47	922.54	0	1	0
1	0	1	0	5.10	8425.26	0	1	0
1	0	1	0	6.27	21950.67	0	1	0
1	0	1	0	8.79	978.07	0	1	0
1	0	1	0	9.21	280.12	0	1	0
1	0	1	0	10.80	10747.91	0	1	0
1	0	1	0	10.92	3936.76	0	1	0
1	0	1	0	13.18	2088.23	0	1	0
1	0	1	0	20.23	8500.38	0	1	0
1	0	1	0	24.77	4167.00	0	1	0
1	0	1	0	35.56	5199.97	0	1	0
1	0	1	0	208.85	662.46	0	1	0
1	0	1	0	323.74	664.12	0	1	0
2	0	1	0	646.94	681.67	0	1	0
2	0	1	0	667.42	1156.31	0	1	0
2	0	1	0	800.42	1967.71	0	1	0
2	0	1	0	1558.07	741.30	0	1	0
2	0	1	0	6.27	28696.69	0	1	0
2	0	1	0	12.72	7861.88	0	1	0
2	0	1	0	24.29	14612.30	0	1	0
2	0	1	0	71.10	9845.69	0	1	0
2	0	1	0	81.04	740.40	0	1	0
2	0	1	0	83.30	13020.04	0	1	0
2	0	1	0	199.13	9039.18	0	1	0
2	0	1	0	3.2389	8521.41	0	1	0

Appendix 2: Continued

MODE	CE	FEMALE	MALE	AREA	R QUALITY	COASTAL	MIDLANDS	LOWVELD
2	0	1	0	20.2346	12048.67	0	1	0
2	0	1	0	21.535	12816.35	0	1	0
2	0	1	0	29.9489	6911.77	0	1	0
2	0	1	0	30.3508	9093.66	0	1	0
2	0	1	0	5.67	-1.00	0	1	0
2	0	1	0	24.54	2979.37	0	1	0
2	0	1	0	38.94	6845.80	0	1	0
2	0	1	0	72.30	8504.56	0	1	0
1	0	1	0	14.15	21024.73	1	0	0
1	0	1	0	22.48	2699.73	1	0	0
1	0	1	0	24.53	5821.44	1	0	0
1	0	1	0	26.69	1783.44	1	0	0
1	0	1	0	27.11	7901.14	1	0	0
1	0	1	0	27.44	7806.12	1	0	0
1	0	1	0	27.56	2374.82	1	0	0
1	0	1	0	36.59	650.45	1	0	0
1	0	1	0	47.10	63.16	1	0	0
1	0	1	0	101.17	4116.83	1	0	0
1	0	1	0	278.64	1110.39	1	0	0
1	0	1	0	2.89	13424.33	1	0	0
1	0	1	0	3.38	1640.56	1	0	0
1	0	1	0	11.23	11862.25	1	0	0
1	0	1	0	15.00	14800.00	1	0	0
1	0	1	0	20.28	4268.39	1	0	0
1	0	1	0	20.64	15596.61	1	0	0
1	0	1	0	21.50	4646.66	1	0	0
1	0	1	0	38.26	7253.01	1	0	0
1	0	1	0	92.49	480.06	1	0	0
1	0	1	0	1.18	10681.59	1	0	0
1	0	1	0	2.02	6249.07	1	0	0
1	0	1	0	2.02	2594.64	1	0	0
1	0	1	0	2.02	25946.43	1	0	0
1	0	1	0	2.50	8396.31	1	0	0
1	0	1	0	2.66	9850.65	1	0	0
1	0	1	0	3.24	1621.62	1	0	0
1	0	1	0	3.24	2594.59	1	0	0
1	0	1	0	3.27	18282.62	1	0	0
1	0	1	0	4.05	15567.47	1	0	0
1	0	1	0	4.05	20756.63	1	0	0
1	0	1	0	4.45	4717.51	1	0	0
1	0	1	0	4.56	23032.38	1	0	0
1	0	1	0	4.80	4378.47	1	0	0
1	0	1	0	6.07	24216.27	1	0	0
1	0	1	0	6.46	8124.92	1	0	0
1	0	1	0	7.28	8648.74	1	0	0
1	0	1	0	7.76	405.83	1	0	0
1	0	1	0	7.76	541.10	1	0	0
1	0	1	0	7.76	1826.23	1	0	0

Appendix 2: Continued

MODE	CE	FEMALE	MALE	AREA	R QUALITY	COASTAL	MIDLANDS	LOWVELD
1	0	1	0	8.09	6486.53	1	0	0
1	0	1	0	8.81	357.51	1	0	0
1	0	1	0	10.09	22886.70	1	0	0
1	0	1	0	10.12	20756.73	1	0	0
1	0	1	0	11.61	7235.14	1	0	0
1	0	1	0	12.14	10378.40	1	0	0
1	0	1	0	14.05	11211.00	1	0	0
1	0	1	0	20.13	2086.30	1	0	0
2	0	1	0	12.17	18097.00	1	0	0
2	0	1	0	31.45	12107.34	1	0	0
2	0	1	0	40.47	17643.57	1	0	0
2	0	1	0	42.38	3369.91	1	0	0
2	0	1	0	72.30	12454.33	1	0	0
2	0	1	0	76.05	14485.19	1	0	0
2	0	1	0	110.42	12195.18	1	0	0
2	0	1	0	125.50	7731.21	1	0	0
2	0	1	0	127.05	10786.42	1	0	0
2	0	1	0	173.37	755.03	1	0	0
2	0	1	0	194.85	9734.22	1	0	0
2	0	1	0	1384.77	1851.55	1	0	0
2	0	1	0	7.69	11909.87	1	0	0
2	0	1	0	10.12	20297.12	1	0	0
2	0	1	0	121.85	8094.81	1	0	0
2	0	1	0	138.16	6266.68	1	0	0
2	0	1	0	339.61	2980.14	1	0	0
2	0	1	0	339.61	3071.67	1	0	0
2	0	1	0	1195.90	1095.24	1	0	0
2	0	1	0	4.67	26974.37	1	0	0
2	0	1	0	11.18	32880.61	1	0	0
2	0	1	0	11.23	4675.39	1	0	0
2	0	1	0	12.20	10329.90	1	0	0
2	0	1	0	14.48	22118.70	1	0	0
3	1		0	0.63	1888.89	-1	-1	-1
3	1		0	69.98	815.97	0	0	1
3	1		0	102.20	503.42	0	0	1
3	1		0	135.68	493.50	0	0	1
3	1		0	146.96	1660.43	0	0	1
3	1		0	172.02	0.00	0	0	1
3	1		0	180.30	582.35	0	0	1
3	1		0	250.94	0.00	0	0	1
3	1		0	256.96	656.36	0	0	1
3	1		0	275.41	892.50	0	0	1
1	1		0	21.41	21014.58	0	1	0
1	1		0	38.65	15747.46	0	1	0
1	1		0	40.95	27368.12	0	1	0
1	1		0	405.57	1138.41	0	1	0
1	1		0	1302.54	345.48	0	1	0
1	1		0	13.372	8256.06	0	1	0

Appendix 2: Continued

MODE	CE	FEMALE	MALE	AREA	R QUALITY	COASTAL	MIDLANDS	LOWVELD
1	1		0	82.6758	5007.51	0	1	0
1	1		0	182.2707	12139.09	0	1	0
1	1		0	256.9951	1073.95	0	1	0
1	1		0	273.394	689.85	0	1	0
1	1		0	394.228	466.73	0	1	0
1	1		0	456.6856	1493.85	0	1	0
1	1		0	543.1794	680.80	0	1	0
1	1		0	684.1296	2017.16	0	1	0
1	1		0	730.5005	1216.47	0	1	0
2	1		0	110.9028	12318.90	0	1	0
2	1		0	175.142	15758.64	0	1	0
2	1		0	203.372	18773.48	0	1	0
2	1		0	365.8283	4715.33	0	1	0
2	1		0	437.635	1891.99	0	1	0
3	1		0	311.33	539.62	0	1	0
3	1		0	320.72	775.69	0	1	0
3	1		0	330.01	1018.16	0	1	0
3	1		0	414.61	367.50	0	1	0
3	1		0	423.29	367.50	0	1	0
3	1		0	456.05	310.82	0	1	0
3	1		0	503.22	286.90	0	1	0
3	1		0	538.76	456.76	0	1	0
3	1		0	622.25	0.00	0	1	0
3	1		0	638.52	575.55	0	1	0
3	1		0	653.90	679.91	0	1	0
3	1		0	847.46	477.01	0	1	0
3	1		0	934.24	266.93	0	1	0
3	1		0	946.74	310.54	0	1	0
3	1		0	960.07	328.10	0	1	0
3	1		0	1217.82	945.00	0	1	0
3	1		0	1422.04	894.17	0	1	0
3	1		0	1553.02	629.45	0	1	0
3	1		0	-1	-210496.00	0	1	0
3	1		0	24.3038	873.98	0	1	0
3	1		0	84.3789	1019.45	0	1	0
3	1		0	167.3955	506.00	0	1	0
3	1		0	180.995	762.45	0	1	0
3	1		0	207.759	442.82	0	1	0
3	1		0	211.3114	457.15	0	1	0
3	1		0	251.9243	1095.57	0	1	0
3	1		0	424.636	649.97	0	1	0
3	1		0	466.4723	540.40	0	1	0
3	1		0	523.6968	1675.93	0	1	0
3	1		0	528.8796	414.00	0	1	0
3	1		0	611.429	459.71	0	1	0
3	1		0	614.6446	688.53	0	1	0
3	1		0	623.5148	1069.74	0	1	0
3	1		0	645.1428	541.90	0	1	0

Appendix 2: Continued

MODE	CE	FEMALE	MALE	AREA	R QUALITY	COASTAL	MIDLANDS	LOWVELD
3	1		0	647.8285	264.57	0	1	0
3	1		0	669.7955	598.00	0	1	0
3	1		0	689.1031	961.25	0	1	0
3	1		0	755.883	742.44	0	1	0
3	1		0	847.4327	455.97	0	1	0
3	1		0	1151.3502	759.11	0	1	0
3	1		0	1529.749	300.70	0	1	0
3	1		0	112.53	951.75	1	0	0
3	1		0	118.22	2365.50	1	0	0
3	1		0	132.47	538.99	1	0	0
3	1		0	151.43	707.26	1	0	0
3	1		0	202.34	1676.14	1	0	0
3	1		0	202.34	1676.14	1	0	0
3	1		0	202.34	1676.14	1	0	0
3	1		0	202.34	1676.14	1	0	0
3	1		0	202.34	1676.14	1	0	0
3	1		0	328.91	2894.41	1	0	0
3	1		0	334.39	427.05	1	0	0
3	1		0	362.19	357.80	1	0	0
3	1		0	439.87	925.23	1	0	0
3	1		0	566.33	1575.94	1	0	0
3	1		0	613.76	1987.34	1	0	0
3	1		0	927.63	1218.70	1	0	0
3	1		0	1212.03	1963.65	1	0	0
3	1		0	1214.06	1960.36	1	0	0
3	1		0	1230.65	925.39	1	0	0
3	1		0	1274.76	1867.02	1	0	0
3	1		0	2192.48	426.07	1	0	0
3	1		0	3.28	19667.67	1	0	0
3	1		0	4.40	19539.77	1	0	0
3	1		0	8.12	10289.94	1	0	0
3	1		0	8.12	10341.64	1	0	0
3	1		0	18.79	558.96	1	0	0

Appendix 3: Reverse land transactions data for 2002 in KwaZulu-Natal

Variable	Description
MORTGAGE	=1 if financed with mortgage loan, 0 otherwise
CASH	=1 if financed privately with cash, 0 otherwise
INHERIT	=1 if transfer was a non-market transfer, 0 otherwise
PRICE	Market price paid for land (R)
AREA	Farm size (Ha)

MORTGAGE	CASH	INHERIT	PRICE	AREA
0	0	1	0	1.10
0	1	0	20000	1.16
0	1	0	35000	1.50
0	0	1	0	1.56
0	0	1	0	2.23
0	1	0	100	2.24
0	1	0	55000	2.27
0	1	0	40000	2.32
0	1	0	50000	2.43
0	1	0	50000	2.43
0	1	0	5253	2.43
0	1	0	50000	2.53
0	0	1	0	2.98
0	1	0	80000	4.47
0	0	1	0	4.47
0	0	1	0	4.47
0	1	0	80000	4.74
0	0	1		4.76
0	1	0	100000	5.65
0	0	1		6.39
0	1	0	40000	6.70
0	1	0	72843	6.70
1	0	0	160000	8.89
0	1	0	25000	9.14
0	0	1	0	9.34
0	0	1	0	10.12
0	0	1	0	10.12
0	1	0	50000	10.12
0	0	1	0	10.14
1	0	0	180000	12.72
0	0	1	0	16.88
0	1	0	220000	17.28
0	1	0	130000	18.23
0	1	0	280000	18.50

Appendix 3: Continued

MORTGAGE	CASH	INHERIT	PRICE	AREA
0	1	0	145000	19.04
0	1	0	368590	20.23
0	1	0	200000	20.27
0	1	0	50000	22.81
0	1	0	185000	22.89
0	0	1	0	24.31
0	0	1	0	26.72
0	1	0	50000	28.05
0	0	1	0	29.39
0	1	0	15000	34.16
1	0	0	60000	38.11
1	0	0	108000	42.37
0	1	0	300000	74.74
0	0	1	0	75.29
0	1	0	350000	161.87
1	0	0	250000	167.28
0	1	0	1250000	419.53