

USE OF CREDIT AND ITS IMPACT ON SMALL-SCALE FARMER DEVELOPMENT IN KWAZULU-NATAL

BY

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ABSTRACT

In 1995, the Strauss Commission of Inquiry was appointed to investigate rural financial services in South Africa. The inquiry was premised on the traditional view that the provision of financial services is a key strategy for rural development. New Growth Theory correctly emphasises that emerging farmers may face other, more binding constraints than liquidity. The first part of this study attempts to identify and prioritise liquidity and other constraints facing small-scale farmers. Credit becomes a relevant issue when low levels of liquidity are identified as an important factor constraining small-scale farmers. The second part of the study investigates factors responsible for external and internal credit rationing by small farmers. Data for the analysis were gathered from farm households in two districts of KwaZulu.

A logit model is used to examine the extent of liquidity constraints relative to other constraints inhibiting small-scale farming in KwaZulu-Natal. These other constraints include poor access to land, labour and information, and high transaction costs. The results suggest that liquidity is very important, while imperfect land markets, information, and high transaction costs are also significant inhibiting factors.

The Heckman two-stage procedure is used to identify and rank the determinants of internal and external credit rationing in rural households. The results show that high transaction costs faced by rural households' limit their access to formal credit markets. Income and savings levels are significant determinants of the level of credit obtained, with savings acting as a substitute for credit rather than a source of information and collateral for lenders. Ownership of livestock does not contribute significantly to the

level of credit used, but this is not surprising in view of their high collateral-specific risk. Better access to credit markets in rural areas will require public investment in infrastructure, literacy and vocational training, and legal reform in order to reduce transaction costs, improve income levels, and facilitate the efficient use of collateral.

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INTRODUCTION

South Africa has been shown to have one of the most unequal income distributions in the world, with rural households displaying lower incomes (Fitschen and Klitgaard, 1996). This is particularly relevant to the small-scale farmers in KwaZulu, the homeland areas of KwaZulu-Natal. These small-scale farmers can be broadly viewed as households for whom farming revenue comprises only a portion of their gross income. Farm output ranges from sub-subsistence to the production of modest marketable surplus (Coetzee and Vink, 1991). Empirical studies suggest that these small farmers are constrained by low and irregular incomes (Lyne and Ortmann, 1992:20-22; Fenwick and Lyne, 1999). A study conducted by Lyne (1992) in KwaZulu showed that the problem most frequently expressed by small-scale farmers was their low farm income. In addition, the seasonal nature of crop farming, drought and damage by livestock contributes to their irregular cash flows (Ouattara and Graham, 1996; Thomson, 1996).

Unreliable income streams of farmers around the world are well-documented (Devereux *et al.*, 1989; Christensen, 1993; Udry, 1995). International authors, such as Adams (1971), Bottral (1976) and Von Pischke and Adams (1980) have emphasised the role of credit as an important tool for overcoming liquidity constraints. The case for institutional credit programmes is based on three assumptions. First, that small-scale farmers need credit to adopt new technology; second, access to credit will stimulate the adoption of new technology; and third, small-scale farmers cannot get credit economically, if at all, through commercial sources (Bottral, 1976). In addition, informal moneylenders are perceived to charge exploitative interest rates due to their local monopoly power (Adams, 1971). This apparent inadequacy of the market to supply

credit at 'reasonable' prices was viewed as a market imperfection that needed to be corrected by government (Gonzalez-Vega, 1993; Penny, 1968). Government programmes have consequently been widely applied over the last 40 years to induce agricultural development, with substantial funding being injected into low income countries for use in credit programmes (Coetzee, 1995).

International experience has shown that cheap credit programmes seldom achieve their goals of improving access to formal credit and reducing the cost of borrowing. (Gonzalez-Vega, 1994; Adams, 1992; Adams *et al.*, 1993; Vogel, 1981). The high cost to government of these programmes was previously defended on welfare grounds as they were seen to improve income distribution (Meyer, 1989). In reality larger farmers received most of the subsidised credit (Bottral, 1976; Gonzalez-Vega, 1977). Small-scale farmers are rationed long before larger farmers as the average cost of lending is inversely related to the size of a loan. A ceiling on interest rates implies that the size of loans granted to large-scale farmers increases while the size of loans granted to small-scale farmers decreases. This leads to a reduction in both the absolute and relative shares of credit received by small-scale farmers (Gonzalez-Vega, 1977).

Views on credit have progressed from advocating the provision of state-subsidised credit to recognising the importance of savings mobilisation, especially when linked to lending activities (Adams, 1992). The problem of asymmetric information in principal-agent relationships is partially addressed when depositors build up reputations with the institutions by regularly saving.

Locally, a Commission of Inquiry into the Provision of Rural Financial Services - the

Strauss Commission - was appointed on 19 January 1995. The Inquiry was premised on the traditional view that the provision of appropriate financial services is one of the most important mechanisms in a rural development strategy (Strauss Commission Report, 1996:1). Its purpose was therefore to make recommendations aimed at improving financial services for rural households (Strauss Commission Report, 1996:iv).

While international experience has shown the importance of linking savings to credit, the Strauss Commission recommends that the South African Post Office is “...a financial institution well suited to take the lead in satisfying ... savings facilities and transmission services [of the rural poor]” (Strauss Commission Report, 1996:14). Lending activities are to be handled by other institutions, supported by a reformed Land Bank in a wholesaler role (Strauss Commission Report, 1996:14-17). This separation of savings mobilisation and lending activity diminishes the potential information and collateral advantages of savings - for borrowers and lenders alike.

Although it implicitly advocates a separation of savings and credit facilities, the Strauss Commission does recognise the need to decrease transaction costs. For example, the Report recommends simpler facilities and procedures in rural financial institutions and legal offices, particularly with regard to women (Strauss Commission Report, 1996:11, 14). Nevertheless, not much attention is given to other constraints inhibiting the development of small farmers. Capital requirements are seen as the main barrier to farming (Strauss Commission Report, 1996:27) and it is recommended that incentives be given to commercial banks to increase business in rural branches (Strauss Commission Report, 1996:18-19).

This study takes the view that other constraints may be as, if not more, limiting than capital - depending upon local circumstances. The task of identifying and ranking constraints is therefore largely an empirical one. This approach is consistent with Penny's (1968) argument that credit can only become an instrument for progress after there has been some development. Imposing greater debt on people does not overcome their deficiencies in discipline, managerial skills or identifying high return investment opportunities (Adams, 1992; Gonzalez-Vega, 1977). Loans provide additional liquidity. Since credit is fungible (has alternative use), funds will flow towards the most attractive use as perceived by the borrower (Von Pischke and Adams, 1980). If funds are to flow towards agriculture in rural areas, the environment needs to be as attractive as possible (Bottral, 1976). Shultz (1964) believes that the relation between costs and returns to investment in poor communities simply does not warrant additional investment. In short, a lack of investment opportunities, or the perceiving of them, may play a greater role in inhibiting the adoption of innovations than do credit constraints.

New Growth Theory suggests that physical and human resources cannot be fully utilised unless incentives are created by the prevailing economic and political institutions (Olson, 1996). Fundamental elements of these institutions include property rights and the legal and regulatory framework (De Gorter and Swinnen, 1994). If the legal and regulatory environment required to facilitate secure property rights over the long run does not exist, gains from capital-intensive production are lost. If institutions cannot enforce contracts impartially, gains from transactions such as those in the capital market which require impartial third-party enforcement are not fully realised (Olson, 1996).

New Growth Theory promotes the view that there may be other, more inhibiting factors

than cash flow problems constraining small-scale farmers. Possible alternative constraints include tenure insecurity and the consequent absence of efficient land markets (Thomson and Lyne, 1993); a shortage of quality labour (Nattrass and May, 1986) and information (Delgado, 1996); and high transaction costs. Transaction costs affect access to markets for inputs, products and contractor services and vary with gender, education, off-farm migrancy, length of residency in the area, and proximity to formal markets (Low, 1986:124; Lyne, 1992; Coetzee, 1995). These issues, together with liquidity-related problems, are examined in greater detail in Chapter One of this thesis.

Quantifying the relative importance of constraints faced by farmers could aid in the planning and prioritising of investments aimed at facilitating agricultural development (Alwang *et al.*, 1996). The first goal of this study is therefore to identify and prioritise liquidity and other constraints facing small-scale farmers in KwaZulu. A logit model is estimated from household data gathered in two districts of KwaZulu during 1995/96. Figure I.1 presents a photograph of part of one district. Chapter Two describes the study areas and presents relevant descriptive statistics computed from the sample surveys. Chapter Three presents the logit model and its results.

Credit becomes a relevant issue when low levels of liquidity are identified as an important factor constraining the development of small-scale farmers. This study takes the view that private financial services are already available in rural KwaZulu-Natal, but that access to these services is constrained by high transaction costs, inadequate collateral and poor debt servicing capacity. Under these conditions, access is more likely to be improved by public investment in physical and institutional infrastructure than by

providing additional Development Finance services. Consequently, the second goal of this study is to identify the factors responsible for both internal and external credit rationing amongst the sample households. This analysis employs the Heckman two-stage procedure to account for censored sampling bias which may arise when only a subset of the sample participate in credit markets. The models and their results are presented in Chapter Four. The thesis ends with concluding comments and a discussion on policy implications.



Figure I. 1: Research area: Mpembeni ward (Photo: S. Ferrer)

CHAPTER ONE:

CONSTRAINTS TO SMALL-SCALE FARM DEVELOPMENT

Several empirical studies suggest that small-scale farmers in South Africa are constrained by low and irregular incomes, which reduce their ability to invest in agriculture (Lyne and Ortmann, 1992:20-22; Fenwick and Lyne, 1999). Short-term solutions to this problem include using household savings, selling assets, or accessing credit. Small-scale farm households, however, usually experience difficulties accessing formal credit markets due to debt servicing (liquidity) and collateral problems. In addition, transaction and information costs affect access to all markets and play a major role in discouraging both the demand for, and supply of, financial services (Herath, 1994). Moreover, Olson (1996) argues that incentives to invest in farming need to be created by reforming institutions, including property rights to land. A shortage of quality labour (Nattrass and May, 1986) often reflects weak incentives to farm.

1.1 Savings

The propensity of rural people to save has been shown to be high in spite of the fact that they are often notoriously poor. Apart from smoothing consumption (Yaron *et al.*, 1997), savings allow households to manage their risks (Graham, 1995; Gonzalez-Vega, 1994). A survey in rural KaNgwane showed that the majority of sample households saved regularly and that they placed more importance on self-financing than financing by credit (Coetzee, 1995).

Deposit facilities also allow institutions to gain information about the depositors. By regularly saving, depositors build up reputations with the institutions, which partially addresses the problem of asymmetric information in principal-agent relationships (Graham, 1995; Gonzalez-Vega, 1994) and aids in decreasing external rationing. Savings deposits can also be used as collateral (Yaron *et al.*, 1997), as observed in credit unions in Cameroon, Togo and Rwanda. Borrowers are required to save for a given period of time or accumulate a significant amount of savings to be eligible for a loan. Loans are granted up to twice the value of the borrowers' savings, with the savings acting as collateral (Gurgand *et al.*, 1994:18, 95).

1.2 Liquidity

Debt servicing capacity, or liquidity, of an applicant plays a vital role in determining the success of their credit application as the lender seeks to minimise the risk of loan default. For small-scale farm households, the level of off-farm income is more important than farm income, even when applying for agricultural credit (Coetzee, 1995). This is because formal credit institutions often demand a predetermined, constant stream of repayments (Devereux *et al.*, 1989), which may be difficult for a small-scale farmer to meet.

Rural stagnation results from low farm productivity, poorly developed local sales markets, and few opportunities to diversify sources of non-farm income. These conditions often lead to gender and skill specific out-migration, leaving women as the *de facto* heads of most households. In many cases, women's access to resources is dependent on the presence of their spouses (Jiggins, 1989). As a result, women reliant

on irregular income streams may ration their use of credit due to high perceptions of risk in meeting debt repayment obligations and from losing assets pledged as collateral (Barry *et al.*, 1995).

When identifying characteristics of loan defaulters amongst rural borrowers in the former Transkei, Lugemwa and Darroch (1995) showed that the higher the level of off-farm income, the less likely is the risk that the borrower will default. Consequently, small farmers without off-farm income may find it difficult to borrow in the formal sector. Extension of credit services to include more small-scale farmers may not, therefore, effectively address their liquidity problems.

1.3 Collateral

Collateral is generally required when information about borrowers is costly and unavailable to lenders (Nagarajan and Meyer, 1995). However, formal lending institutions need an environment where claims against property can be created, publicly established, and enforced. The greater the uncertainty and expense associated with this process, the lower the collateral value of any asset. The homelands of South Africa are characterised by a dual legal system. Contract disputes and property right conflicts are often settled in tribal rather than national courts. Tribal courts are hearings over which an authorised chief or headmen preside. Case studies reported by Thomson (1996:92-96) suggest that tribal courts have not established firm legal precedents regarding commercial contracts, fees charged and compensation awarded. Rulings are contingent upon (1) proving the existence and terms of an often informal, verbal agreement - which may be difficult (Ngema, 1997) and (2) the social status of the plaintiff – and the tribal

councillors may be less than impartial, favouring individuals with higher status (Thomson and Lyne, 1993). Women, in particular, are vulnerable to this type of legal uncertainty. Berry (1993) makes frequent references to the influence of gender and social standing on the outcomes of disputes in tribal courts.

Under customary law in KwaZulu, a woman was traditionally regarded as a minor. As a result, a married woman had to have her husband's consent to enter into transactions and she could not appear in court as plaintiff or defendant without his assistance. The contractual capacity of a woman married by customary law was therefore limited compared to that of a man (Bekker, 1983). This had serious adverse implications on the transaction costs faced by women in rural areas, as many of the men are migrant workers. Amendments to the law have recently been enacted. Women are now regarded as majors at the age of twenty-one, and may therefore approach the courts themselves (Ngema, 1997). It will, however, take time for this practice to become widely known and accepted in rural communities. At present, women still face greater legal uncertainty - especially if separated from their husbands through migration, abandonment, divorce or death (Bruce, 1989).

Given an established land market, titled land is considered by lenders to be an ideal form of collateral as its value is unlikely to decrease below the outstanding loan balance (Barry *et al.*, 1995:150). However, lenders will not accept land as collateral if the land market is inactive, or if political pressure makes it impossible for lending institutions to foreclose on land in the event of loan default (Kille and Lyne, 1993). This is the case in the homelands of South Africa where land is not privately owned (Thomson and Lyne, 1993). Private title deeds to land or certificates of agrarian rights also reduce internal

credit rationing as they increase confidence that a loan application will be approved. This positively affects a household's decision to apply for a loan, as has been evident in Mexico (Stanton, 1997).

Collateral substitutes have enabled borrowers without marketable assets to obtain loans. Some substitutes have little or no market value but hold value to the borrower. These include reputation, loss of future loans, group liability, savings and insurance policies (Nagarajan and Meyer, 1995). Other collateral substitutes include livestock and equipment (moveable property), stored production and warehouse receipts (Kraft, 1996). These collateral substitutes, however, have high collateral-specific risks as they are fungible and can be disposed of without the lenders' knowledge (Nagarajan and Meyer, 1995).

A recent local study (Kuhn *et al.*, 1997) explored the efficacy of a variety of collateral substitutes employed by various lenders in KwaZulu-Natal. These included crop cessions (loan repayments deducted upon delivery), machinery, vehicles and equipment, permission to occupy (PTO) certificates on tribal land, mortgage bonds on private land, joint liability groups, third party guarantors, and reputational collateral. It was found that high collateral-specific risk, high liquidation costs and poor asset appropriability reduced the effectiveness of crop cessions, machinery and equipment in homeland areas. The PTO certificates had no collateral value, as the relevant property rights are insecure and are not tradable. In contrast, private land outside of communal areas provided lenders with low collateral-specific risks, transferability of title, and market value. Lender liquidation costs were therefore low and the collateral type attractive.

Kuhn *et al.* (1997) also found that joint liability mechanisms were not successful with large groups (30-40 members) of small-scale farmers. Their spatial dispersion and heterogeneity of members resulted in infrequent lender-borrower contact and high transaction costs associated with constituting and maintaining the groups. On the other hand, small (4-6 members), homogeneous groups of female micro-entrepreneurs - whose income and location facilitated regular monthly repayments and close contact with the lender - allowed group performance to be monitored closely at low cost. Reputational capital was accepted as collateral, but only if the lenders could apply a strict policy of denying future access to borrowers with default histories. Ideally, this default information should be communicated through credit listing agencies (Kuhn *et al.*, 1997).

1.4 Tenure insecurity and the consequent absence of efficient land markets

Households in KwaZulu do not possess title deeds to their land (Thomson and Lyne, 1993). Use rights are assigned to the household head by a tribal authority in accordance with traditional laws and customs. Typically, the household has exclusive use rights to cultivated land and communal use rights to grazing land. Customary law precludes the legal operation of a sale market for agricultural land.

Nieuwoudt (1990) reported that 80 per cent of arable allotments in KwaZulu are smaller than two hectares. When compared with wage employment for skilled workers, farms of this size cannot produce attractive incomes, even under optimal technological conditions. Returns are low on very small farms. This is due to the presence of fixed costs - such as the indivisible costs of family labour, management and information

inputs. There are also numerous fixed transaction costs. Renting would allow farm consolidation and increase potential earnings from farming for the lessee, while simultaneously creating a higher income stream for the lessor. Lyne and Ortmann (1992) showed that access to more land (rental of land) was one of the most important characteristics of households that did not default on loans provided by the KwaZulu Finance and Investment Corporation. Unfortunately, there is little evidence of an active rental market for farmland in KwaZulu (Thomson, 1996:17).

Arable land lies idle over large parts of KwaZulu, although some households farm their land intensively. Thomson (1996:23) attributes the under-utilisation of arable land to an imperfect land market. Imperfections may also occur in markets for contractors, credit, inputs and products. Nevertheless, these market failures may not be responsible for the under-utilisation of land. If the rental market for land was active, land controlled by households without access to funds, labour or contractors would transfer to those households not constrained. Alternatively, in the presence of a land rental market, the household could use inter-linked contracts to overcome imperfections in other markets.

Inter-linked contracts occur when the same pair of individuals organises transactions in more than one commodity or service, with the terms of one transaction contingent upon the terms in another. For example, an assetless tenant without access to credit markets can use the tenancy contract itself as the 'collateral' for a credit transaction with the landlord-creditor (Bardhan, 1989). An essential feature of inter-linked contracts is that delinking is infeasible or costly for at least one party. This outcome can be attributed to imperfect markets or moral hazard (Braverman and Srinivasan, 1984). Inter-linked contracts reduce transaction costs, provide enforcement mechanisms, and decrease both

uncertainty and moral hazard by providing information (Herath, 1994; Bardhan, 1989).

Prerequisites for a rental market in land are (a) tenure security, and (b) low transaction costs relative to rental income. Transaction costs are increased by risk and households perceive renting to be risky as they believe they could lose their land permanently (Lyne and Thomson, 1997). As a result, potential lessors prefer not to lease land out and incur the risk as land offers security against illness, unemployment and old age. Thomson (1996:83-86) facilitated a series of 'adaptive strategies' involving small incremental changes to customary institutions to encourage land rental transactions in parts of KwaZulu. The initial strategies were aimed at reducing risk: Tribal authorities granted permission to promote a rental market for arable land, administrative and dispute procedures were established and clarified, and local Chief's called community meetings to voice their approval of rental transactions and to explain procedures. The local radio station, Radio Zulu, was used extensively to promote the process, advertise workshops and communicate their outcomes. As a result of these measures, the number of households willing to lease out land (potential lessors) increased significantly.

Unfortunately, these changes did little to encourage potential lessees. Thomson (1996:30) found that households' exclusive rights to arable land were not guaranteed against cattle invasions. Participants in the workshops identified poorly enforced grazing rules and the consequent need to protect cultivated lands as the most important constraint to crop production. This constraint was ranked above imperfect credit markets and unreliable contractor services. In short, insecure land tenure caused by cattle invasions discouraged farmers from hiring additional land.

In his study, Thomson (1996:100-105) addressed this problem by negotiating and publicising a specific date after which all livestock would be removed from arable lands for the duration of the growing and harvesting season. A system of fines and compensation was introduced to penalise offenders. Rental transactions flourished after these interventions, with improvements in both equity and farming efficiency. The picture that emerges is that growth of small-scale farmers in KwaZulu-Natal may be constrained more by an imperfect rental market for land than by low levels of savings or poor access to formal credit.

1.5 Labour

Mincer (1963:71) noted that “opportunity costs (that is, earning powers in the market and marginal productivity’s in alternative pursuits) differ among family members.” Viewed against Nieuwoudt’s (1990) statement that potential profits are low on small farms, it is clear that the more skilled and mobile members of households have a comparative advantage in off-farm employment.

Nattrass and May (1986) have shown that labour migration from rural areas in South Africa is age, gender and skill specific. The vast majorities of migrant workers are young and relatively well educated men. This loss of quality of labour has adverse implications for productivity on small-scale farms (Low, 1986:52).

1.6 Transaction and information costs

Transaction costs can be broadly defined as the cost of transferring resources, either between markets, or between participants within markets. In financial markets, transaction costs reflect the degree of development and maturity of the financial system, the available transport and communication facilities, and the efficiency of the legal system (Coetzee, 1995). Transaction costs can be divided into *ex ante* and *ex post* costs. Drafting and negotiating an agreement are examples of *ex ante* costs. The problem of moral hazard in contracts leads to *ex post* costs, which include contract enforcement and risk. This risk is the result of the time lapse before the completion of the contract (Coetzee, 1995). For lenders, risk is increased when property rights are not secure and when there is uncertainty about legal enforcement of contracts (Lyne and Thomson, 1997).

Transaction costs can therefore discourage active financial services to the rural poor from the supply side. Lenders incur transaction costs while gathering information, administering loans, enforcing contracts, etc. These costs are larger in the case of small borrowers, usually the rural poor, which discourages formal institutions from lending to them (Herath, 1994).

In this sense, informal lenders are often seen to have an advantage over formal lenders. They are usually closer to the borrowers and therefore face lower information costs. This also decreases the risks of adverse selection and moral hazard (Herath, 1994). Udry (1990) illustrated that informal credit markets flourished in his study area in rural northern Nigeria, **but** only between individuals who knew each other well as this

eliminated the problems of information asymmetries.

Formal institutions could possibly decrease some of their transaction costs by adopting practices employed by informal lenders. Travel time could be cut down by processing loans at rural branches, and information costs could be reduced by recruiting and training local personnel (Herath, 1994). The experience of successful rural lending institutions has revealed the importance of having many branches in close proximity to the clients. In a study attempting to explain rural deposits in India, Nepal, Pakistan and Sri Lanka, it was shown that an increase in the number of rural branches resulted in a more than proportional increase in rural deposits. Beta coefficients from the model further showed that changes in transaction costs were relatively more important than changes in real interest rates and agricultural Gross Domestic Product in explaining variation in rural deposits (Meyer, 1989). Historically in South Africa, geographical penetration of commercial Banks did not occur for a variety of reasons, including apartheid and social unrest, as well as the poor infrastructure available in rural areas (Moore and Schoombee, 1995).

According to Kraft (1996), a common denominator of rural financial institution success stories is adequate investment in rural infrastructure. Information costs fall with declining transaction costs. Taiwan, a success story in rural financial markets, reduced transaction costs by investing in infrastructure (Adams *et al.*, 1993). For example, telephones reduce the travelling and waiting time of credit applicants. Similarly, the lender can more easily validate the credit-worthiness of the applicant. This improves the level of competition, thereby reducing financial charges in rural credit markets (Hoff and Stiglitz, 1990).

Potential borrowers can be discouraged from applying for loans by high transaction costs. Costs to borrowers are the explicit costs of interest payments, service and application fees as well as the implicit costs of travelling time and time spent negotiating the loan. These implicit costs are often the largest, especially when it is necessary to take time off work (Herath, 1994). Risk also impacts on the transaction costs of potential borrowers. For example, there is the risk of not being able to service debt and of having those assets, which were pledged as collateral, repossessed. Infrastructure can affect these risk perceptions. Fitschen and Klitgaard (1996) found a strong relationship between per capita income and infrastructure among tribal wards in KwaZulu-Natal, with the poorest wards being those farthest removed from markets and main roads. Similarly, Alwang *et al.* (1996) highlight the link between rural poverty and isolation from infrastructure.

The household head's age, gender and level of education influences his or her ability to service a loan and to enter the complicated process of applying for a loan (Stanton, 1997; Alwang *et al.*, 1996). A male who works in an urban area will most probably have a relatively high level of education (Low, 1986:124), a steady wage, and contact with formal institutions such as Banks and shops. As a result he will face lower transaction costs in both formal and informal markets. This contrasts with a married woman in a rural area who relies on irregular wage remittances and seasonal crop income. Constraints faced by female farmers in Africa also include weak land rights, limited access to common property resources, lack of equipment and appropriate technology, and lower education (Delgado, 1996). Collaborating evidence from parts of South Africa shows that, on average, adult women in rural KwaZulu have just 2.9 years of formal education (Lyne, 1992) and live 40 kilometres from sources of formal credit (Coetzee,

1995). It follows that people who live and farm in rural areas (mainly women) may encounter relatively high transaction costs, even in local markets.

Extension services provide information about improved agricultural technology to farmers, aiming to increase their productivity. Studies, for example by Alwang *et al.* (1996), have illustrated the value of knowledge dissemination via extension support. These services, however, will not produce a significant response without the correct institutional setting.

Markets with imperfect information, like the financial market, give rise to certain externalities. For example, in the context of credit markets, an externality effect occurs when information costs decrease as a result of developments in other markets, such as land titling or expenditure on rural infrastructure. Improvements in infrastructure will reduce the importance of information asymmetries, improve the level of competition, and therefore reduce the distortions in rural credit markets. It is in these areas where government intervention could be most successful (Hoff and Stiglitz, 1990).

While market forces can induce efficiency in the private sector, efficient markets require public sector investment in both physical and legal infrastructure (Timmer, 1992; Sahn and Sarris, 1994). Government expenditure on true public goods such as roads, irrigation, telecommunications, electricity and postal services, as well as establishing a dependable judicial system to secure property rights and to uphold commercial contracts, decreases distortions in rural credit markets and lowers information costs (Hoff and Stiglitz, 1990).

CHAPTER TWO:

STUDY AREAS

Data for the study were gathered from a field survey of 152 small farm households in two communal areas of KwaZulu-Natal from September 1995 to January 1996. The districts selected, Hlabisa and Port Durnford (Figure 2.1), were chosen to represent the predominant agronomic regions in KwaZulu (the Midlands and Coastal regions). These districts also facilitate a contrast of a remote area with one closer to urban employment and markets in order to obtain variation in the transaction costs faced by households.

The first study area - Mpembeni ward - is a remote settlement located in the Hlabisa magisterial district, west of Hluhluwe game reserve. It covers an area of 10300 hectares and is densely populated with approximately 50 people per square kilometre. The topography is broken and the average rainfall, at 750 - 800 mm per annum, is unreliable. There is evidence of past 'Betterment Planning' as households are often far removed from their allotted arable lands. In addition to this land, most households have access to small irrigated plots in 'community gardens' (Ouattara and Graham, 1996). Crops are grown largely for household consumption, with some local sales. The main cash crops are maize and vegetables.

The second area - Mkhwanazi ward - is situated in the Ongoye II magisterial district near Port Durnford. The area covers 4400 hectares and occupies a coastal strip from Mtunzini village up to a point fifteen kilometres south of the Empangeni-Richards Bay industrial complex.

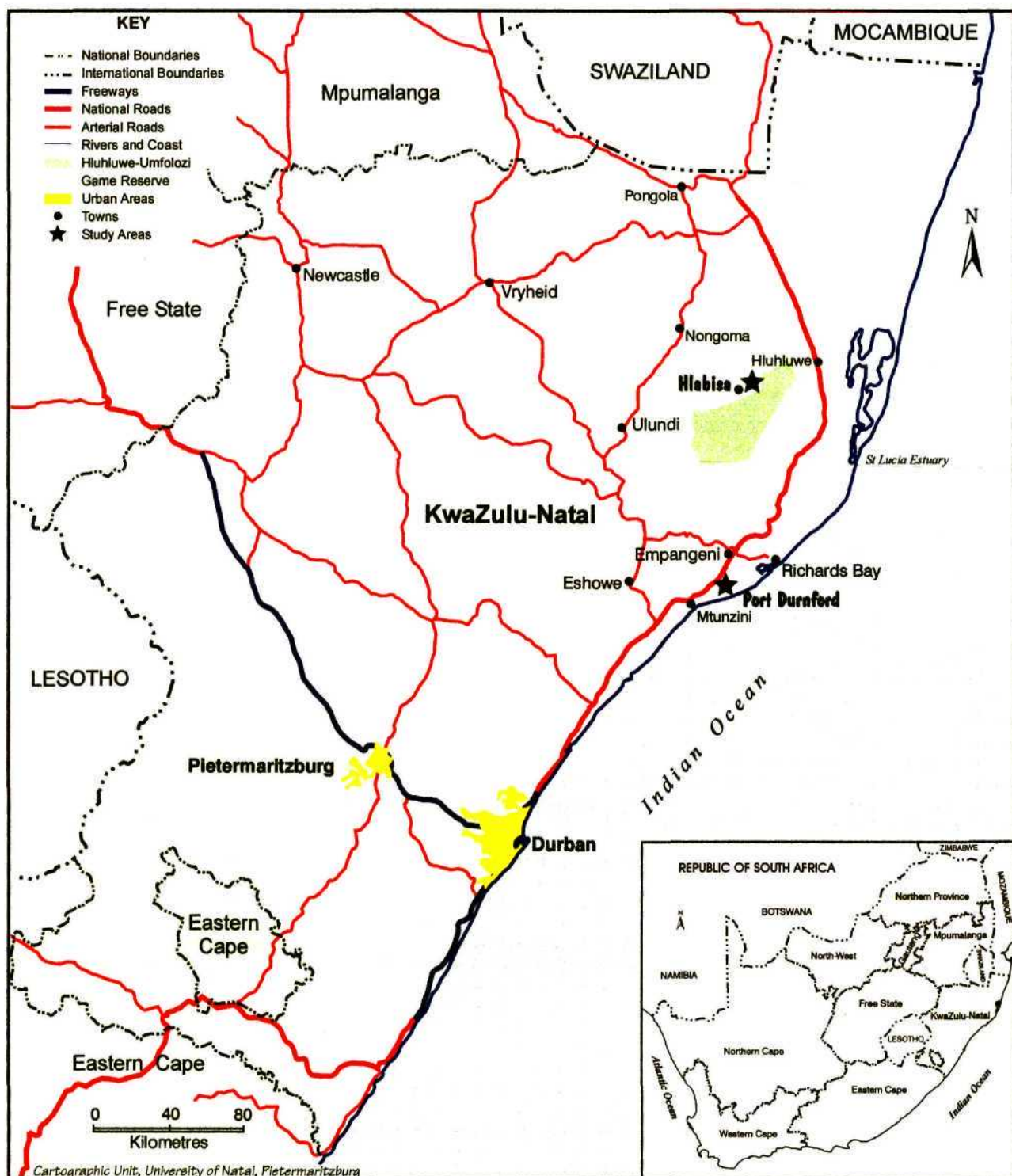


Figure 2.1: Map of KwaZulu-Natal showing location of study areas.

Mkhwanazi ward is very densely populated, with more than 100 people per square kilometre recorded. The topography is flat and rainfall high (850 - 1500 mm per annum), but the soil is generally poor. Households reside on their farms (Ouattara and Graham, 1996). Subsistence crops as well as sugar-cane (the principal cash crop) are grown, with occasional timber enterprises.

The households in each ward were mapped and listed and a simple random sample of 76 households was drawn from each list. Household heads, or *de facto* heads, were interviewed using a structured questionnaire (Appendix A). Local matriculants were recruited and trained to conduct the interviews. Fieldwork commenced late in August 1995 and was completed in January 1996. Logistical and managerial support was provided by the Centre for Low Input Agriculture and Rural Development (CLIARD) in Mpembeni ward and by the Department of Agriculture at the University of Zululand for Mkhwanazi ward. The variable definitions, together with the raw data used in the study, are presented in Appendices B and C respectively.

2.1 Descriptive statistics

The descriptive statistics presented in Tables 2. 1 - 2. 7 were compiled from the sample data using SPSS (SPSS, 1995). Table 2. 1 summarises information relating to household demographics. On average, families are large with nearly nine family members, of whom almost half are children. Education rates are low, with the average *de facto* head in Mpembeni ward passing only standard two. Households in Mpembeni ward are 83 kilometres from formal markets (commercial Banks or large retail outlets), whereas those in Mkhwanazi ward are within commuting distance (25 kilometres) of

employment opportunities in the large urban-industrial complex of Empangeni-Richards Bay. The proportion of migrant workers per sample household is similar in each ward but the incidence of male migrants is slightly higher in Mpembeni ward, with the difference statistically significant at the ten per cent level of probability. Over 70 per cent of *de facto* household heads are female. The lower incidence of male *de facto* heads recorded for Mpembeni ward were expected because this area is beyond daily commuting distance from urban job markets.

Table 2. 1: Household demographics (Survey data, 1995/96)

VARIABLES	MPEMBENI (n = 76)	MKHWANAZI (n = 74)	t- VALUE	AVERAGE (n = 150)
Mean family size	8.58	9.03	0.67	8.80
<i>De facto</i> head education: formal education (years)	3.73	5.12	2.97*	4.39
Mean distance to formal markets (km)	83	25	6.11*	54
Mean number of migrant workers	1.18	1.54	1.81*	1.36
<i>De facto</i> household head that are males (%)	24	32	1.13	28
Mean years household has resided in area (years)	28	37	1.87*	32

Note: a. * signifies statistical significance at the ten per cent level of significance.

The average farm size is approximately two hectares in both study areas (Table 2. 2). Overall, seven per cent of respondents recorded zero cultivation, and 45 per cent of households indicated that they did not cultivate all of their land. Of these, 42 per cent stipulated cash shortage as the primary reason for leaving arable land idle, with predominantly Mkhwanazi ward respondents expressing cash shortage as their main

problem (64 per cent of respondents). Risk of drought was the explanation offered by 33 per cent overall, with only a few households indicating either labour shortage or absence of contractors as the primary reason for not cultivating all of their land. These households resided largely in Mpembeni ward. Households in Mpembeni ward reported over one visit by the agricultural extension officer per month.

Table 2. 2: Land indicators (Survey data, 1995/96)

VARIABLES	MPEMBENI (n = 76)	MKHWANAZI (n = 74)	AVERAGE (n = 150)
Mean area of arable land (ha)	1.92	2.10	2.01
Households with zero cultivation (%)	1	14	7
Households that did not utilise all their arable land (%)	50	39	45
Households that used all their arable land (%)	49	47	48
Incidence of inter-linked contracts (%)	9	5	7
Households that rent in additional land (%)	19	8	13
Households that rent out land (%)	17	3	10
Number of visits by extension officer per month	1.53	0.65	1.09

While uncultivated lands lie idle, almost half of all the respondents reported cultivating all of their land - a symptom of an imperfect rental market for cropland. Relatively few sample households participated in rental transactions. Whereas 13 per cent hired land in, only ten per cent admitted to renting land out. These observations lend support to Thomsons' (1996:83-86) argument that households may be reluctant to lease land out for fear of losing it permanently, or unwilling to hire additional land that they are unable

to police. More than one-third of respondents suffered crop damage.

Table 2. 3 illustrates that farm incomes are low, both in absolute terms and relative to off-farm income. Off-farm income (wage incomes, remittances and pension payments) accounts for 98 per cent of gross cash income in Mpembeni ward and 94 per cent in Mkhwanazi ward. By comparison, gross average cash proceeds from farming account for two per cent of household income in Mpembeni ward and four per cent in Mkhwanazi ward. Further inspection of the median level of gross cash income from farming suggests that the majority of households receive no income from crops. A quarter of the sample households supplements their income by participating in micro-enterprises.

Table 2. 3: Financial statistics (Survey data, 1995/96)

VARIABLES	MPEMBENI (n = 76)	MKHWANAZI (n = 74)	AVERAGE (n = 150)
Mean annual off-farm income (R)	16013	15825	15921
Median annual off-farm income (R)	7780	9360	8360
Gross cash annual crop incomes (R)	323	971	640
Median annual gross crop incomes (R)	0	0	0
Households participating in a micro-enterprise (%)	13	36	25
Households participating in formal savings (%)	54	86	70
Mean level of savings in commercial Bank (R)	1658	1284	1477
Median level of savings in commercial Bank (R)	100	1000	500
Households participating in informal savings (%)	24	45	34

Despite claims of cash shortage, 70 per cent of the households sampled held savings with commercial Banks. Formal savings per household sampled averaged R1658 in Mpembeni ward and R1284 at Mkhwanazi ward. Nevertheless, the claims of cash shortage may be valid as they were made by *de facto* household heads (predominantly woman) that may have been unable to access 'household' savings. Furthermore, the median level of savings illustrates that these means, particularly in Mpembeni ward, may be deceptively high due to a few large savers. Women residing in rural areas are more likely to save with local, informal institutions. However, only one-third of the respondents participate in informal savings groups.

Table 2. 4 presents the participation in alternative savings forms. Stokvels were the predominant savings alternatives in Mkhwanazi ward (26 per cent participation), while respondents in Mpembeni ward favoured burial societies (13 per cent participation).

Table 2. 4: Participation in alternative savings forms (Survey data, 1995/96)

SAVINGS FORM	% PARTICIPATION		
	MPEMBENI (n=75)	MKHWANAZI (n=74)	AVERAGE (n=149)
Stokvel	7	26	16
Savings club	8	7	7
Burial society	13	12	13
Livestock	21	4	13
Home	43	14	28
Bank	54	86	70

Households in Mpembeni ward own, on average, six head of cattle and 13 smaller livestock, such as chickens and goats, whereas those in Mkhwanazi ward own three head of cattle and eight small livestock. Table 2. 4 shows that 21 per cent of the households sampled in Mpembeni ward – as opposed to 4 per cent in Mkhwanazi ward

– acknowledged that they invested part of their savings in livestock. Distance to markets is clearly an important factor in Mpembeni, as evidenced by the higher incidence of savings maintained in livestock and at home, and the lower incidence of formal savings. Nevertheless, more than half of the respondent in Mpembeni ward and most of the respondents in Mkhwanazi ward held savings with formal institutions.

Of the 70 per cent of total households that held formal savings, 64 per cent did not cultivate all of their land. This suggests that constraints other than liquidity are inhibiting agriculture for almost one-half of the sample households. For this substantial group, improved access to financial services may not impact significantly on agriculture unless the other constraints are identified and alleviated. For the other half, liquidity may be a binding constraint and access to credit could be an important policy issue.

Table 2. 5 indicates the proportion of sample households that bought selected farm operating inputs and the incidence of credit financing. Seed purchase was found to be the most prevalent, with 61 per cent of households reportedly buying seed, followed by fertiliser (47 per cent), and tractor services for ploughing (46 per cent). Supplies were obtained primarily from shops and co-operatives, with only equipment being hired from other farmers. Private contractors were used only for transportation and ploughing.

It is also apparent from Table 2. 5 that very few of the households which purchased farm inputs or services used credit to finance them. The majority of these credit transactions were informal, mostly between friends or relatives (50 per cent of the total observed credit transactions), with one household (5 per cent) obtaining a loan from a local moneylender. The remaining loans (45 per cent) were obtained formally from input and

service suppliers.

The primary reasons given for not using credit were either that the household **did not like incurring debt (45%)** or **they did not know how to access it (41%)**. Over half of the respondents in Mpembeni ward expressed this lack of knowledge. Secondary reasons given were sufficient savings (14%), interest charges too high (14%), fear of rejection (11%) and the perception that they cannot service the debt (7%). High transaction costs and risk perceptions, and low levels of information may therefore be important determinants of credit use.

Table 2. 5: Incidence and credit use of farm input purchases (Survey data, 1995/96)

	% OF HOUSEHOLDS PURCHASING FARM INPUTS AND SERVICES			% OF HOUSEHOLDS USING CREDIT		
	Mpembeni (n=75)	Mkhwanazi (n=74)	Ave (n=149)	Mpembeni	Mkhwanazi	Ave
A. INPUTS						
Fertiliser	33	60	47	8	9	9
Seed	85	37	61	6	0	4
Chemicals	17	21	17	0	7	4
B. HIRE SERVICES						
Ploughing	60	31	46	11	4	9
Transport	7	14	10	0	20	13
Equipment	4	1	3	0	0	0
Labour	1	26	13	---	---	---

Note: a. --- Denotes missing information.

Table 2. 6 illustrates the proportion of households that purchased selected farm assets (excluding livestock) and consumer durables. It is apparent that most of the assets owned are consumer durables.

**Table 2. 6: Household ownership of selected farm assets and other durables
(Survey data, 1995/96)**

	% OF HOUSEHOLDS OWNING ASSETS					
	MPEMBENI		MKHWANAZI		AVERAGE	
A. FARM ASSET	n	%	n	%	n	%
Vehicle	73	10	74	17	147	14
Tractor	75	7	73	1	148	3
Trailer/Cart	75	1	74	1	149	1
Plough	75	13	74	1	149	7
Planter	75	1	74	0	149	1
Hammer Mill	76	1	74	0	150	1
B. DURABLES						
Generator	76	1	74	7	150	4
Fridge/Freezer	76	24	74	55	150	40
Television	76	12	74	50	150	33

Thirty-nine per cent of the sample households own either a refrigerator or freezer, and 33 per cent own television sets. These constitute the two most prevalent assets. Almost 14 per cent of households own cars or light delivery vehicles (bakkies). Although listed under 'Farm Assets', these assets are not specific to agriculture. The incidence of specialised farm assets was significantly lower, the most prevalent being ploughs.

Table 2. 7 presents the incidence of credit used to finance movable assets. Eighty-four per cent of the households that purchased vehicles used credit to finance them. Similarly, 83 per cent of households owning refrigerators or freezers purchased them with credit. Almost two thirds of households with television sets and a quarter of those with tractors made use of credit to finance these assets. It is obvious that whereas few households used credit to finance seasonal farm inputs, credit is often used to finance

movable assets.

Table 2. 7: Incidence of credit used to finance assets (Survey data, 1995/96)

ASSET	MPEMBENI		MKHWANAZI		AVERAGE	
	n	%	n	%	n	%
Vehicle	6	67	13	92	19	84
Tractor	3	0	1	100	4	25
Plough	10	0	1	100	11	9
Fridge	17	71	41	88	58	83
Television	9	44	40	63	49	59

Vehicle finance was sourced almost exclusively from car dealers and commercial Banks, with only one per cent of respondents using informal credit in the form of a loan from a relative. One respondent in Mpembeni ward obtained a loan from a wage employer. Credit for the remainder of the assets was also obtained primarily through the suppliers, except for a single informal loan from a friend.

It is readily apparent that formal markets are used far more frequently than informal markets. This appears to contradict the popular notion that informal credit markets play a major role in rural KwaZulu. Given local circumstances where migrant workers have regular incomes and frequent contact with the formal sector, transaction costs may be lower in formal (impersonal) markets than in informal (personalised) markets, even though the formal sources are further away. This view is consistent with the fact that most informal transactions are conducted with friends or relatives (where transaction costs are relatively low).

2.2 Discussion

The descriptive statistics presented in this chapter raise a number of possible implications. Firstly, they indicate that a substantial proportion of the sample households do not use all of their arable land, but are apparently not constrained by liquidity problems as they possess formal savings. The virtual absence of credit to finance farm inputs probably reflects a weak demand for inputs due to other more inhibiting factors. Thus liquidity may not be the most important constraint to farming for some 45 per cent of small farm households. For this group, the other agricultural constraints need to be identified and prioritised.

Inadequate cash flow could nonetheless be a problem for more than one-half of the respondents. For these farm households, access to credit may well be an important constraint to farming. Risk, information and transaction costs facing potential borrowers discourage participation in the credit market. These reasons for non-participation were reported by more than 40 per cent of respondents who did not use credit. The low incidence of credit use to finance farm inputs - even for households that cultivate all of their land - may also indicate internal credit rationing. In contrast, moveable assets are often financed with credit. This may reflect larger outlays required for moveable assets, as well as the advantage of their implicit collateral value. The latter reason suggests that external credit rationing could be an equally, if not more, important determinant of credit use than internal credit rationing.

Since the statistics presented in this chapter are primarily univariate statistics, they cannot reflect the simultaneous effects of other variables. Multivariate analysis is

required to isolate and quantify the separate effects of the factors impacting on credit decisions made by the sample households. The results of the univariate statistics allude to a need for two distinct multivariate analyses. The first involves an investigation of factors constraining small-scale farming. The second focuses on factors affecting household participation in the credit market and, for participants, the level of credit used.

CHAPTER THREE:

EMPIRICAL ANALYSIS OF FARM CONSTRAINTS

This analysis hypothesises that growth of small-scale farming is constrained largely by factors other than liquidity. These factors include imperfect land markets, inadequate family labour (quality and quantity), poor information and high transaction costs. Under these conditions, improving farmers' access to credit may have little impact on farm production.

3.1 The logit model

A proxy (dependent) variable, measuring the intention to farm, was developed using expenditure on seasonal farm inputs (including the opportunity cost of own draught power) to the value of R800 or more, ownership of farm assets, the adoption of sugarcane or timber enterprises and crop sales greater than R300. The inclusion values for expenditure and crop sales were chosen following Eisenbeis' (1977) method of observing a natural break in the frequency distribution. Households displaying one or more of these characteristics were classified as 'farmers' (n=51) and scored a value of one on the dependent variable. Conversely, households that reported no expenditure on farm inputs or who did not cultivate any of their arable land were classified as 'non-farmers' and scored a zero on the dependent variable (n=47). Minor adjustments were made to the groups identified in Mpembeni ward after the initial classification had been checked by a researcher familiar with the area (Despins, 1998).

The following general model could be estimated using Ordinary Least Squares (OLS) regression:

$$F_i = \sum_{n=1}^k \beta_n X_{ni} + u_i$$

where F_i is a binary variable taking the value of one if the household was classified as a farmer, and zero if classified as a non-farmer. X_{ni} is a vector of k attributes for the i th household and u_i , the disturbance term, has a mean of zero. This represents the linear probability model (LPM), since the conditional expectation of Y_i given X_{ni} , or $E(Y_i | X_{ni})$, can be interpreted as the conditional probability that the event will occur given X_{ni} . In other words $\Pr(Y_i = 1 | X_{ni})$.

However, the LPM faces certain problems. First, the disturbances u_i do not satisfy the OLS assumptions of normality or homoscedasticity (Gujarati, 1995:541-553). Second, there is no guarantee that the predicted $E(Y_i | X_{ni})$ will necessarily lie between the logical limits of zero and one. Third, the model is linear and therefore assumes that the marginal effect of X remains constant over the probabilities (Maddala, 1983:15-16).

A more plausible model would predict probabilities ranging from zero to one, and would allow them to vary nonlinearly with X (Aldrich and Nelson, 1984:26). Geometrically, this describes the curve of the cumulative distribution function (CDF) of a random variable. Historically, and practically, the type of CDFs usually chosen to represent dichotomous response models are the logistic - resulting in the logit model, and the normal - resulting in the probit model (Gujarati, 1995:553-554). Theoretically, the results of these two models are comparable, and the logit model, estimated using the maximum likelihood technique, has been chosen in this case on the grounds of

mathematical convenience and computer programme availability.

The logistic distribution function is represented as:

$$P_i = E(Y_i = 1 | X_{ni}) = \frac{1}{1 + e^{-\left(\sum_{n=1}^k \beta_n X_{ni}\right)}} \quad (3.1)$$

where P_i is the probability and e is the base number of the natural logarithm.

Let $\sum_{n=1}^k \beta_n X_{ni} = Z_i$. Then, as Z_i ranges from $-\infty$ to $+\infty$, P_i ranges between zero and one

and is nonlinearly related to the independent variables (X_{ni}). From equation (3.1), the natural log of the odds ratio in favour of being classified as a farmer (L_i) can be expressed as follows:

$$L_i = \ln\left(\frac{P_i}{1 - P_i}\right) = \sum_{n=1}^k \beta_n X_{ni} \quad (3.2)$$

L_i is called the logit, and equation (3.2) describes the generalised logit model (Gujarati, 1995:554-555). The independent variables on the right hand side of the equation (and their expected signs) included in this study are summarised in Table 3. 1.

Farm income was excluded from the liquidity variable (Liquidity) because it was used as a criterion to distinguish farmers from non-farmers (i.e. it was used to define the dependent variable). Remittances, pensions and micro-enterprise income are, in any case, far more important and usually more regular sources of liquidity.

Table 3. 1: Independent variables included in the logit model

VARIABLE	EXP. SIGN	DESCRIPTION OF VARIABLE
Size	+	Size of allocated arable land (ha)
Rent	+	Dummy scoring one for households that hire additional land, and zero otherwise
Interlink	+	Dummy scoring one for households with inter-linked contracts, and zero otherwise
Liquidity	+	A liquidity indicator calculated as the sum of annual off-farm and non-farm income plus the monetary value of livestock owned (R)
Fsavings	+	Formal savings level (R)
Isavings	+	Dummy scoring one for households participating in informal savings groups, and zero otherwise
Family lab	+	A ratio indicating the amount of family labour available per household member. It is calculated as the square of household labour equivalents ^a (calculated as adults - wage employees + 0.5 [children + pensioners]) divided by total household size
Visits	+	Number of visits by extension officer
Tcost	+	Transactions cost index calculated as the standardised values ^b of each variable in the index, namely $\{[(\text{gender}^c \text{ of } de \text{ facto head}) * (\text{education of } de \text{ facto head})] + (\text{length of residency in the area}) + (\log[1+\text{number of migrant workers}])\} / \{(\text{district dummy}^d) * (\text{car ownership}^e)\}$
Dependency	-	Ratio of infants and school children to wage earners and pensioners

Notes: a. The household labour equivalent is squared to account for complex co-operation effects.

b. A constant of 100 was added to each standardised variable to eliminate negative values.

c. Gender is a dummy variable scoring one for males and zero for females.

d. A district dummy scoring one for Mpembeni ward and zero for Mkhwanazi ward.

e. Car ownership is a dummy variable scoring one for non-owners and zero for owners.

Family labour (Family lab) was expressed as the ratio of household labour equivalents available for farm work relative to household size. The household labour equivalents were calculated as the number of adults, less wage employees, plus half the sum of children and pensioners. The numerator (household labour equivalents) was squared to

capture the effect of complex co-operation in farm production. Complex co-operation describes the increasing efficiency of workers in farm production as more family labour becomes available (Low, 1986:29). The denominator controls for differences in household size.

Tcost is an index of transaction costs computed from exogenous variables. The literature reviewed in section 1.6 identifies high transaction costs as an important factor inhibiting participation in markets. Variables considered likely to influence transaction costs faced by potential market participants in developing rural areas include gender, education, access to transport, distance to - and contact with - markets. Moreover, it is recognised that these variables are not independent in their effects on transaction costs facing households, but tend to interact with one-another.

Initially the variables expected to influence household transaction costs were included independently in the model, resulting in high levels of multicollinearity. A common method of combating multicollinearity is to exclude one or more variables from the analysis (Gujarati, 1995:341). However, this approach was not followed as it leads to specification bias caused by omitting important explanatory variables from the postulated model. Instead the variables expected to influence household transaction costs were transformed into a single index, which accounted for anticipated interactions between the variables. Such indexes are often constructed using principal component analysis (Kille and Lyne, 1993; Doll and Chin, 1979) but this method weights variables according to their variance contributions and often produces several indexes that are difficult to interpret. In this case, each variable was standardised to give it equal weighting in the index. Households with high index scores face low transaction costs.

To ensure that this condition held true, a constant of 100 was added to each standardised variable to eliminate negative values.

Following the arguments outlined in section 1.6, a male *de facto* household head scores one on the gender dummy variable because he usually faces lower transaction costs than a female who scores zero. Similarly, household heads with more years of formal education are expected to face lower transactions costs. The transaction cost index considers only the interaction effects of these variables, as migration is gender **and** skill specific, with a well-educated male facing lower transaction costs than a poorly educated female. A longer length of residency in the area suggests higher social standing and lower transaction costs in informal markets. Likewise, households with migrant workers should face lower transaction costs in formal markets. A log transformation was applied to the number of migrant workers present in a family because transaction costs are expected to fall marginally less with each additional migrant. This necessitated adding the value of one to the number of migrant workers in each household (before the log transformation) to eliminate problems of a zero log transformation.

The denominator of Tcost reflects interaction between the distance households must travel to participate in formal markets, as captured by the district dummy, and ownership of a car. The impact of distance on transaction costs is most relevant when a household does not own a motor vehicle. Households that owned a serviceable motor vehicle scored a zero on the dummy variable whereas those that did not scored a one. As explained previously, this denominator will not reduce to zero or a negative number due to the standardisation of the dummy variables and the addition of a constant of 100 to all the standardised values. Figure 3.1 shows that Tcost is a continuous variable and that

average transaction costs are higher in the more remote Mpembeni ward (1.01) than in Mkhwanazi ward (1.03) as a higher index score indicates lower transaction costs.

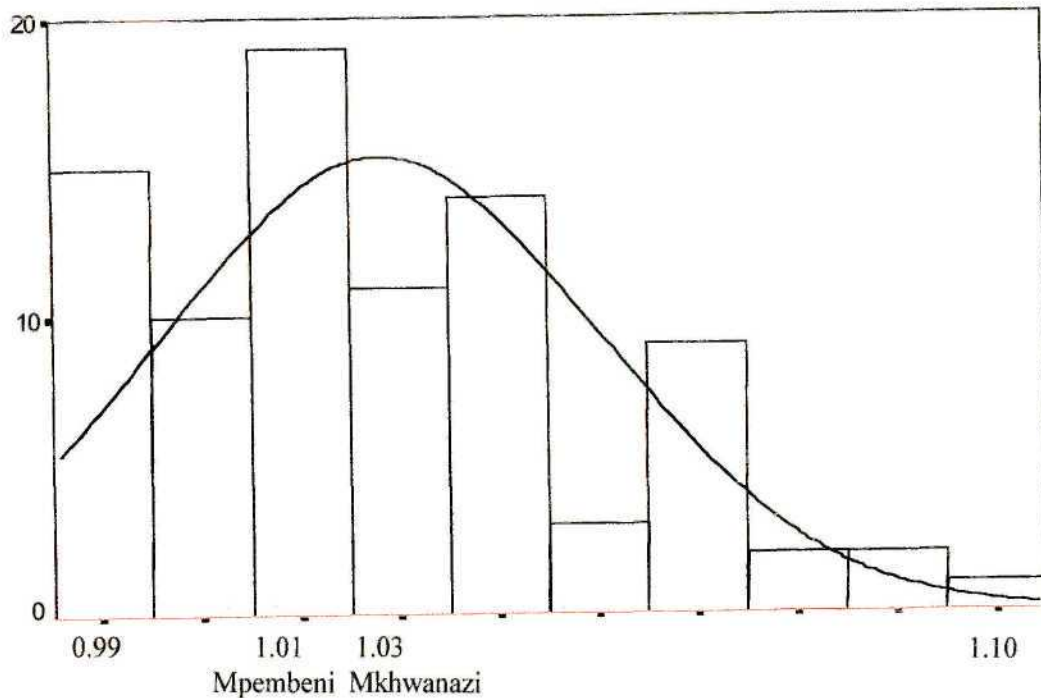


Figure 3. 1: Distribution of Tcost (Survey data, 1995/96; n = 86, mean = 1.026)

Table 3. 2 presents the mean value of each independent variable computed for non-farmers (dependent variable = 0) and farmers (dependent variable = 1). The results of independent t-tests across the means are also tabulated.

As expected, households with higher levels of farm income and expenditure had larger farms or were able to hire additional land. Somewhat surprisingly, non-farmers are much less liquid than farmers. Formal savings, which may be regarded as a (minor) source of liquidity, varied noticeably across the groups. Of course, formal savings held by rural households are not always accessible to those family members engaged in farming. The incidence of informal savings was similar in each group, possibly illustrating the need for both groups to employ informal savings as an insurance substitute. When income is

low and insurance markets incomplete, these savings allow households to smooth their consumption streams if faced with an income shock (Udry, 1995).

Table 3. 2: Comparison of group means computed for farmers and non-farmers (Survey data, 1995/96)

VARIABLE	NON-FARMERS = 0		FARMERS = 1		t	SIG. t
	Valid observations	Mean	Valid observations	Mean		
Size	47	1.25	51	3.09	3.80^a	0.000
Rent	47	0.09	51	0.22	1.81	0.074
Interlink	44	0.07	45	0.07	0.03	0.974
Liquidity	43	11947	46	36678	3.82	0.000
Fsavings	40	1307	45	2429	1.00	0.323
Isavings	47	0.36	51	0.31	0.50	0.620
Family lab	47	1.90	51	2.50	1.99	0.049
Visits	47	0.55	51	1.29	2.32	0.023
Tcost	42	1.02	44	1.03	1.62	0.005
District	47	0.36	51	0.41	0.41	0.616
Dependency	47	1.69	51	1.81	0.48	0.632

Note: a. Boldface highlights t-values recorded as being greater than or equal to one.

The comparison of group means also show farmers to be better endowed with family labour even though non-farmers have similar dependency ratios. As expected, farmers had more contact with extension staff and faced significantly lower transaction costs than non-farmers. The district dummy shows that households sampled in Mpembeni ward accounted for approximately 40 per cent of both farmers and non-farmers. The implication is that this ward is slightly under-represented in the sub-sample, and that differences observed between farmers and non-farmers are not dependent on location.

Variables with differences in group means of less than one on the t-test were excluded from the logit model as they were not expected to contribute significantly to the multivariate analysis (Hosmer and Lemeshow, 1989:84). The model was estimated

using SPSS software (SPSS, 1995). Results of the logit analysis are presented in Table 3. 3. The contribution made by each independent variable was assessed using the likelihood ratio test, where the model is calculated with and without the variable being tested and changes in the model chi-square are evaluated for statistical significance (Menard, 1995:38).

Table 3. 3: Results of the logit model identifying farmer (n=51) and non-farmer (n=47) characteristics

EXPLANATORY VARIABLES							
	Liquidity	Visits	Family lab	Size	Rent	Tcost	Fsavings
Standardised coefficients	2.339	0.851	0.842	0.807	0.687	0.441	0.372
Rank	1	2	3	4	5	6	7
-2 Log LR	14.070	6.771	4.512	6.1815	2.660	1.133	1.641
Significance	0.0002	0.0093	0.0337	0.0090	0.1029	0.2871	0.2002
Classification rates ^a			Non-farmers		Farmers		
% correctly classified			86		83		
Number of cases			70				
R _L ²			0.56				
Model chi-squared			44.62 ^{***}				
Goodman and Kruskal's tau-p			0.71 ^{***}				

Notes: *** Signifies statistical significance at the one per cent level of probability.

a. The same sample was used in the classification

The predictive power of the estimated model is good, with high rates of correct classifications in both the farmer (83 per cent) and non-farmer (86 per cent) groups. The chi-squared statistic is significant at the one per cent level of probability. The null hypothesis that the independent variables are not related to the dependent variable can therefore be rejected. R_L^2 , the proportional reduction in the absolute value of the log-likelihood, is at 56 per cent, which indicates a strong relationship between the dependent

variable and its predictors. Goodman and Kruskal's tau-p statistic (Menard, 1995:22-31), which indicates the reduction of classification error, is 0.71 and is significant at the one per cent level of probability. The model therefore reduces classification error by almost three-quarters.

The signs of the estimated coefficients are in agreement with *a priori* expectations and most of the estimated coefficients are significant at either the one or five per cent level of probability. The standardised coefficients rank the constraints in order of severity, although the loading estimated for Tcost may be understated as the transaction cost index is understandably positively correlated with liquidity. From a policy perspective, small farmers are constrained by low incomes and savings, inadequate information, small farm sizes - compounded by insecure land tenure and risks associated with rental transactions - and high transaction costs.

3.2 Discussion

The logit analysis supports the traditional belief that inadequate liquidity is the most important constraint inhibiting small-scale farmers in KwaZulu-Natal. Low income adversely affects their ability to invest in farm inputs. The appearance of family labour as another major constraint in the model substantiates this. Labour-poor households experience difficulties in hiring additional labour due to their poor cash flow. Although improved access to credit appears to offer a logical solution to the problem, it is unlikely that very small households with consistently low non-farm and off-farm incomes will be able to participate successfully in a competitive credit market. While it is important not to discount the potential benefits of improved financial

technologies, it seems that a more appropriate solution would be to improve potential earnings in non-farm and off-farm activities. This may involve investing in literacy and language skills, vocational training, and business and financial management skills.

Farm size is also identified as a significant constraint to investment in agriculture. Developing the land rental market could also increase the incomes of both farmers and non-farmers in the rural areas. With an efficient land rental market, land-poor farmers could increase the scale of their operations, while households not interested in farming could earn rental income from land that they currently leave idle. Alternatively, households endowed with land but little else could obtain capital, labour and even contractor services through inter-linked contracts. Previous studies have shown that the land rental market in tribal areas can be successfully stimulated by small incremental changes to customary institutions. These result in more exclusive and assured rights to arable land, and a judicial system capable of upholding commercial contracts.

The logit model likewise identifies poor information and high transaction costs as constraints to farming. Prudent investments by government can substantially alleviate both of these constraints. These include improving roads, telecommunications, and postal services in rural areas. The judicial system also impacts on transaction costs, as consistency between rulings in tribal and national courts is essential to lower the risks faced by rural entrepreneurs, especially woman married under customary law.

In summary, the results of the logit analysis do not dispute the importance of developing financial markets in developing regions. Rather, they suggest that a more

holistic attitude is essential when attempting to develop rural areas. Improved human skills, together with better physical and legal infrastructure, will raise households' incomes, improve the flow and productivity of information, and reduce transaction costs. Apart from alleviating constraints to farming, these investments will reduce both internal and external credit rationing, making private financial services more viable in rural areas.

CHAPTER FOUR:

FACTORS INFLUENCING INTERNAL AND EXTERNAL CREDIT RATIONING

Liquidity has been identified as a major constraint inhibiting small-scale farmer investment in agriculture. This is corroborated by the finding that more than one-half of the sample households who did not cultivate their land had no formal savings. In light of the recent focus on credit as a method of alleviating cash flow stress, this second component of the study therefore focuses on the credit market. More specifically, it seeks to identify and rank factors responsible for credit rationing in small-scale farm households - both internal (self-imposed) and external (lender-imposed) credit rationing. While both types of credit rationing may be influenced by factors such as inadequate collateral and debt-servicing capacity, participation in credit markets is also a function of the transaction costs faced by prospective borrowers and lenders.

In South Africa, the recent Strauss Commission of Inquiry has recommended that governmental agencies should play a direct role in extending financial services to rural households (Kraft, 1996). This study takes the view that financial services are already available in rural areas, but that access to these services is constrained by high transaction costs, inadequate collateral and poor debt-servicing capacity. Under these conditions, access to private credit is more likely to be improved by investment in physical and institutional infrastructure than by providing additional lenders.

Internal credit rationing is the borrower's self-rationing of loan levels requested. It is a function of the borrower's level of risk aversion, levels of business and financial risk,

and practices employed in risk management. Perceived levels of risk exposure may change over time with changes in wealth, experience and household characteristics. For example, as the wealth of the borrower decreases, a greater value is assigned to the untapped sources of credit (Barry *et al.*, 1995:192-195). External credit rationing occurs when lending institutions are not prepared to grant the amount of credit requested by the borrower. Credit-worthiness involves the lender's evaluation that the borrower will have sufficient debt servicing reserves to meet the terms of the loan contract, and that the borrower can furnish sufficient collateral to reduce lending risks to an acceptable level. Consequently, the legal structure and regulatory environment in which the lender operates also influences external credit rationing (Barry *et al.*, 1995:194-199).

4.1 Postulated model

The empirical model described in this section seeks to identify and rank factors responsible for both internal and external credit rationing. Due to the limited use of informal credit markets in the study areas, the analysis focuses on formal private credit transactions.

In the ideal situation where all households participate in the credit market, the model could be expressed as

$$C_i = a_n X_{ni} + u_i \quad (4.1)$$

Where C_i measures the level of current debt of the i th household, X_{ni} is a vector of n attributes for the i th household and u_i is a random variable, $N.D. \approx (0, \sigma^2)$. The attributes (X_{ni}) affecting the size of the loan include debt servicing capacity and collateral.

Transaction costs are excluded from this ‘ideal’ model because they are *ex-post* costs incurred when participants entered the market and are therefore not expected to influence the level of credit observed.

In reality not all households participate in the credit market. Some households are rationed out of the market by lenders (complete external rationing), while others prefer not to use credit (complete internal rationing). When non-participants are excluded from the analysis, sample selectivity bias is introduced into a model estimated using ordinary least squares (OLS) regression. To overcome this problem, Heckman (1979) suggests a two-stage procedure where a probit model, establishing the probability of participation, is employed at the first stage. It is assumed that households participate in credit markets when the net benefits of credit use exceed those of non-use. Risk aversion and transaction costs are expected to contribute to the benefits of not using credit:

$$NC_i = b_n Y_{ni} + v_i \quad (4.2)$$

Where NC_i is the net benefit for the i th household of not using borrowed capital, Y_{ni} is a vector of attributes measuring risk preferences and transaction costs of the i th household, and v_i is a random variable, $N.D. \approx (0, \sigma^2)$.

The probability of participating in the credit market is determined by the probability that $C_i > NC_i$ or

$$\Pr = \left\{ \frac{(a_n X_{ni} - b_n Y_{ni})}{\sigma} \right\} > z$$

Where σ is the standard deviation of $(u_i - v_i)$ and z is a standardised normal deviate. If u_i and v_i are jointly normal, participation in the credit markets may be analysed with a probit model where the dependent variable scores one for participation and zero

otherwise. Explanatory variables included in the probit model are drawn from both the X_i and Y_i vectors (Ryan and Wallace, 1985).

At the second stage of the analysis, the estimated probit model is used to calculate the inverse of Mill's ratio (λ_i). This ratio is calculated as:

$$\lambda_i = \frac{\phi(Z_i)}{\Phi(-Z_i)}$$

Where ϕ and Φ are the density and distribution functions respectively for a standard normal variable and Z_i is an index score for the i th household calculated from the estimated probit model. This ratio is a monotone decreasing function of the probability that a household is selected into the sample of credit users. The second step includes this ratio as a regressor in the ordinary least squares regression (equation 4.1). The OLS regression coefficient for λ_i will be statistically significant if sample selectivity bias occurs, while the remaining explanatory variables will be consistent (Heckman, 1979).

4.2 Stage one: The probit model

Sample households were classified as credit market participants only if they had borrowed during 1995. This ensured that the explanatory variables, also recorded in 1995, were relevant at the time of borrowing. The dummy dependent variable scored one for all participants ($n = 25$), and did not distinguish between credit used for durable and consumable goods. However, as illustrated in Chapter Two, the vast majority of credit transactions observed - and the largest amounts of credit - were used to finance durable goods. Households that had not utilised credit in 1995 scored a zero on the dependent variable ($n = 69$).

To explain the probit model, assume that the decision of the i th household to participate in the market or not depends on an unobserved utility index, I_i , determined by the explanatory variables, X_{ni} . The larger the value of I_i , the greater the probability of participation. Assume also that there is a (unobservable) critical level of the index, I_i^* , where all greater utility levels will result in a decision to participate. The probability that I_i^* is less than or equal to I_i can be computed from the standardised normal cumulative distribution function (CDF) as:

$$\begin{aligned} P_i = \Pr(Y = 1) &= \Pr(I_i^* \leq I_i) = F(I_i) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{I_i} e^{-t^2/2} dt \\ &= \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{\sum \beta_n X_{ni}} e^{-t^2/2} dt \end{aligned} \quad (4.3)$$

where t is a standardised normal variable (Gujarati, 1995:563-564). P_i , the probability that a household will participate, is measured by the area under the standard normal curve of I_i . Therefore to obtain information on the utility index, I_i , and the parameters, β_n , the inverse of equation (4.3) is taken. This results in the following equation:

$$I_i = F^{-1}(P_i) = \sum_{i=1}^k \beta_n X_{ni}$$

where F^{-1} is the inverse of the normal CDF (Gujarati, 1995:564). The independent variables (and their expected signs) included in the model are summarised in Table 4. 1.

Debt servicing capacity (Capacity) is proxied by off-farm income (including wage incomes, remittances and pensions) and the monetary values of livestock, which are often liquidated to smooth consumption. A positive relationship is expected between participation in the credit market and repayment capacity, even though higher levels of earnings imply greater capacity for own financing. The reason for this is that most of the

observed credit transactions were financing consumer durables which require large capital outlays. Formal savings (Fsavings) are expected to substitute for credit, as the observed loans were provided largely by suppliers and not by formal savings institutions. Consequently, savings accounts had little value to lenders as sources of information and collateral.

Table 4. 1: Independent variables included in the probit model

VARIABLE	EXPECTED SIGN	DESCRIPTION OF VARIABLE
Capacity	+	Indicator of debt serving capacity calculated as off-farm income ^a plus the monetary value of livestock owned (R/annum)
Fsavings	-	Formal savings level (R)
Trade	+	Dummy variable scoring one if household has a micro-enterprise, zero otherwise
Assets	+	Dummy variable scoring one if household owns a moveable asset, zero otherwise
Risk	-	Dummy variable scoring one if credit was not used because the household did not like incurring debt or felt that it could not be serviced, zero otherwise
Tcost	+	Transactions cost index calculated as the standardised values ^b of each variable in the index, namely $\{[(\text{gender}^c \text{ of } de\text{ facto head}) * (\text{education of } de\text{ facto head})] + (\text{length of residency in the area}) + (\log[1 + \text{number of migrant workers}])\} / \{(\text{district dummy}^d) * (\text{car ownership}^e)\}$
Dependency	-	Ratio of infants and school children to wage earners and pensioners

Notes: a. Off-farm income includes wage incomes, remittances and pensions.
b. A constant of 100 was added to each standardised value to eliminate negative values.
c. Gender is a dummy variable scoring one for males and zero for females.
d. A district dummy scoring one for Mpembeni ward and zero for Mkhwanazi ward.
e. Car ownership is a dummy variable scoring one for non-owners and zero for owners.

Farm income is not included as part of debt-servicing capacity due to its irregular nature and the unreliability of the reported cash flows. It is expected that a dummy indicating involvement in a non-farm micro-enterprise (Trade) will also have a positive impact on

the level of debt observed as this activity can supplement and smooth the irregular cash flows received from farming. Ownership of assets (Assets), including moveable assets such as refrigerators, motor cars and television sets, indicate wealth. This suggests less risk aversion and consequently lower levels of internal credit rationing. Asset ownership is therefore expected to impact positively on credit use.

The Risk dummy variable is a measure of the household's perceived exposure to risks associated with borrowing. Households that were averse to incurring debt or were uncertain as to whether they could service debt were expected to impose stricter internal credit rationing. A negative relationship was therefore anticipated between Risk and credit use. Tcost is the same index of transaction costs defined in section 3.1. Households with high index scores face low transaction costs.

Table 4. 2 presents the mean value of each independent variable computed for households that did not use credit (dependent variable = 0) and those that did (dependent variable = 1). The results of independent t-tests across the group means are also presented. All variables are retained in the model as the primary function of the probit model is to predict the inverse of the Mill's ratio (λ_i), and not to identify explanatory variables.

These univariate comparisons suggest that credit users may have less savings, but more capacity to service debt. The proportion of households owning moveable assets and engaging in a micro-enterprise is also higher amongst credit users. Conversely, non-users face significantly higher transaction costs and may include a larger proportion of respondents with high risk perceptions (despite a lower dependency rate).

Table 4. 2: Comparison of group means computed for credit users and non-users (Survey data, 1995/96)

VARIABLE	NO CREDIT USE = 0		CREDIT USE = 1		t	SIG. t
	Valid Observations	Mean	Valid Observations	Mean		
Capacity	69	19389	25	33613	2.34	0.021
Fsavings	69	1479	25	1099	0.41	0.682
Trade	69	0.12	25	0.40	2.14	0.033
Assets	69	0.39	25	0.92	5.08	0.000
Risk	60	0.48	21	0.38	0.80	0.424
Tcost	69	1.01	25	1.04	4.49	0.000
Dependency	69	1.78	25	2.05	0.94	0.351

Except for Risk and Dependency, collinearity diagnostics revealed high multicollinearity (condition index of 157) between the remaining explanatory variables. Remedial measures were taken because the probit model yields useful information about the factors affecting the decision to enter the credit market. A principal component analysis (PCA) was applied to the explanatory variables, excluding Risk and Dependency. The principal component technique is a method of economising on variables by creating uncorrelated (orthogonal) indexes. Four factors were extracted (Table 4. 3). The highest loadings in each factor have been highlighted in boldface.

Table 4. 3: Estimated principal component loadings (n=94)

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
Percentage contributions	46.50	19.00	16.20	10.50
Eigen values	2.33	0.95	0.81	0.52
ORIGINAL VARIABLE				
Capacity	0.74	0.22	0.29	-0.56
Fsavings	0.45	0.84	-0.11	0.27
Trade	0.66	-0.23	0.59	0.37
Asset	0.70	-0.19	-0.58	0.04
Tcost	0.80	-0.32	-0.18	0.01

All of the variables except Fsavings have high positive loadings in FACTOR 1, but the

highest loading is assigned to Tcost, which is an inverse measure of transaction costs. The implication is that debt servicing capacity and wealth are positively correlated with one another, and negatively correlated with transaction costs. Households with high scores on FACTOR 1 are therefore expected to participate in credit markets. Formal savings dominate FACTOR 2, and households with high scores on this factor are not expected to participate in credit markets. Households with high scores on FACTOR 3 are not expected to enter the credit market because the variable 'Capacity' carries a relatively low weight and few of the sample households engaged in micro-enterprises. High scores on FACTOR 3 therefore indicate low levels of wealth (assets). The fourth factor assigns a high negative score to debt-servicing capacity. A household with a high score on this factor would not be expected to enter the credit market.

All of the factors were included as regressors in the probit model, along with the Risk and Dependency variables. These latter two variables were standardised to make them consistent with the principal component factors. The probit model was estimated using GENSTAT software (GENSTAT, 1996).

The results of the probit model (Table 4. 4) highlight important differences between households that participate in credit markets and those that do not. The estimated model predicts 60 per cent of the sample cases correctly, with Factors 1 and 2 significant at the one per cent level of probability, and FACTOR 3 significant at the five per cent level of probability. Since the factors are standardised, the sizes of their estimated coefficients indicate their relative importance in the model.

The signs of the estimated coefficients comply with *a priori* expectations. FACTOR 1,

the most important explanatory variable, indicates that households facing high transaction costs and who perceive borrowing to be risky (as they have little wealth and poor debt-servicing capacity) are unlikely to borrow.

Table 4. 4: Results of the probit model identifying credit-use characteristics (n=94)

	SIGNIFICANT EXPLANATORY VARIABLES		
	FACTOR 1	FACTOR 2	FACTOR 3
Estimated coefficient	0.72	-0.44	-0.34
t-value	3.43	-2.64	-1.96
Significance of t-value	0.00	0.01	0.05
Classification rates ^a :	No credit use (n=69)		Credit use (n=25)
% correctly classified	88		52

Note: a. The same sample was used in the classification.

FACTOR 2 suggests that formal savings are more of a substitute for credit than a source of information and collateral to lenders. FACTOR 3 suggests that, for households with similar cash incomes, those that had accumulated assets (wealth) are more likely to participate in credit markets.

4.3 Stage two: The regression model

The second stage of the analysis seeks to estimate equation (4.1), where the dependent variable measures the **level** of credit observed in the subset of borrower-households (n=25) during 1995. The regression model includes as regressors all variables used in the probit model except for the *ex post* transaction cost index and the risk perception variable. In this study, these latter variables influence household decisions to enter the credit market rather than levels of credit observed. In addition, λ_i , computed from the estimated probit model, is included as a regressor to absorb any sample selectivity

bias. The independent variables, and their expected signs, are presented in Table 4. 5.

Table 4. 5: Independent variables included in the regression model

VARIABLE	EXPECTED SIGN	DESCRIPTION OF VARIABLE
Income	+/-	Liquidity indicator calculated as the sum of off-farm income: wage earnings, remittances, and pensions (R/annum)
Fsavings	-	Formal savings level (R)
Trade	+	Dummy variable scoring one if household has a micro-enterprise, zero otherwise
Livestock	+/-	The monetary value of livestock owned (R)
Assets	+	Dummy variable scoring one if household owns a moveable asset, zero otherwise
Dependency	-	Ratio of infants and school children to wage earners and pensioners
λ_i	-	Monotone decreasing function of the probability that a household will be selected into the sample of credit users ^a

Note: a. Calculated from the probit model to account for sample selectivity bias.

The monetary value of livestock (Livestock) was separated from the income variable (Income) as the latter is a flow variable and is expected to be a less ambiguous determinant of the level of credit obtained from lenders. Livestock may serve as collateral or as savings. Whereas collateral may bear positively on observed debt levels, savings tend to substitute for credit use. Assets would ordinarily serve as a measure of collateral, but, in this case, may only indicate relative wealth, as the variable is dichotomous. Since greater wealth decreases risk perceptions, this variable may be viewed as an inverse measure of internal credit rationing. Households that own depreciable assets, such as refrigerators and television sets, are therefore expected to use more credit than non-owners.

Collinearity diagnostics revealed little correlation between variables. The regression

model was estimated using SPSS software (SPSS, 1995) and the results are presented in Table 4. 6.

Table 4. 6: Results of the regression model describing level of credit use (n=25)

	SIGNIFICANT EXPLANATORY VARIABLES	
	Income	Fsavings
Standardised coefficient	0.91	-0.42
t-value	6.35	-2.95
Significance t-value	0.00	0.01
R ²	0.65	
F-value	20.13	
Significance F-value	0.00	

The estimated model has an R² value of 65 per cent, with a highly significant overall fit (F-value significant at the one per cent level of probability). The only two variables contributing significantly to the model are income and formal savings, with income being the more important determinant of the observed level of credit. Both carry signs consistent with *a priori* expectations. The non-significance of λ_i suggests that little or no sample selectivity bias was present in the model.

Levels of credit use rise with increases in off-farm income and decline with the level of formal savings. Again, the results suggest that savings are a substitute for credit rather than a source of collateral or information to lenders. It is interesting that the livestock variable is not statistically significant. This seems to confirm the limited availability of good collateral sources for lenders, therefore increasing the importance attached to borrowers' cash flows. In addition, the non-significance of the asset variable (an inverse proxy of internal rationing) in the regression model, contrasting with its significance in the decision to enter the credit market, may indicate that

observed levels of debt are subject to external rather than internal credit rationing.

4.4 Discussion

The first stage of this analysis – the probit model – illustrates the importance of transaction costs in credit rationing. The primary determinant of credit market participation is the level of transaction costs and risk perceptions about borrowing. Those households facing high transaction costs and who perceive borrowing to be risky as a result of their poor debt-servicing capacity and lack of wealth are unlikely to enter the credit market. Although this may seem to be an obvious result, it does support the earlier finding (Chapter Three) that government should focus its resources on the provision of real public goods. Considering the variables making up the transaction cost index, these public goods include education, physical infrastructure (such as roads, telecommunications and postal services) and a legal-regulatory environment that gives transacting parties, especially women, confidence that their contracts (including land rental arrangements) will be upheld.

The descriptive statistics in Chapter Two illustrated that almost all of the respondents held formal and/or informal savings. The probit model has reinforced the view that savings are used as substitutes to credit. This is not surprising, as the credit was provided by suppliers and not by the financial institutions where households saved. However, in light of the large proportion of households holding formal savings accounts, it does seem unfortunate that the Strauss Commission implicitly recommends separation of institutional savings and credit facilities (Strauss Commission Report, 1996:14-17). This reduces the lender's potential for using

savings as a form of collateral and as a source of information.

The probit model also shows that wealthier households are more likely to enter the credit market. Wealth reduces risk aversion, and households may perceive that their loan applications are more likely to be accepted if they own assets. In addition, ownership of assets suggests favourable expectations about future income streams and hence the ability to repay debt.

The regression model estimated in the second stage of the analysis isolates only two significant variables affecting the level of credit obtained: Most importantly the level of off-farm income and, secondly, savings as a substitute for credit. The implications are clear if the government's goal is to facilitate investment in agriculture by improving small-scale farmer access to credit. As highlighted by the probit model, the potential incomes of rural households - being largely dependent on off-farm and non-farm income – need to be improved, for example by investing in literacy, vocational and business skills training.

Noticeable exclusions from the estimated regression model are the Livestock (collateral) and Asset (wealth) variables. The wealth of the borrower has been shown to be a significant determinant of entry into the credit market as it lowers risk perceptions and hence reduces internal credit rationing. Its statistical exclusion from the OLS regression model therefore suggests that once entry into the market has been achieved, internal rationing is not an important determinant of the level of credit obtained. The amount of credit granted appears to be determined primarily by lenders. In general, lenders assess credit-worthiness in terms of debt servicing capacity and

collateral holdings (Barry *et al.*, 1995:203). Local lenders, it seems, place greatest emphasis on debt-servicing capacity when assessing rural clients. Livestock are not considered to be a reliable form of collateral, as indicated by the statistical exclusion of the livestock variable. Adaptive changes to the institutional framework, especially those which promote efficient asset markets, and better policing to promote contract enforcement would help to make alternative forms of collateral (e.g. land and moveable assets) acceptable to lenders.

CHAPTER FIVE:

CONCLUSIONS AND POLICY IMPLICATIONS

It was illustrated in the descriptive statistics that forty-five per cent of the sample households did not utilise all of their land. At the same time, more than two thirds of the respondents held savings in formal institutions - suggesting that liquidity may not be a binding factor for almost half of the sample households. For this group, factors other than access to financial services appear to be responsible for low levels of investment in agriculture.

Nevertheless, the results of the logit analysis (section 3.1) confirm earlier findings that small-scale farmers in KwaZulu-Natal are severely constrained by low levels of liquidity, restricting investment in farm inputs, including hired labour. It is plausible that institutional credit might help to alleviate liquidity problems, but successful participation in financial markets is unlikely while rural incomes are low. Since rural households earn most of their income from off-farm sources, investment in literacy and language proficiency, vocational training, and business and financial management skills is expected to improve their income opportunities and hence their ability to save, borrow and invest in agriculture.

The logit results also identified farm size as a constraint to farming. Households with larger arable land allotments are more likely to farm intensively. Promoting an efficient rental market for land would allow land-poor farmers to increase the scale of their operations, raising the incomes of both farmers and potential lessors. In addition, households endowed with land but little else could secure capital, labour and

contractor services through inter-linked contracts. Other studies in KwaZulu have shown that an efficient rental market will require more exclusive and assured rights to arable land, and a judicial system that can be relied upon to uphold contracts. Adaptive strategies, involving small incremental changes to customary institutions, appear to be an appropriate way of achieving this goal.

Lastly, the logit analysis identified poor access to information and high transaction costs as significant constraints inhibiting small-scale farmers. Considering the way in which transaction costs were measured in this study, the implication is that government could alleviate binding constraints by investing in real public goods such as physical and institutional infrastructure. This includes the development of roads, telecommunications, electricity, and postal services in rural areas. In addition, steps to ensure consistency between rulings in tribal and national courts need to be taken - particularly those relating to commercial contracts involving women married under customary law.

In short, the logit analysis suggests that improved access to financial services in rural areas is unlikely to promote small-scale agriculture in KwaZulu-Natal without complementary improvements in human skills, physical infrastructure and legal institutions governing land rights and commercial contracts.

In view of the policy focus on credit as a method of alleviating liquidity problems - identified as a major constraint to small-scale farming - the second analysis focused on the credit market. Three-quarters of the consumer durables owned by sample households were financed with credit, virtually all of which was sourced in the formal

private sector. Internal and external credit rationing was examined using the two-stage Heckman procedure. The results of the probit model (section 4.2) estimated in the first stage show that high transaction costs are a primary constraint limiting entry to the existing credit market. The implication is that government could improve access to credit in rural KwaZulu-Natal by reducing borrowers' transaction costs and risk perceptions. Again, the analysis suggests that this would best be achieved by improving education, developing physical infrastructure, and providing a judicial system that can be relied upon to enforce commercial contracts.

The level of household savings affects both participation in the credit market and the extent to which credit is required. The propensity to save in the study areas is high, with most households in the sample holding formal savings accounts. Although records of savings history generally serve to decrease information asymmetries faced by lenders, the probit analysis shows that savings are used as a substitute for credit rather than as a source of information or collateral to lenders. This is not surprising since the savings institutions used by sample households (commercial Banks) were distinct from the observed sources of credit (predominantly retail suppliers). One implication is that government should facilitate access to financial institutions offering both savings and lending services by, for example, improving physical and institutional infrastructure in rural areas. Another implication is that public agencies such as the Land Bank and the Post Office should not specialise in either lending (Land Bank) or saving (Post Office) services. Indeed the Land Bank's role as a retailer rather than a wholesaler of credit is questionable, as it has very few rural branches (23 rural branches) relative to commercial Banks, which have 1338 rural branches (Coetzee, 1998).

The second stage of the Heckman procedure (section 4.3) indicated that, for households participating in the credit market, income level is the primary determinant of the level of credit awarded. Borrowers' wealth - an inverse measure of their risk perceptions - was not a significant determinant of the level of credit obtained. This suggests that once access to the credit market has been gained, levels of credit use are determined largely by lenders. Again, the policy implication is to improve income opportunities in rural areas by developing vocational and managerial skills. In addition, the fact that wealth (measured in terms of moveable assets and livestock owned by borrowers) was not regarded as a reliable source of collateral by lenders emphasises the need for better legal and regulatory institutions - including well defined property rights - to facilitate the efficient use of collateral.

Other techniques may provide a clearer picture of the factors affecting entry into the credit market. For example, application of ridge regression would permit more explicit ranking of the original explanatory variables defining the principal components used in the probit analysis. Likewise, a switching regression that extends the analysis to include households that did not participate in the credit market would allow for comparisons between credit constrained and non-constrained households.

To conclude, the results of this empirical study suggest that while many rural households in KwaZulu-Natal use formal institutions to save and to borrow, credit is used primarily to finance durable consumer goods and not agricultural input or services. This implies that access to credit is less binding on agricultural production than are other constraints. In particular, the results emphasise the importance of government's role in reducing transaction costs in all markets by investing in real

public goods rather than its own financial institutions. These results are consistent with New Growth Theory. As more farmers emerge, specific investigations into the credit market are expected to become even more relevant as the demand for credit is likely to increase, increasing the value of information about successful borrowers, lenders and financial technologies.

SUMMARY

Empirical studies in South Africa suggest that small-scale farmers in rural areas are constrained by low and irregular incomes, which reduce their ability to save, borrow and invest in agriculture (Lyne and Ortmann, 1992:20-22). International authors, such as Adams (1971), Bottral (1976) and Von Pischke and Adams (1980) highlighted improved access to credit as an important tool for overcoming liquidity constraints. This view progressed from advocating the provision of state-subsidised credit, to recognising the importance of savings mobilisation (Adams, 1992).

Locally, a Commission of Inquiry into the Provision of Rural Financial Services - the Strauss Commission - was appointed on 19 January 1995 to make recommendations on improving the financial services for rural households (Strauss Commission Report, 1996:iv). It followed the belief that the provision of appropriate financial services in rural areas is one of the most important mechanisms in a rural development strategy (Strauss Commission Report, 1996:1).

Alternative views, such as those carried by proponents of New Growth Theory, argue that other constraints may be more binding than liquidity. These constraints include tenure security, labour, and transaction and information costs. Quantifying the relative importance of constraints faced by farmers could aid in the planning and prioritising of investments (Alwang *et al.*, 1996). This study therefore firstly attempts to identify and prioritise liquidity and other constraints facing small-scale farmers by means of a logit model. If low levels of liquidity are identified as an important factor constraining small-scale farmers in rural areas, the use of credit is one method of augmenting irregular

income streams. In light of the Strauss Commission interest in financial services in South Africa, the second study investigates the factors responsible for both internal and external credit rationing, using the Heckman two-stage procedure. Data for the two studies were sourced from two areas in KwaZulu-Natal in 1995/96.

The use of either savings or credit can smooth cash flow problems. The propensity to save is high as savings allow rural households to manage their risks (Gonzalez-Vega, 1994). From the institutional side, regular deposits provide information about the depositor (Graham, 1995), and may be used as a collateral source (Yaron *et al.*, 1997). However, recommendations by the Strauss Commission (Strauss Commission Report, 1996:14-17) imply separate savings and credit facilities, which negates the use of savings as collateral.

The use of credit demands the ability to service debt and offer collateral. For small farm households, the level of off-farm income is more important than farm income, even when applying for agricultural credit (Coetzee, 1995). Consequently, small-scale farmers without off-farm income may find it difficult to borrow in the formal sector.

Formal lending institutions need an environment where claims against property can be created, publicly established and enforced. The greater the uncertainty and expense associated with this process, the lower is the collateral value of any asset. The homelands of South Africa are characterised by a dual legal system, with rulings in tribal courts not following firm legal precedents. Rather, the outcomes are often determined primarily on social status and gender – with woman particularly vulnerable.

Given an established land market, titled land is considered by lenders to be an ideal form of collateral as its value is unlikely to decrease below the outstanding loan balance (Barry *et al.*, 1995:150). Unfortunately, agricultural land presently has no value as collateral in KwaZulu. Legal developments such as private land rights create a foundation to use land as collateral. These rights must be secure to minimise transaction costs and facilitate market transfers (Thomson and Lyne, 1993).

Collateral substitutes have enabled borrowers without marketable assets to obtain loans. Nevertheless, it was found in a recent local study (Kuhn *et al.*, 1997) that high collateral-specific risk, high liquidation costs and poor asset appropriability reduced the effectiveness of crop cessions, machinery and equipment in homeland areas.

Arable land lies idle over large parts of KwaZulu, while some households are recorded as farming intensively. Thomson (1996:23) attributes the under-utilisation of arable land to an imperfect land market. Imperfections may also occur in markets for contractors, credit, inputs and products. Nonetheless, these market failures may not be responsible for the under-utilisation of land. If the rental market for land was active, land controlled by households without access to funds, labour or contractors would transfer to those households not constrained. Alternatively, in the presence of a land rental market, the household could use inter-linked contracts to overcome imperfections in other markets. Renting would allow farm consolidation and increase potential earnings from farming for the lessee, while simultaneously creating a higher income stream for the lessor. With the increase in potential profits on the farm, labour migration may also be decreased (Low, 1986:52).

Prerequisites for a rental market in land are (a) tenure security and (b) low transaction costs relative to rental income. Tenure security requires exclusive and assured rights. These rights can be enforced and transaction costs decreased by adaptive strategies involving incremental changes to customary institutions (Thomson, 1996:83-86).

Transaction and information costs can affect both the supply of and the demand for credit. Lenders face the risk of default on the contract, and this risk is increased when property rights are not secure and when there is uncertainty about legal enforcement of contracts (Lyne and Thomson, 1997). Lenders incur additional transaction costs while gathering information, administering, enforcing, etc. These costs are larger in the case of small borrowers, usually the rural poor, which discourages formal institutions to lend to them (Herath, 1994). Investment in infrastructure would lower transaction costs and result in a fall in information costs.

Costs to borrowers include explicit costs, such as fees; implicit costs, such as waiting time; and risk, such as the risk of default and the loss of assets pledged as collateral. Infrastructure (Fitschen and Klitgaard, 1996) and personal characteristics influence these risk perceptions. These characteristics include age, gender and education level (Stanton, 1997; Alwang *et al.*, 1996). In particular women married under customary law face high transaction costs.

Extension services provide information about improved agricultural technology to farmers, with an aim to increase their productivity. These services will not, however, produce a significant response without the correct institutional setting. Markets with imperfect information, such as the financial market, give rise to certain externalities. It

is in these areas where government intervention could be most successful. Government expenditure on true public goods (such as roads, irrigation, telecommunications, electricity and postal services), together with the establishment of a dependable judicial system that supports security of property rights and upholds commercial contracts, decreases distortions in rural credit markets and lowers information costs (Hoff and Stiglitz, 1990).

Data for the study were gathered from 152 small farm households in two communal areas of KwaZulu-Natal. The first study area - Mpembeni ward - is a remote settlement located in the Hlabisa magisterial district, west of Hluhluwe game reserve. The second area - Mkhwanazi ward - is situated in the Ongoye II magisterial district near Port Durnford, just fifteen kilometres from the Empangeni-Richards Bay industrial complex.

Descriptives of the households in the study areas showed, on average, large families, great distances from formal markets, with mostly female household heads recording low education. Farms are approximately two hectares in size and only half the respondents reported total cultivation of their land. However, only just over ten per cent admitted to being involved in rental transactions. These observations lend support to Thomsons' (1996:83-86) argument that households may be reluctant to lease land out for fear of losing it permanently or unwilling to hire additional land that they are unable to police. More than one-third of respondents suffered crop damage.

A large proportion of the sample households that do not cultivate all of their arable land hold formal savings accounts. This suggests that factors other than liquidity are constraints to farming for at least 45 per cent of the respondents. This is supported by the

finding that there is a weak demand for both inputs and credit to finance the inputs.

Over half of the respondents, however, indicate that cash flow is their primary constraint. For these households, improved access to credit could be important. Low information levels, high risk perceptions and high transaction costs facing potential borrowers were all reasons given by over 40 per cent of respondents who did not participate in the credit market. The descriptive statistics also illustrate that collateral may be an important determinant of external credit rationing, as suggested by the higher incidence of credit use in the purchase of consumer durables. Multivariate techniques are required for a more comprehensive analysis, both on the constraints facing small-scale farmers and of access to and use of the credit market.

The first empirical model aims to identify and rank the constraints to small-scale farming. Households were classified as 'farmers' or 'non-farmers' and analysed using a logit model. The standardised coefficients rank the constraints in order of severity. The estimated model predicts 85 per cent of the sample cases correctly and its chi-squared statistic is significant at the one per cent level of probability.

The logit analysis confirms the belief that low levels of liquidity are a major constraint to small-scale farmers in KwaZulu-Natal. This adversely affects their ability to invest in farm inputs. The identification of family labour as another major constraint in the model substantiates this. Credit may be one alternative to augmenting liquidity flows in the short run. However, it would appear unlikely that these households with consistently low cash flows could successfully participate in a viable financial market, unless their potential earnings in off-farm activities can be improved.

The model also identified farm size as another important constraint to farming. If an efficient land rental market were promoted, land-poor farmers could increase the scale of their operations, while households not interested in farming their allotted arable land could increase their incomes by renting out land. Alternatively, households endowed with land but little else could obtain capital, labour and even contractor services through inter-linked contracts. Previous studies have shown that the land rental market in tribal areas can be successfully enhanced by incremental changes to customary institutions. However, these changes need to be backed up by more exclusive and assured rights to arable land, and require a judicial system that will uphold contracts.

Poor information and high transaction costs are also identified as constraints to farming in the logit model. Investments by the government in physical and institutional infrastructure can substantially alleviate both these constraints.

In light of the finding that liquidity is an important constraint to small-scale farming and the recent focus on credit as a method of alleviating cash flow stress, the second study focuses on the credit market. It seeks to identify and rank factors responsible for credit rationing in small-scale farmer households - both internal (self-rationed) and external (lender-rationed) credit rationing. A Heckman two-stage procedure is employed.

The probit model of the first stage indicates that the probability of households entering the market is explained by three factors. Most importantly, it shows that households facing high transaction costs and who perceive borrowing to be risky (as they have little wealth and poor debt-servicing capacity) are unlikely to borrow. Given the manner in

which the transaction cost index was constructed, this suggests that government can decrease borrowers' transaction costs and risk perceptions by focusing on physical and institutional infrastructure.

Secondly, formal savings are shown to be a substitute for credit rather than a source of information and collateral to lenders. This is not surprising since savings institutions (Banks) are separate to the lender source (Retail suppliers) and therefore savings cannot be used as information or collateral sources. One implication is that government should facilitate access to financial institutions offering both savings and lending services by, for example, improving physical and institutional infrastructure in rural areas. Another implication is that public agencies such as the Land Bank and the Post office should not specialise in either lending or saving services. Finally, for households with similar cash incomes, those that had accumulated assets – an indication of wealth and therefore an inverse measure of internal credit rationing - are more likely to participate in credit markets.

The regression model of the second stage, measuring the effects on the level of credit use, elicited only two significant factors: Income and savings, with savings once again found to be a substitute to credit. The non-significance of the asset variable (an inverse measure of borrowers' risk perceptions) may indicate that observed levels of debt are subject to external rather than internal credit rationing. In addition, the livestock variable (a collateral indicator) is not statistically significant. This seems to confirm the limited availability of good collateral sources for lenders, therefore increasing the importance attached to borrowers' cash flows.

Since debt-servicing and collateral requirements, as well as the legal and regulatory structure, are primary factors affecting the lenders' evaluations of creditworthiness, the implications are clear. Capacity building, in the form of literacy and language skills, vocational training, and business and financial management skills, is required to improve the income opportunities of rural people. In addition, reform of the legal, regulatory and institutional frameworks, of which property rights are a fundamental element, is crucial to facilitating the efficient use of collateral.

In conclusion, the results of this empirical study suggest that while many rural households in KwaZulu-Natal use formal institutions to save and to borrow, credit is used primarily to finance durable consumer goods and not agricultural input or services. This implies that access to credit is less binding on agricultural production than are other constraints. The importance of government's role in reducing transaction costs is particularly highlighted, and can be brought about by investments in real public goods. As more farmers emerge, specific investigations into the credit market are expected to become even more relevant as the demand for credit is likely to increase, increasing the value of information about successful borrowers, lenders and financial technologies.

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APPENDICES

Appendix A: Homeland Farmer Questionnaire.....85

Appendix B: Variable List and definitions for the homeland farmer survey.....99

Appendix C: Data List.....106

Appendix A: Homeland Farmer Questionnaire

DATE: _____ INTERVIEWER'S NAME: _____

These questions relate to all household members including members not present at the time of interview (e.g. migrant workers who contribute to household income). A household refers to a family that has its own crop land, or a group of families that have rights to the same crop land. The information is confidential and will be used by researchers to assist the government in designing programmes aimed at improving household welfare. The respondent should be a male or female household head, or an adult familiar with the household's farming activities. If the respondent cannot, or prefers not to answer a question, code the reply as DK (don't know).

Geographic position and Region _____ KwaZulu

District (**Hlabisa** or Port **Durnford**) _____

Random No. _____

Head of household (name and surname) _____

De facto head of household _____

De facto head of closest neighbouring household _____

Respondent's name _____

Respondent's sex _____ Male or Female _____

Is the respondent **single**, **married** or **widowed**? _____

How long has the household lived here? _____ Years _____

How much own land does the household have for cropping? (specify units) _____

Will the household plant all of its own arable land this season? Yes or No _____

If no, what portion of its arable land will it plant? _____ % _____

List (in the order that the respondent mentions them) the main reasons for not cultivating all of the arable land e.g. **risk of drought**, **lack of cash to buy inputs**, **no ploughing service in the area**, **cattle damage the crops**, etc.

1

2

3

4

Did the household lease or lend any of its unused land to another household (*i.e.* a tenant) to grow crops last season?

Yes or No _____

If the household leased land out, did the tenant pay **cash** or give the household a part of his or her **crop** to use the land? _____

If the tenant gave part of his or her crop, how much land did the tenant lease (specify units)?

Area _____

If the tenant paid cash, how much did the tenant pay and how much land did the tenant lease (specify units)? R _____

Area _____

Did the tenant pay all of the cash before planting started? Yes or No _____

If the household lent land out, did the tenant provide **labour** or any other service (please specify) for using the land? _____

Did the household hire or borrow extra land to grow crops last season? Yes or No _____

If the household hired extra land, did it give the landowner **cash** or a part of the **crop** as payment for using his or her land? _____

If the household gave part of its crop, how much extra land did it hire (specify units)?

Area _____

If the household paid cash, how much did it pay and how much extra land did it hire (specify units)? R _____

Area _____

Did the household pay all of the cash before planting started? Yes or No _____

If the household borrowed extra land, did it provide **labour** or any other service (please specify) to use the land? _____

Does your house have **electricity**, a **generator** or **no** electrical power? _____

Does your family own this house? Yes or No _____

How many rooms do the household members use to sleep in? _____

Does the family have a **flush**, **chemical**, **pit**, or **no** toilet of its own? _____

What is your main source of drinking water, an **unprotected** source (*e.g.* an open spring), a **protected** source, a public **standpipe** or water **pipd** to your house? _____

What fuel do you use most often for cooking; **wood**, **paraffin**, **coal**, **gas** or **electricity**? _____

Household Composition

Household member (note respondent)	Sex	Age in years	Occupation°	Cash income per month (Rand)	Cash remitted per month (Rand)	Disability and pension payments (R/month)	School standard passed
1 Male head	M						
2 Female head	F						
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

° Occupation should be categorised as Wage Employed (WE), Farmer (F), Self-employed (SE - e.g. contractor, taxi owner, etc.), Housekeeper (H), Senior School Scholar or Student (SS), Junior School Scholar (JS), Disabled (D) if paid a disability grant, Pensioner (P) if paid a pension, Unemployed (U) if seeking work, Infant if too young to attend school, or vagrant (V).

Crops grown during the past year

Crop type	Grown during past year (Yes or No)	Sold during past year (Yes or No)	Gross income from sales (If Rand > 50)	Place or person to whom sold ^o (If Rand > 50)	Mode of transporting produce ²	Distance to point of sale (km)
Maize: grain						
Maize: green						
Sugar						
Cotton						
Dry beans						
Potatoes						
Sweet potato						
Madumbis						
Sorghum						
Groundnuts						
'Green' Veg						
Bananas						
Other						
Timber						
For office use only Cropinc						

^o Local market, shopkeeper, hawker, neighbour, contractor, lessor *etc.*
² Carried by household members (carry), Own vehicle (own), or service *e.g.* bus, taxi or contractor.

Did the household produce dairy products over the past year? Yes or No _____
If yes, were any sold? Yes or No _____
If yes, what was the gross income from dairy sales over the past year? R _____

Livestock

Livestock type	Current herd size	Slaughtered for household during past year	Losses during past year	Births during past year	Bought during past year	Sold during past year	Gross income from sales (Rand)	Distance to place of sale (km)
Cattle								
Goats								
Sheep								
Donkeys								
Pigs								
Chickens				Omit				
For office use only Livinc =								

Farming expenses during past season

Purchased input	Used last season (Y or N)	Total cost (If Rand > 10)	Main Supplier ^o (If Rand > 10)	Distance (km) to main Supplier	Borrowed cash to pay, or paid over time (Y/N)	If yes, size of cash downpayment (Rands)	Source of credit used ²
Fertiliser							
Seed: Maize							
Beans							
Potatoes							
Green Veg							
Other _____							

Hired: Plough service			Pvt or Gvt				
Transport service			Pvt or Gvt				
Farm equipment							
Farm labour				Nil	Nil		
Chemicals							
Vet. medicines							
Livestock feed							

^o Shop or depot, savings club, farmers association/co-operative (co-op), neighbour (local).

² Local money lender, friend or relative, KFC, milling company, stokvel or savings club, the supplier, a bank or another source (specify).

How many of the following assets does the household own and how did it finance them?

Asset	Year of purchase	Purchase price (Rands)	Borrowed cash to pay for asset or paid over time (Y or N)	If yes, size of own downpayment (Rands)	Requested credit for asset but was refused (Y or N)	Source of credit used ^o
Motor Cars 1 and Bakkies						
2						
3						
Motorbike 1						
2						
Tractor 1						
2						
3						
Trailer/Cart 1						
2						
Plough 1						
2						
Planter 1						
2						
Hammer mill 1						
2						
Irrigation 1 pumps						
2						
Fencing	Past year					
Large livestock ²	Past year					
Generator						
Refrigerator or freezer						
Television						
Shops or workshops	No.	For office use only Trader (Yes or No)				

^o Local money lender, friend or relative, KFC, milling company, stokvel or savings club, the supplier, a bank, or another source (specify).² Large livestock = cattle, goats, sheep, donkeys and pigs.

If any of the farm inputs listed on page 5 or assets listed on page 6 were financed with cash loans or credit, please provide the following information about the most recent transactions:

Asset or seasonal farm input purchased & source of credit (as defined previously)				
Date of loan (year and month)				
Amount requested (R)				
Amount received (R)				
Distance to lender/supplier (km)				
Number of contacts to arrange transaction				
Was the application signed (Y or N)				
In what language was the application made				
Days between application and disbursement				
Was a guarantee required (e.g. none, asset purchased, livestock, a guarantor <i>etc.</i>)				
What is the interest rate (% per annum)				
Length of the repayment period (months)				
How often must repayments be made and how much is each repayment (e.g. R/mth)				
Are the payments made at home (Y or N)				
Does the lender send statements regularly and on time (Y or N)				
How much is still owed (Rands)				
Has the family borrowed from this lender before (Y or N)				
Is it possible to delay payments if there is shortage of cash (Y or N)				
Has the borrower ever reduced or stopped the loan repayments (Y or N)				
Will the guarantee be enforced if the borrower cannot repay the loan (Y or N)				
Does any member of the household work for the lender (Y or N)				
Does the lender buy any of your crops or livestock (Y or N)				
Does the household usually buy inputs from the lender or use his land (Y or N)				

Did the household ask any lenders for loans, or suppliers for credit, to finance farm assets or inputs during the past year? Yes or No _____

If yes, did any refuse the request? (list the lenders and suppliers that refused.) _____

If the household does not have enough cash to finance farm expenses, do you think that it could get credit from any of the following sources:

Source	Yes	No	Not sure
Bank			
KFC			
Local money lender			
Suppliers			
Friends or relatives			
Stokvel			
Savings club (specify)			
Other (specify)			

If the household has not used credit to finance farm expenses, why not? If the respondent gives more than one reason, please rank them in the order mentioned:

Reason	Yes or No	Order mentioned
Household has sufficient savings		
Do not like incurring debt		
Do not know how or where to apply for credit		
Do not apply because the request would be rejected		
Interest charges are too high		
Other (specify)		

Did the household earn income from any of the following sources during the past year?

Activity	Yes or No	Years engaged in activity	Gross income if > R50 per month
Hiring out accommodation			
Hiring out contractor services or equipment			
Milling grain			
Baking, brewing or selling meals			
Building or repairing houses			
Block making, stone- or metalwork			
Making or repairing furniture			
Repairing vehicles or machinery			
Sewing or cobbling			
Shopkeeping			
Hawking			
Handicrafts ^o			
For office use only			Trader Yes or No

^o Making and selling mats, baskets, pottery or curios, tanning and dyeing.

If the household suffered a misfortune that reduced its income or harvest last year, (*e.g.* the drought, loss of jobs or pensions, *etc.*) how did it cope with the financial losses:

Adverse Event	Yes or No	Actions ^o	Approximate value of loss or actions
Crop losses			(Rand)
Livestock losses			(Rand)
Loss of wages or remittances			(R/month)
Loss of pension earnings			(R/month)
Loss of household assets			(Rand)
Loss of business assets			(Rand)
Other			

^o Possible actions 1=Took a loan, 2=Withdrew savings, 3=Sold assets, 4=Received money or gifts from friends or relatives, 5=Received a grant from the government or an NGO, 6=Took on extra work, 7=Reduced food consumption, 8=Reduced spending, 9=Reduced or stopped repaying debts, other (please specify).

Which of these actions helped most?

No. _____

Lending activity

Does anyone in your household make loans to other households? Yes or No _____

Does the household sell any products or services on credit (for example, does the household sell products (e.g. livestock) or provide services (e.g. a contractor service) to people who pay over time)? Yes or No _____

If yes, to whom were the largest loans and credit sales made last year?
Please indicate the main loans and borrowers in the following Table:

Borrower/Buyer	Amount lent (R)		Length of loan period (months)	Interest rate % (per annum)	Number of repayments
	Cash loan	Credit sale			
Other household members					
Close friends and relatives					
Farmers					
People with non-farm businesses					
Other (specify)					
For office use Informal lender					

Does the household ever pay in advance for goods and services (for example, does the household pay a contractor before the planting season to secure his service)? Yes or No _____

If yes, please specify the goods and services for which the household pays in advance.

Saving activity

If the *de facto* household head has money to save, how or where is this money saved? (If the respondent gives more than one answer please rank them in the order mentioned.

Action	Yes or No	Order mentioned
Deposit the money in a bank		
Deposit money in a stokvel		
Deposit money in a savings club (e.g. ACAT)		
Deposit money in a burial society		
Buy livestock		
Buy other assets that are expected to increase in value		
Lend it to others		
Entrust the money to someone else for safe-keeping		
Keep the cash at home		
Other (please specify)		

If the household does have money in a bank account please provide the following information:

	Household member	Name of Bank	Current level of savings (R) ^o	Fixed deposit or savings account	Interest rate (% per annum)	Distance to Bank (km)
1						
2						
3						
4						
5						

^o Score as: <R100, R100-R500, R500-R1000, >R1000.

If the household has contributed to a stokvel, savings club, burial or other savings society during the past year please provide the following information:

Type of institution (stokvel, savings club, etc.)				
Household member (Male or Female)				
Age of institution (estimate total period of its existence in years or months)				
How many people belong to to the institution				
How many of the members are women				
How big was the household's last contribution (R)				
Are contributions made on a continuous basis or for one season				
How often are the contributions made (daily, weekly, monthly, etc.)				
If contributions are made for one season what is the total number of contributions made by the household				
Are the contributions withdrawn as cash or are they used to finance inputs and other goods				
If contributions are made continuously how often is the pot disbursed (every week, every month, etc.)				
By what rule is the pot allocated (by rotation , by lottery , by negotiation , by the organiser , etc.)				
How much is the organiser paid (R)				
Distance to the place where contributions are made (km = 0 if the organiser visits the household to collect payments)				
Do the members of the institution come from the same family , same tribal ward , or do they have very little in common				
Is there usually a social gathering when contributions are made (Yes or No)				
Are there problems with collecting the contributions (Yes or No)				
How many people left the institution last year				

If the household entrusts money to someone else for safe-keeping, please provide the following information:

	Relative	Friend or Neighbour	A Trader	A local lender	Other (specify)
To whom does the household entrust its money (Yes where relevant)					
For how long has the household entrusted money to this person (number of months, years, <i>etc.</i>)					
Are the deposits continuous or seasonal					
Largest deposit during past year (R)					
Smallest deposit during past year (R)					
Distance to the money-keeper (Km)					
What is the current level of saving entrusted to the money-keeper (R)					
Can all of this money be withdrawn at any time (Yes or No)					

What is the agricultural extension officer's name? _____

How many times did the extension officer make contact with you or another member of your household during the past month? _____

Were any of the following training courses offered in this area during the past year:

Course subject	Yes or No	Course offered by? ^o
Livestock or poultry		
Crops, fruit or pastures		
Soil conservation		
Farm budgeting		

^o **Government, KFC, CLIARD, UZ, ACAT**, other (please specify).

Can you get farming information when you need it?

Yes or No _____

If yes, who do you prefer to get it from; **Government, KFC, CLIARD, UZ, etc.**? _____

Does any household member currently belong to a farmers co-operative, farmers association or garden club?

Yes or No _____

Thank you for your assistance.

Appendix B: Variable List and definitions for the homeland farmer survey

Name	Definition
Dist	= 1 for Hlabisa and 0 for Port Durnford.
Number	= Case number
Yres	= Number of years household has resided in the area
Areaha	= Hectares of land available for crop production
CpAll	= 1 if all cropland is cultivated, 0 otherwise
Pcult	= Percentage of crop land cultivated
Nrain	= 1 if land is not cultivated due to drought, 0 otherwise
Ncash	= 1 if land is not cultivated due to cash shortage, 0 otherwise
Nlab	= 1 if land is not cultivated due to labour shortage, 0 otherwise
Ntrns	= 1 if land is not cultivated due to lack of transport, 0 otherwise
Ncont	= 1 if land is not cultivated due to absence of contractors, 0 otherwise
Lout	= 1 if land was leased or lent out, 0 otherwise
Lin	= 1 if land was borrowed or hired in, 0 otherwise
Dfemale	= 1 if <i>De Facto</i> household head is male, 0 otherwise
Males	= Number of males in household
Fmales	= Number of females in household
Infnts	= Number of children too young to attend school
JunScl	= Number of children at junior school
SenScl	= Number of children at senior school or tertiary institutions
Pens	= Number of adults receiving pensions
Disabl	= Number of household members receiving disability grants
Wemp	= Number of adults in wage employment
WageI	= Sum of monthly wage incomes (Rand)
RemI	= Sum of monthly wage remittances (Rand)
WelfI	= Sum of monthly pension and disability payments (Rand)
DFstd	= School Standard passed by <i>De Facto</i> household head
CropI	= Sum of gross crop incomes (Rand)
Cattle	= Current number of cattle
GoatN	= Current number of goats
ShepN	= Current number of sheep
DonkN	= Current number of donkeys
PigN	= Current number of pigs
ChikN	= Current number of chickens
FertP	= 1 if fertiliser was purchased, 0 otherwise
SeedP	= 1 if seed was purchased, 0 otherwise
PlowH	= 1 if a contractor was hired to plough, 0 otherwise
TrnsH	= 1 if a contractor was hired to transport farm products, 0 otherwise
EquipH	= 1 if farm equipment was hired, 0 otherwise
LabH	= 1 if farm labour was hired, 0 otherwise
ChemP	= 1 if insecticide or weedicide was purchased, 0 otherwise
FertR	= Expenditure on fertiliser (Rand)
SeedR	= Expenditure on seed (Rand)
PlowhR	= Expenditure on contract ploughing (Rand)

TrnsR	=	Expenditure on contract transport (Rand)
EquipR	=	Expenditure on hired farm equipment (Rand)
LabR	=	Expenditure on hired farm labour (Rand)
ChemR	=	Expenditure on insecticide and weedicide (Rand)
FtShp	=	1 if fertiliser was purchased from a shop, 0 otherwise
FtCop	=	1 if fertiliser was purchased from a farmers co-operative, 0 otherwise
SdShp	=	1 if seed was purchased from a shop, 0 otherwise
SdCop	=	1 if seed was purchased from a farmers co-operative, 0 otherwise
Plpvt	=	1 if a private contractor was hired to plough, 0 otherwise
Trpvt	=	1 if a private contractor was hired to transport farm products, 0 otherwise
EqCop	=	1 if farm equipment was hired from a farmers co-operative, 0 otherwise
EqLoc	=	1 if farm equipment was hired from a farmer, 0 otherwise
CmShp	=	1 if insecticide or weedicide was purchased from a shop, 0 otherwise
CmCop	=	1 if insecticide or weedicide was purchased from a farmers co-operative, 0 otherwise
FtBor	=	1 if a cash loan or credit was used to purchase fertiliser, 0 otherwise
SdBor	=	1 if a cash loan or credit was used to purchase seed, 0 otherwise
PlBor	=	1 if a cash loan or credit was used to hire a ploughing service, 0 otherwise
TrBor	=	1 if a cash loan or credit was used to hire a transport service, 0 otherwise
EqBor	=	1 if a cash loan or credit was used to hire farm equipment, 0 otherwise
CmBor	=	1 if a cash loan or credit was used to purchase insecticide or weedicide, 0 otherwise
VtBor	=	1 if a cash loan or credit was used to purchase veterinary medicines, 0 otherwise
FdBor	=	1 if a cash loan or credit was used to purchase livestock feed, 0 otherwise
FtDwn	=	Own cash downpayment made on purchased fertiliser (Rand)
SdDwn	=	Own cash downpayment made on purchased seed (Rand)
PlDwn	=	Own cash downpayment made on hired ploughing services (Rand)
TrDwn	=	Own cash downpayment made on hired transport (Rand)
EqDwn	=	Own cash downpayment made on hired farm equipment (Rand)
CmDwn	=	Own cash downpayment made on purchased insecticide and weedicide (Rand)
VtDwn	=	Own cash downpayment made on purchased veterinary medicines (Rand)
FdDwn	=	Own cash downpayment made on purchased livestock feed (Rand)
CrdLoc	=	1 if finance for farm operating inputs was sourced from a local money lender, 0 otherwise
CrdFnd	=	1 if finance for farm operating inputs was sourced from a friend

		or relative, 0 otherwise
CrdKFC	=	1 if finance for farm operating inputs was sourced from the KFC, 0 otherwise
CrdMil	=	1 if finance for farm operating inputs was sourced from a miller, 0 otherwise
CrdSto	=	1 if finance for farm operating inputs was sourced from a stokvel, 0 otherwise
CrdClb	=	1 if finance for farm operating inputs was sourced from a savings club, 0 otherwise
CrdSup	=	1 if finance for farm operating inputs was sourced from a supplier, 0 otherwise
CrdBnk	=	1 if finance for farm operating inputs was sourced from a commercial bank, 0 otherwise
Car1Y	=	Year in which bakkie or car number 1 was purchased
Car2Y	=	Year in which bakkie or car number 2 was purchased
BikeY	=	Year in which motorbike or bicycle was purchased
Trac1Y	=	Year in which tractor number 1 was purchased
Trac2Y	=	Year in which tractor number 2 was purchased
CartY	=	Year in which trailer or cart was purchased
PlowY	=	Year in which plough was purchased
PlntY	=	Year in which planter was purchased
MillY	=	Year in which hammer mill was purchased
PumpY	=	Year in which irrigation pump was purchased
GenY	=	Year in which generator was purchased
FrigY	=	Year in which refrigerator or freezer was purchased
TeleY	=	Year in which television was purchased
Car1R	=	Purchase price of bakkie or car number 1 (Rand)
Car2R	=	Purchase price of bakkie or car number 2 (Rand)
BikeR	=	Purchase price of motorbike or bicycle (Rand)
Trac1R	=	Purchase price of tractor number 1 (Rand)
Trac2R	=	Purchase price of tractor number 2 (Rand)
CartR	=	Purchase price of trailer or cart (Rand)
PlowR	=	Purchase price of plough (Rand)
PlntR	=	Purchase price of planter (Rand)
MillR	=	Purchase price of hammer mill (Rand)
PumpR	=	Purchase price of irrigation pump (Rand)
FencR	=	Purchase price of fencing bought during previous year (Rand)
LsuR	=	Purchase price of large livestock bought during previous year (Rand)
GenR	=	Purchase price of generator (Rand)
FrigR	=	Purchase price of refrigerator or freezer (Rand)
TeleR	=	Purchase price of television (Rand)
Car1B	=	1 if bakkie or car number 1 was financed with credit or cash loan, 0 otherwise
Car2B	=	1 if bakkie or car number 2 was financed with credit or cash loan, 0 otherwise
BikeB	=	1 if a motorbike or bicycle was financed with credit or cash loan, 0 otherwise
Trac1B	=	1 if tractor number 1 was financed with credit or cash loan, 0 otherwise

Trac2B	=	1 if tractor number 2 was financed with credit or cash loan, 0 otherwise
CartB	=	1 if a trailer or cart was financed with credit or cash loan, 0 otherwise
PlowB	=	1 if a plough was financed with credit or cash loan, 0 otherwise
PlntB	=	1 if a planter was financed with credit or cash loan, 0 otherwise
MillB	=	1 if a hammer mill was financed with credit or cash loan, 0 otherwise
PumpB	=	1 if an irrigation pump was financed with credit or cash loan, 0 otherwise
LsuB	=	1 if large livestock was financed with credit or cash loan, 0 otherwise
GenB	=	1 if a generator was financed with credit or cash loan, 0 otherwise
FrigB	=	1 if a refrigerator or freezer was financed with credit or cash loan, 0 otherwise
TeleB	=	1 if a television was financed with credit or cash loan, 0 otherwise
Car1D	=	Own cash downpayment made on bakkie or car number 1 (Rand)
Car2D	=	Own cash downpayment made on bakkie or car number 2 (Rand)
BikeD	=	Own cash downpayment made on motorbike or bicycle 1 (Rand)
Trac1D	=	Own cash downpayment made on tractor number 1 (Rand)
Trac2D	=	Own cash downpayment made on tractor number 2 (Rand)
CartD	=	Own cash downpayment made on trailer or cart (Rand)
PlowD	=	Own cash downpayment made on plough (Rand)
PlntD	=	Own cash downpayment made on planter 1 (Rand)
MillD	=	Own cash downpayment made on hammer mill (Rand)
PumpD	=	Own cash downpayment made on irrigation pump (Rand)
FencD	=	Own cash downpayment made on fencing (Rand)
LsuD	=	Own cash downpayment made on large livestock (Rand)
GenD	=	Own cash downpayment made on generator (Rand)
FrigD	=	Own cash downpayment made on refrigerator or freezer (Rand)
TeleD	=	Own cash downpayment made on television (Rand)
CarLoc	=	1 if finance for a bakkie or car was sourced from a local money lender, 0 otherwise
CarFnd	=	1 if finance for a bakkie or car was sourced from a relative or friend, 0 otherwise
CarSup	=	1 if finance for a bakkie or car was sourced from a supplier, 0 otherwise
CarBnk	=	1 if finance for a bakkie or car was sourced from a commercial Bank, 0 otherwise
CarFin	=	1 if finance for a bakkie or car was sourced from a vehicle financier (e.g. Stannic or Bankfin), 0 otherwise
CarEmp	=	1 if finance for a bakkie or car was sourced from a wage employer, 0 otherwise
TrcLoc	=	1 if finance for a tractor was sourced from a local money lender, 0 otherwise

TrcFnd	=	1 if finance for a tractor was sourced from a relative or friend, 0 otherwise
TrcKFC	=	1 if finance for a tractor was sourced from the KFC, 0 otherwise
TrcSup	=	1 if finance for a tractor was sourced from a supplier, 0 otherwise
TrcBnk	=	1 if finance for a tractor was sourced from a commercial bank, 0 otherwise
TrcOth	=	1 if finance for a tractor was sourced elsewhere, 0 otherwise
PlwLoc	=	1 if finance for a plough was sourced from a local money lender, 0 otherwise
PlwFnd	=	1 if finance for a plough was sourced from a relative or friend, 0 otherwise
PlwKFC	=	1 if finance for a plough was sourced from the KFC, 0 otherwise
PlwSto	=	1 if finance for a plough was sourced from a stokvel, 0 otherwise
PlwClb	=	1 if finance for a plough was sourced from a savings club, 0 otherwise
PlwSup	=	1 if finance for a plough was sourced from a supplier, 0 otherwise
PlwBnk	=	1 if finance for a plough was sourced from a commercial bank, 0 otherwise
PlwOth	=	1 if finance for a plough was sourced elsewhere, 0 otherwise
FrgLoc	=	1 if finance for a refrigerator or freezer was sourced from a local money lender, 0 otherwise
FrgFnd	=	q1 if finance for a refrigerator or freezer was sourced from a relative or friend, 0 otherwise
FrgSto	=	1 if finance for a refrigerator or freezer was sourced from a stokvel, 0 otherwise
FrgClb	=	1 if finance for a refrigerator or freezer was sourced from a savings club, 0 otherwise
FrgSup	=	1 if finance for a refrigerator or freezer was sourced from a supplier, 0 otherwise
FrgBnk	=	1 if finance for a refrigerator or freezer was sourced from a commercial bank, 0 otherwise
L1Type	=	First asset or farm operating input financed with a cash loan or credit: 1 if vehicle, 2 if consumer durable, 3 if fertiliser, 4 if plough, 5 if livestock, 6 if fencing and 7 if tractor
L1Km	=	Distance to this (first) source of loan or credit finance (Km)
L1Work	=	1 if a member of the household is employed by this (first) lender, 0 otherwise
L2Type	=	Second asset or farm operating input financed with a cash loan or credit: 1 if vehicle, 2 if consumer durable, 3 if fertiliser, 4 if plough, 5 if livestock, 6 if fencing and 7 if tractor
Hsav	=	1 if credit was not used to finance farm expenses because the household had sufficient savings, 0 otherwise
Nlike	=	1 if credit was not used to finance farm expenses because the household does not like incurring debt, 0 otherwise
Dkno	=	1 if credit was not used to finance farm expenses because the household does not know where or how to access it,

		0 otherwise
Rejct	=	1 if credit was not used to finance farm expenses because the household thinks its application will be rejected, 0 otherwise
Hint	=	1 if credit was not used to finance farm expenses because interest charges are too high, 0 otherwise
Risk	=	1 if credit was not used to finance farm expenses because the household is not sure it can service the debt, 0 otherwise
AccmR	=	Gross income from renting out rooms (Rand/month)
ContR	=	Gross income from contracting out services or equipment (Rand/month)
MilleR	=	Gross income from milling grain for others (Rand/month)
FoodR	=	Gross income from making and selling meals or beverage (Rand/month)
BldgR	=	Gross income from building or repairing houses (Rand/month)
BlokR	=	Gross income from making blocks, masonry or metal work (Rand/month)
FurnR	=	Gross income from making or repairing furniture (Rand/month)
MechR	=	Gross income from repairing vehicles or machinery (Rand/month)
SewR	=	Gross income from sewing or cobbling (Rand/month)
ShopR	=	Gross income from shopkeeping (Rand/month)
HawkR	=	Gross income from hawking (Rand/month)
CrftR	=	Gross income from making and selling handicrafts (Rand/month)
Trade2	=	1 if the household is a micro-entrepreneur, 0 otherwise
CrpLos	=	1 if crops were lost during the past year, 0 otherwise
SBnk	=	1 if the household head deposits money in a commercial bank, 0 otherwise
Ssto	=	1 if the household head deposits money in a stokvel, 0 otherwise
SClb	=	1 if the household head deposits money in a savings club, 0 otherwise
Sbur	=	1 if the household head deposits money in a burial society, 0 otherwise
SLiv	=	1 if the household head invests savings in livestock, 0 otherwise
Sasst	=	1 if the household head invests savings in other hard assets, 0 otherwise
Selse	=	1 if the household head entrusts savings to someone else for safe-keeping, 0 otherwise
Shome	=	1 if the household head keeps cash savings at home, 0 otherwise
Ac1R	=	Current level of savings deposited in first (largest) Bank account (Rand)
Ac1Km	=	Distance to the branch where this first Bank account was opened (Km)
Ac2R	=	Current level of savings deposited in second Bank account (Rand)
Ac2Km	=	Distance to the branch where this second Bank account was opened (Km)

S1Type	=	Name of one informal savings institution used by the household: stokvel=1 , savings club=2 or burial society=3
Visits	=	Number of visits made by the Agricultural Extension Officer to the household during the past month

Appendix C: Data List

1

2

	DIST	NUMBER	YRES	AREA	HA	CPALL	PCULT	NRAIN	NCASH	NLAB	NTRANS	NCONT	LOUT	LIN	DF	MALE	MALES
1	0	1	14	.03		0	75	0	0	0	0	0	0	0	1		3
2	0	20	15	.25		1	100	0	0	0	0	0	0	0	0		4
3	0	38	7	2.00		0	75	0	1	0	0	0	0	0	0		4
4	0	44	9	.07		0	32	1	0	0	0	0	0	0	0		3
5	0	50	28	1.50		1	100	0	0	0	0	0	0	0	0		0
6	0	56	17	.02		1	100	0	0	0	0	0	0	0	0		2
7	0	62	50	1.50		0	35	0	1	0	0	0	0	0	1		5
8	0	79	15	10.00		1	100	0	0	0	0	0	0	0	0		3
9	0	86	13	.00		0	0	0	0	0	0	0	0	0	0		4
10	0	99	46	3.00		1	100	0	0	0	0	0	0	0	0		6
11	0	105	80	3.50		0	86	0	0	0	0	0	0	0	1		2
12	0	111	20	2.75		0	27	0	0	0	0	0	0	0	0		3
13	0	116	30	2.30		1	100	0	0	0	0	0	0	0	0		6
14	0	120	7	.01		0	10	0	0	0	0	0	0	0	1		7
15	0	123	31	1.30		1	100	0	0	0	0	0	0	0	0		3
16	0	127	4	.00		0	0	0	0	0	0	0	0	0	0		1
17	0	144	25	3.00		0	50	1	0	0	0	0	0	0	1		3
18	0	189	22	.14		0	45	0	1	0	0	0	0	0	0		6
19	0	207	40	8.00		1	100	0	0	0	0	0	0	0	0		4
20	0	217	70	1.00		0	10	1	1	0	0	0	0	0	0		4
21	0	225	6	.64		1	100	0	0	0	0	0	0	0	0		3
22	0	258	24	2.50		0	25	0	1	0	0	0	0	0	0		3
23	0	267	40	8.00		0	0	1	1	0	0	0	0	0	0		2
24	0	279	30	.10		0	95	0	1	0	0	0	0	0	0		6
25	0	297	10	.00		0	0	0	0	0	0	0	0	0	1		6
26	0	338	60	3.00		0	25	0	1	0	0	0	0	0	0		2
27	0	345	40	.00		0	0	0	0	0	0	0	0	1	0		3
28	0	363	50	2.00		0	4	1	1	0	0	0	0	0	0		13
29	0	380	100	-1.00		0	-1	1	0	0	0	0	0	0	0		5
30	0	390	42	5.00		0	30	1	1	1	0	0	0	0	1		4
31	0	395	18	.40		1	100	0	0	0	0	0	0	0	0		5
32	0	404	26	2.00		1	100	0	0	0	0	0	0	1	0		3
33	0	422	10	2.05		1	100	0	0	0	0	0	0	0	0		4
34	0	428	11	2.00		1	100	0	0	0	0	0	0	0	1		6
35	0	441	40	1.00		1	0	0	1	0	0	0	0	0	0		1
36	0	447	10	2.00		1	100	0	0	0	0	0	0	0	1		4
37	0	452	40	2.24		0	20	1	1	0	0	0	0	0	0		1
38	0	453	50	1.00		1	100	0	0	0	0	0	0	0	0		2
39	0	469	30	6.00		0	13	0	1	0	0	0	0	0	1		7
40	0	472	9	1.00		0	1	0	1	0	0	0	0	0	0		4
41	0	483	8	.00		0	0	0	0	0	0	0	0	0	0		4
42	0	489	15	3.24		1	100	0	0	0	0	0	0	0	1		10
43	0	501	60	12.00		0	42	0	1	0	0	0	0	0	1		2
44	0	508	19	.02		0	50	0	1	0	0	0	0	0	1		3
45	0	7	14	.38		1	100	0	0	0	0	0	1	0	0		3
46	0	26	22	.03		1	100	0	0	0	0	0	0	0	0		3
47	0	70	19	.25		1	100	0	0	0	0	0	0	0	1		3
48	0	93	137	1.00		0	50	1	1	0	0	0	0	0	0		6
49	0	117	40	.01		1	100	0	0	0	0	0	0	0	1		4
50	0	136	80	2.00		0	25	0	1	0	0	0	0	0	1		2
51	0	147	23	3.00		0	67	0	1	0	0	0	0	1	0		5
52	0	157	20	1.50		0	67	0	1	0	0	0	0	1	0		1
53	0	172	27	.03		1	100	0	0	0	0	0	0	0	0		5
54	0	183	100	3.00		0	10	1	1	0	0	0	0	0	0		4
55	0	185	6	.50		0	0	0	0	0	0	0	0	0	1		4
56	0	201	55	5.00		1	100	0	0	0	0	0	0	0	1		3
57	0	220	5	6.00		1	100	0	0	0	0	0	0	0	0		4
58	0	233	50	1.50		0	33	0	0	0	0	0	0	0	0		6
59	0	243	20	.42		1	100	0	0	0	0	0	0	1	1		4
60	0	261	40	3.00		0	67	0	1	0	0	0	1	0	0		7
61	0	285	3	.02		1	100	0	0	0	0	0	0	0	1		3
62	0	292	55	2.00		1	100	0	0	0	0	0	0	0	0		1
63	0	303	10	1.00		0	0	0	0	1	0	0	0	0	0		3
64	0	315	80	1.00		1	100	0	0	0	0	0	0	0	1		6
65	0	322	7	1.50		1	100	0	0	0	0	0	0	0	0		4
66	0	333	80	1.50		1	100	0	0	0	0	0	0	1	1		9
67	0	351	20	.50		1	100	0	0	0	0	0	0	0	0		3
68	0	411	30	2.90		0	0	0	1	0	0	0	0	0	0		5
69	0	417	70	2.20		0	45	1	0	0	0	0	0	0	0		0
70	0	434	30	.04		1	100	0	0	0	0	0	0	0	0		4
71	0	435	200	3.00		1	100	0	0	0	0	0	0	0	0		4
72	0	459	50	1.00		0	25	1	1	0	0	0	0	0	1		10
73	0	496	60	10.00		1	100	0	0	0	0	0	0	0	1		6
74	0	507	66	2.00		0	25	0	1	0	0	0	0	0	0		2
75	0	515	18	.50		1	100	0	0	0	0	0	0	0	1		5
76	1	1	15	1.88		1	100	0	0	0	0	0	0	1	1		2
77	1	2	2	.75		0	50	1	1	0	0	0	0	0	0		2

	FMALES	INFNTS	JUNSCL	SENSCL	PENS	DISABL	WEMP	WAGEI	REMI	WELFI	DFSTD	CROPI	CATTLE	GOATN	SHEPN
1	4	3	0	0	0	0	1	-1	300	0	10	80	0	0	0
2	2	2	0	1	0	0	0	-1	-1	0	9	0	0	0	0
3	6	4	0	0	0	0	3	3170	730	0	0	3200	7	0	0
4	11	5	5	2	1	0	2	-1	0	410	0	0	0	0	0
5	3	0	0	0	0	0	0	0	0	0	-1	0	0	5	0
6	2	0	1	0	1	0	0	0	0	390	0	60	0	0	0
7	6	0	3	4	0	0	1	900	200	0	-1	2000	5	0	0
8	3	2	2	0	0	0	2	1550	0	0	6	2000	3	0	0
9	1	0	2	1	0	0	2	-1	0	0	1	0	3	0	0
10	9	4	4	1	1	0	4	-1	200	410	0	0	6	0	0
11	2	0	0	0	2	0	2	3000	0	820	0	0	4	0	0
12	9	0	4	3	1	0	2	1800	390	390	8	1500	4	0	0
13	8	1	4	0	0	0	1	0	0	0	2	2000	10	0	0
14	4	4	0	0	1	0	3	-1	0	-1	4	0	0	3	0
15	6	1	3	1	1	0	1	3224	1890	390	-1	0	0	0	0
16	3	0	0	1	0	0	1	1500	150	0	1	0	2	3	0
17	6	0	3	0	1	0	2	-1	390	390	-1	1000	0	0	0
18	4	0	3	3	0	0	2	-1	0	0	0	11000	0	0	0
19	3	1	0	1	1	0	0	1008	0	390	4	4000	0	7	0
20	8	4	0	1	1	1	3	-1	0	410	1	0	0	0	0
21	4	2	2	1	1	0	0	0	0	0	1	0	0	0	0
22	5	3	0	0	1	0	3	3150	1000	400	2	0	0	0	0
23	2	0	1	0	2	0	0	100	0	400	4	0	1	0	0
24	9	2	5	1	2	0	0	0	0	820	0	1000	20	7	0
25	4	2	0	2	0	0	2	-1	200	0	8	0	0	0	0
26	3	2	0	0	1	0	0	0	0	410	6	190	0	0	0
27	5	0	3	1	0	0	1	-1	0	200	6	350	1	5	0
28	10	10	5	0	1	0	3	-1	0	410	0	0	10	0	0
29	4	0	5	1	1	0	1	2000	890	390	8	0	2	1	0
30	4	0	0	0	2	0	2	-1	0	780	0	300	9	5	0
31	2	0	3	1	0	0	2	1200	0	0	0	2000	0	0	0
32	4	2	0	0	1	0	3	4600	0	1444	10	3500	0	0	0
33	2	3	0	0	0	0	0	0	0	0	0	-1	0	0	0
34	7	2	3	2	1	0	2	-1	0	410	4	100	40	0	0
35	1	0	0	0	0	0	0	50	0	0	-1	0	0	0	0
36	6	3	4	1	0	0	1	2100	0	0	8	0	4	0	0
37	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	2	0	0	1	2	0	1	-1	400	410	5	2240	0	0	0
39	4	1	0	0	1	0	5	-1	0	350	0	0	0	0	0
40	6	3	2	0	0	0	1	500	0	0	4	0	0	0	0
41	7	1	2	4	0	0	2	2000	0	0	3	931	3	0	0
42	5	6	3	0	1	0	4	-1	420	400	4	0	0	0	0
43	2	0	0	1	1	0	1	-1	83	390	0	10000	9	3	0
44	7	1	3	1	1	0	1	-1	0	400	6	0	0	0	0
45	8	0	4	1	1	0	4	-1	-1	180	6	0	0	0	0
46	5	0	1	0	0	0	2	-1	50	0	-1	0	0	0	0
47	2	0	1	2	0	0	0	75	0	0	0	900	0	0	0
48	7	3	3	0	0	0	3	1980	50	0	8	200	0	0	0
49	6	2	0	1	0	0	0	0	0	0	0	0	3	0	0
50	4	1	2	0	2	0	0	0	0	820	0	1200	1	0	0
51	3	2	3	0	2	0	1	-1	500	780	0	2035	0	0	0
52	1	0	0	0	0	0	1	960	200	0	-1	60	0	1	0
53	2	1	1	2	0	0	0	800	0	0	0	200	0	0	0
54	4	1	3	2	0	0	1	1200	0	0	3	0	14	17	4
55	5	2	1	3	0	0	2	1600	0	0	6	0	10	5	2
56	7	0	2	3	0	0	3	-1	400	0	2	5000	4	0	0
57	4	2	3	0	0	0	2	1400	0	0	5	6000	21	0	0
58	4	1	3	3	0	0	1	1100	0	0	6	0	4	0	0
59	4	0	3	0	0	0	0	0	0	0	2	60	0	0	0
60	8	7	2	2	2	0	2	-1	0	800	0	0	5	0	0
61	5	2	3	0	0	1	0	3100	3100	430	6	0	0	0	0
62	3	0	0	1	0	0	2	-1	0	0	10	2100	0	0	0
63	3	0	0	1	0	0	5	-1	-1	0	5	0	0	0	0
64	8	0	3	4	1	0	3	7400	0	410	6	0	6	4	0
65	5	1	3	0	0	0	1	1800	0	0	3	0	7	0	0
66	13	5	3	2	2	1	2	-1	0	1230	0	-1	15	3	0
67	2	0	1	2	1	0	0	0	0	410	0	0	0	0	0
68	6	0	4	2	0	0	1	150	0	0	6	60	2	0	0
69	2	0	0	0	1	0	1	-1	0	390	-1	50	0	0	0
70	6	0	0	6	1	0	2	-1	0	390	10	0	0	0	0
71	9	3	6	1	1	0	1	200	0	420	0	0	0	0	0
72	6	4	0	0	2	0	4	-1	0	800	0	0	0	2	0
73	2	1	1	0	0	0	0	933	0	0	1	1000	0	0	0
74	8	0	6	0	1	0	0	0	0	400	0	-1	6	8	0
75	12	4	3	2	0	0	4	1128	150	0	6	0	0	0	0
76	3	1	0	0	0	0	2	5157	-1	0	2	0	18	20	0
77	3	0	2	0	1	0	0	63	0	0	0	60	0	0	0

	FMALES	INFNTS	JUNSL	SENSCL	PENS	DISABL	WEMP	WAGEI	REMI	WELFI	DFSTD	CROPI	CATTLE	GOATN	SHEPN
78	5	0	4	0	1	1	0	410	500	700	0	0	14	28	0
79	4	0	2	0	0	0	0	0	-1	0	2	0	8	0	0
80	2	1	1	0	0	0	1	130	20	0	0	0	30	0	0
81	4	3	2	1	0	0	1	450	600	0	4	0	8	12	0
82	9	7	2	2	0	0	3	510	700	0	6	0	0	0	0
83	5	0	4	1	2	0	2	1250	600	700	0	0	2	2	0
84	6	0	7	1	1	0	3	2584	0	400	0	0	0	6	0
85	2	0	0	0	0	0	1	100	-1	0	5	0	6	0	0
86	8	4	2	0	0	0	2	1300	800	0	0	30	26	30	0
87	7	2	4	0	1	0	0	410	0	430	6	0	0	2	0
88	6	0	7	0	2	0	4	1353	470	700	0	0	9	16	0
89	8	3	3	0	2	0	0	553	-1	350	0	0	6	2	0
90	6	0	4	0	0	0	0	0	100	0	0	0	0	0	0
91	5	2	5	0	1	0	2	1410	550	400	0	0	6	10	0
92	2	2	1	1	0	0	1	783	800	0	0	0	10	8	0
93	6	2	5	0	0	0	2	1093	-1	430	2	0	4	7	0
94	4	-1	0	0	1	-1	1	460	-1	-1	0	0	0	0	0
95	2	1	2	0	0	0	0	0	0	0	1	0	12	7	0
96	3	0	0	0	2	0	0	790	0	700	2	0	14	0	0
97	4	2	0	1	1	0	2	2630	1180	430	0	0	2	3	0
98	1	0	0	0	2	0	0	820	0	700	0	0	6	2	3
99	2	3	1	0	0	0	2	200	400	0	4	150	0	0	0
100	4	3	2	4	0	0	1	600	1800	0	1	0	6	0	0
101	8	4	1	2	0	0	2	700	1500	0	1	0	4	40	0
102	4	1	2	1	1	0	0	410	-1	350	0	400	0	8	0
103	1	0	3	1	0	0	1	533	600	0	4	370	11	0	0
104	7	1	3	3	1	0	0	380	0	0	6	0	0	0	0
105	9	2	4	0	1	1	1	577	450	350	0	0	12	0	0
106	4	2	3	0	0	0	3	900	1600	0	7	50	14	17	0
107	4	2	3	0	1	0	1	580	250	350	0	57	0	0	0
108	3	1	0	0	1	0	5	1152	800	350	0	0	13	24	0
109	3	1	2	0	0	0	1	200	0	0	0	0	0	4	0
110	10	5	2	0	1	0	0	410	0	350	0	115	3	13	0
111	4	0	4	1	0	0	1	400	1800	0	6	20	0	0	0
112	2	1	3	0	0	0	0	0	0	0	2	0	0	0	0
113	8	0	6	2	1	0	1	610	-1	350	0	0	3	0	0
114	1	0	0	0	1	0	0	410	0	350	0	60	14	2	0
115	5	0	1	2	1	0	1	610	900	350	0	0	10	3	0
116	3	1	1	1	0	0	3	843	-1	0	6	700	2	5	0
117	7	0	3	3	0	1	1	667	-1	0	1	0	18	0	0
118	3	0	2	0	0	0	1	50	100	0	5	0	0	0	0
119	9	0	9	1	1	0	1	693	-1	350	0	300	20	9	0
120	7	5	4	0	0	0	1	1750	0	0	3	0	12	0	0
121	11	3	6	4	0	0	1	500	100	0	2	0	4	21	0
122	2	0	1	1	1	0	0	410	0	350	0	0	3	10	0
123	8	4	4	0	1	0	1	2910	400	430	0	0	16	16	0
124	7	1	5	2	0	0	2	350	0	0	6	0	0	0	0
125	5	1	3	0	1	0	1	560	300	350	2	0	0	0	0
126	4	0	1	1	0	0	1	300	0	0	3	0	1	0	0
127	4	2	3	1	0	0	2	683	450	0	0	0	5	0	0
128	6	0	0	0	0	0	1	100	0	0	0	0	0	0	0
129	1	0	0	0	1	0	4	1610	2100	390	1	0	8	3	0
130	2	0	0	1	0	0	1	150	100	0	0	0	0	0	0
131	8	4	5	2	0	0	2	100	200	0	4	0	8	9	0
132	4	2	1	1	0	0	1	100	0	0	0	0	5	0	0
133	5	3	0	1	0	0	2	300	0	0	0	0	10	0	0
134	6	2	4	0	2	0	2	2900	400	680	0	120	17	4	0
135	4	0	2	3	0	0	0	0	200	350	0	0	19	10	0
136	2	0	0	0	2	0	1	920	0	700	0	100	0	0	0
137	2	0	0	1	0	0	1	200	0	350	0	200	0	0	0
138	10	5	6	2	1	0	0	600	-1	0	2	0	4	2	0
139	5	2	3	2	0	0	1	250	259	0	5	70	0	0	0
140	7	4	4	0	1	1	2	743	-1	700	-1	0	0	-1	0
141	2	-1	1	0	0	-1	1	700	-1	-1	3	0	0	0	-1
142	2	1	2	2	1	0	1	470	-1	350	3	0	0	0	0
143	3	1	1	1	0	0	1	200	0	0	0	0	1	0	0
144	2	0	4	0	0	0	1	200	13450	0	6	4000	7	11	0
145	6	3	4	0	2	1	0	820	0	700	1	0	0	20	0
146	3	1	2	2	0	0	1	217	100	0	3	0	0	0	0
147	3	0	1	1	0	0	0	0	-1	0	1	330	0	5	0
148	2	1	4	1	0	0	1	300	-1	0	1	0	7	0	0
149	3	1	3	2	0	0	1	317	500	0	0	0	2	0	0
150	7	3	2	0	1	0	3	880	400	350	9	0	6	30	0
151	4	2	0	0	1	0	0	273	0	0	-1	20	0	0	0
152	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

	DONKN	PIGN	CHIKN	FERTP	SEEDP	PLOWH	TRNSH	EQUIPH	LABH	CHEMP	FERTR	SEEDR	PLOWHR	TRNSR	EQUIR
78	0	0	0	0	1	1	0	0	0	0	0	30	100	0	0
79	11	0	0	0	1	0	0	0	0	0	0	5	0	0	0
80	0	0	28	0	1	1	0	0	0	0	0	45	0	0	0
81	0	0	13	0	1	0	0	0	0	1	0	24	0	0	0
82	0	0	0	0	1	1	0	0	0	0	0	70	-1	0	0
83	0	0	7	0	1	1	0	0	0	1	0	23	200	0	0
84	0	0	12	0	1	1	0	0	0	0	0	63	200	0	0
85	0	0	-1	1	1	0	0	0	0	1	300	440	0	0	0
86	0	0	0	0	1	1	0	0	0	1	0	805	1000	0	0
87	0	0	33	0	1	0	0	0	0	0	0	-1	0	0	0
88	10	0	19	0	1	0	0	0	0	1	0	90	0	0	0
89	0	0	9	0	1	0	0	0	0	1	0	5	0	0	0
90	0	0	30	0	1	0	0	0	0	0	0	0	0	0	0
91	0	0	16	0	1	0	1	0	0	0	0	0	0	150	0
92	0	0	26	1	1	1	0	0	0	0	48	25	200	0	0
93	0	0	2	0	1	1	0	0	0	0	0	39	100	0	0
94	0	0	0	0	1	1	0	0	0	0	0	20	200	0	0
95	0	0	0	0	1	1	1	0	0	0	0	78	300	80	0
96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	0	0	9	1	1	0	0	1	0	0	15	30	0	0	20
98	0	0	18	1	1	1	0	0	0	0	50	50	100	0	0
99	0	0	4	1	1	0	0	0	0	0	48	43	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101	0	0	0	0	1	1	0	0	0	0	0	0	200	0	0
102	0	0	0	0	1	1	0	0	0	0	0	20	0	0	0
103	0	0	0	1	1	1	0	0	0	0	50	142	200	0	0
104	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	1	1	1	0	0	0	0	150	70	100	0	0
106	0	0	60	1	1	1	0	0	0	0	55	20	800	0	0
107	0	0	0	1	1	1	0	0	0	1	2	45	40	0	0
108	0	0	40	0	0	1	0	0	0	0	0	0	300	0	0
109	0	0	26	0	1	1	0	0	0	1	0	70	100	0	0
110	0	2	0	1	1	0	0	0	0	0	60	160	0	0	0
111	0	0	1	1	1	1	0	0	0	0	25	50	58	0	0
112	0	0	0	0	1	1	0	0	0	0	0	13	60	0	0
113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
114	0	0	15	0	1	1	0	0	0	0	0	35	180	0	0
115	0	1	0	0	1	1	1	0	0	0	0	65	200	400	0
116	0	2	8	1	1	1	0	0	0	0	129	134	200	0	0
117	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
118	0	0	12	0	1	1	0	0	0	0	0	56	30	0	0
119	0	1	0	0	1	1	0	0	0	0	0	-1	340	0	0
120	0	0	0	1	1	1	0	0	0	0	80	400	300	0	0
121	0	0	0	1	1	1	0	0	0	0	58	56	140	0	0
122	0	0	0	0	1	1	0	0	0	0	0	50	100	0	0
123	0	0	0	0	1	1	0	0	0	0	0	16	150	0	0
124	0	0	0	1	1	1	0	0	0	0	52	50	150	0	0
125	0	0	0	0	1	0	0	0	0	0	0	25	0	0	0
126	0	0	0	0	1	1	0	0	0	0	0	19	80	0	0
127	0	0	27	0	1	1	0	0	0	0	0	20	60	0	0
128	0	0	15	1	1	1	0	0	0	0	50	50	80	0	0
129	0	0	0	0	1	1	0	0	0	0	0	10	70	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
131	5	0	33	0	1	1	0	0	0	0	0	86	100	0	0
132	0	0	0	1	1	0	0	1	0	0	60	30	0	0	40
133	0	0	1	0	1	0	0	0	0	0	0	19	0	0	0
134	0	0	0	1	1	1	0	0	0	0	30	10	200	0	0
135	0	1	0	1	1	0	0	0	0	0	70	35	0	0	0
136	0	0	0	1	1	1	0	0	0	0	50	-1	80	0	0
137	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
138	0	0	0	1	1	0	0	0	0	0	25	35	0	0	0
139	0	0	5	1	1	1	0	0	0	0	20	19	45	0	0
140	0	0	26	0	1	1	0	0	0	1	0	160	400	0	0
141	-1	-1	-1	1	1	0	0	0	0	0	43	25	0	0	0
142	0	0	0	0	0	1	0	0	0	0	0	0	65	0	0
143	0	0	0	1	1	0	1	1	1	1	200	580	0	100	1600
144	0	0	11	0	1	0	0	0	0	0	0	-1	0	0	0
145	0	0	0	0	1	1	0	0	0	0	0	20	1	0	0
146	0	0	0	1	1	1	0	0	0	0	50	40	0	0	0
147	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0
148	0	0	0	0	0	1	0	0	0	0	0	0	60	0	0
149	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	1	0	1	0	0	0	16	0	0	50	0
151	0	0	4	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
152	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

	LABR	CHEMR	FTSHP	FTCOP	SDSHP	SDCOP	PLPVT	TRPVT	EQCOP	EQLOC	CMSHP	CMCOP	FTBOR	SDBOR	PLBOR
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
4	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0
5	0	100	1	0	0	0	1	0	0	0	1	0	0	0	0
6	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
7	500	-1	0	1	0	0	1	0	0	0	0	1	0	0	0
8	160	-1	0	1	0	0	1	1	0	1	0	1	1	0	1
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	30	0	0	0	0	0	0	0	0	1	0	0	0	0
11	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	200	0	0	1	0	0	1	1	0	0	0	0	0	0	0
14	0	13	0	0	0	1	1	0	0	0	1	0	0	0	0
15	0	34	0	1	1	0	1	0	0	0	1	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	400	0	0	1	1	0	0	1	0	0	0	0	0	0	0
18	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
19	414	420	1	0	0	0	1	0	0	0	1	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	300	0	0	1	0	0	1	1	0	0	0	0	0	0	0
27	63	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
32	600	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	63	0	0	1	0	0	0	0	0	0	0	0	1	0	0
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	90	0	0	1	0	0	1	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	10	0	1	1	1	0	1	1	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	200	0	1	0	0	0	1	0	0	0	0	0	0	0	0
48	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0
49	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
50	0	200	1	0	0	0	1	0	0	0	1	0	0	0	0
51	400	0	0	1	0	0	1	1	0	0	0	0	0	0	0
52	0	32	0	0	0	0	0	0	0	0	1	0	0	0	0
53	140	0	1	0	1	0	0	0	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	1200	0	1	0	0	0	0	0	0	0	0	0	0	0	0
57	900	600	1	0	0	0	1	0	0	0	0	0	1	0	0
58	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
61	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
62	0	297	1	0	0	0	0	0	0	0	0	0	0	0	0
63	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0
64	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0
65	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0
66	0	260	0	0	0	0	0	0	0	0	0	0	0	0	0
67	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
69	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
71	0	-1	1	0	0	0	0	0	0	0	0	0	0	0	0
72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	500	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	1000	0	0	1	0	0	1	1	0	0	0	0	0	0	0
75	0	0	1	0	1	0	1	1	0	0	0	0	0	0	0
76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	0	0	0	0	-1	-1	1	0	0	0	0	0	0	0	0

	LABR	CHEMR	FTSHP	FTCOP	SDSHP	SDCOP	PLPVT	TRPVT	EQCOP	EQLOC	CMSHP	CMCOP	FTBOR	SDBOR	PLBOR
78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81	0	20	0	0	1	0	1	0	0	0	0	0	0	0	0
82	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0
83	0	50	0	0	1	0	1	0	0	0	0	0	0	0	0
84	0	0	0	0	1	0	1	0	0	0	-1	-1	0	0	0
85	0	250	0	0	0	1	1	0	0	0	0	0	0	0	0
86	0	40	0	1	1	0	0	0	0	0	0	1	0	0	0
87	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0
88	0	70	0	0	-1	-1	0	0	0	0	0	0	0	0	0
89	0	10	0	0	1	0	0	0	0	0	1	0	0	0	0
90	0	0	0	0	-1	-1	0	0	0	0	-1	-1	0	0	0
91	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
92	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
93	0	0	0	1	-1	-1	1	0	0	0	0	0	0	1	0
94	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
96	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0
97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0
99	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
100	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
106	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0
107	0	250	-1	-1	-1	-1	1	0	0	0	0	0	0	0	0
108	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0
109	0	200	0	0	0	0	1	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	-1	-1	0	0	0
111	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
112	0	0	-1	-1	0	1	1	0	0	0	0	0	0	0	0
113	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
114	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
116	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0
117	0	0	-1	-1	-1	-1	-1	0	0	0	0	0	0	0	0
118	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
119	0	0	0	0	-1	-1	1	0	0	0	0	0	0	1	0
120	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
121	0	0	0	1	0	1	1	0	0	0	0	0	1	0	1
122	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0
123	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
124	0	0	0	0	1	0	1	0	0	0	0	0	1	1	1
125	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0
126	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
127	0	0	0	0	-1	-1	1	0	0	0	0	0	0	0	0
128	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
129	0	0	-1	-1	-1	-1	1	0	0	0	0	0	0	0	0
130	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
133	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0
134	0	0	0	0	-1	-1	0	0	0	0	0	0	0	0	0
135	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0
136	0	0	0	1	-1	-1	0	0	0	0	0	0	0	0	0
137	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
138	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
139	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
140	0	30	0	0	0	1	1	0	0	0	0	0	0	0	0
141	0	0	0	0	1	0	1	0	0	0	0	1	-1	-1	-1
142	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
143	1000	500	0	1	0	1	0	0	0	0	0	0	0	0	0
144	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
145	0	0	0	1	0	1	0	1	-1	0	-1	-1	0	0	0
146	0	0	0	0	-1	-1	0	0	0	0	0	0	0	1	1
147	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
148	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0
149	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
151	-1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0
152	-1	-1	0	0	0	1	0	1	0	0	0	0	-1	-1	-1

[illegible]

	PUMPY	GENY	FRIGY	TELEY	CAR1R	CAR2R	BIKER	TRAC1R	TRAC2R	CARTR	POWR	PLNTR	MILLR	PUMPR	FENCR
78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25
82	0	0	1994	0	0	0	0	1000	0	0	800	0	0	0	0
83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	0	1994	0	0	5000	0	0	7000	0	800	500	600	0	0	0
86	0	0	1995	0	10000	25000	0	0	0	0	0	0	0	0	0
87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88	0	0	-1	0	0	0	0	0	0	0	-1	0	0	0	0
89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	0
91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	0	0	1993	0	0	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	0	0	1994	1994	0	0	0	0	0	0	0	0	0	0	0
98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	1992	1990	0	0	0	0	0	0	0	0	0	0	0
101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	0	0	1994	1995	0	0	0	0	0	0	0	0	0	0	0
104	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
106	0	0	1995	1990	36000	0	0	0	0	0	-1	0	0	0	0
107	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	0
109	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
112	0	0	1994	0	0	0	0	0	0	0	0	0	0	0	0
113	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0
114	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	95	0	0	0	0
116	0	0	1991	1994	0	0	0	0	0	0	0	0	0	0	300
117	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	0
118	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
119	0	0	1992	1994	0	0	0	0	0	0	0	0	0	0	-1
120	0	0	1989	0	0	0	0	0	0	0	0	0	0	0	0
121	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0
126	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0
127	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
128	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
129	0	0	1992	1993	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
131	0	0	1993	0	-1	0	0	0	0	0	-1	0	0	0	0
132	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
134	0	0	1994	1994	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	0
136	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
137	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
138	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
139	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141	-1	0	0	0	0	0	0	0	0	0	0	0	-1	0	0
142	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
143	0	-1	-1	-1	42000	12000	0	24000	0	0	0	0	8000	6000	800
144	1	0	1990	1993	3500	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
146	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
147	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
148	0	0	1993	0	0	0	0	0	0	0	0	0	0	0	0
149	0	0	1994	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
151	0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
152	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

	LSUR	GENR	FRIGR	TELER	CAR1B	CAR2B	BIKEB	TRAC1B	TRAC2B	CARTB	PLOWB	PLNTB	MILLB	PUMPB	LSUB
1	0	0	5600	1500	0	0	0	0	0	0	0	0	0	0	0
2	0	0	-1	-1	-1	0	0	0	0	0	0	0	0	0	0
3	0	0	0	500	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	999	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	3200	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	1200	3200	1	0	0	0	0	0	0	0	0	0	0
12	0	0	1500	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	3090	0	0	0	0	0	0	0	0	0	0	0	0
14	115	0	0	400	0	0	0	0	0	0	0	0	0	0	0
15	0	2400	4900	0	1	0	0	0	0	0	0	0	0	0	0
16	1200	0	0	350	0	0	0	0	0	0	0	0	0	0	1
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	4600	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	2400	800	1	0	0	0	0	0	0	0	0	0	0
20	0	0	1000	1700	0	0	0	0	0	0	0	0	0	0	0
21	0	0	500	400	0	0	0	0	0	0	0	0	0	0	0
22	0	1500	1500	2500	1	1	0	1	0	1	1	0	0	0	0
23	0	0	0	500	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	400	0	0	0	0	0	0	0	0	0	0	0
25	0	0	3300	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	4000	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	3379	2000	0	0	0	0	0	0	0	0	0	0	0
28	0	0	1500	850	0	0	0	0	0	0	0	0	0	0	0
29	1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	900	0	-1	-1	1	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	3000	0	0	0	0	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	0	0	2600	2800	0	0	0	0	0	0	0	0	0	0	0
35	160	0	-1	0	0	0	0	0	0	0	0	0	0	0	0
36	0	0	3300	1000	1	0	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	0	-1	3700	-1	0	0	0	0	0	0	0	0	0	0	0
39	0	0	-1	400	0	0	0	0	0	0	0	0	0	0	0
40	0	0	2300	0	0	0	0	0	0	0	0	0	0	0	0
41	0	123	0	1400	0	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	-1	2000	999	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	400	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	400	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	1800	400	0	0	0	0	0	0	0	0	0	0	0
49	0	0	4000	400	0	0	0	0	0	0	0	0	0	0	0
50	0	0	3000	7000	0	0	0	0	0	0	0	0	0	0	0
51	0	0	3200	0	0	0	0	0	0	0	0	0	0	0	0
52	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0
53	0	0	3600	2000	0	0	0	0	0	0	0	0	0	0	0
54	0	0	4000	2000	0	0	0	0	0	0	0	0	0	0	0
55	0	0	4400	1700	0	0	0	0	0	0	0	0	0	0	0
56	0	0	5225	-1	0	0	0	0	0	0	0	0	0	0	0
57	0	0	1800	1900	1	0	0	0	0	0	0	0	0	0	0
58	0	0	3000	1800	1	0	0	0	0	0	0	0	0	0	0
59	0	0	2000	300	0	0	0	0	0	0	0	0	0	0	0
60	0	0	280	5400	0	0	0	0	0	0	0	0	0	0	0
61	0	0	1500	0	1	0	0	0	0	0	0	0	0	0	0
62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	0	0	-1	-1	0	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
65	0	0	3400	2000	0	0	0	0	0	0	0	0	0	0	0
66	0	-1	1500	600	0	0	0	0	0	0	0	0	0	0	0
67	0	0	2200	0	0	0	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	0	0	0	-1	0	0	0	0	0	0	0	0	0	0	0
72	0	0	0	750	0	0	0	0	0	0	0	0	0	0	0
73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	0	0	2346	399	0	0	0	0	0	0	0	0	0	0	0
75	0	0	0	350	0	0	0	0	0	0	0	0	0	0	0
76	0	0	-1	0	-1	-1	0	0	0	0	0	0	0	0	0
77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	GEND	FRIGD	TELED	CARLOC	CARFND	CARSUP	CARBK	CARFIN	CAREMP	TRCLOC	TRCFND	TRCKFC	TRCSUP	TRCBK	TRCOTH
1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	300	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	350	0	0	1	0	0	0	0	0	0	0	0	0
12	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	1100	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	450	1300	0	0	0	0	1	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	600	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	500	-1	0	0	0	1	0	0	0	0	0	0	0	0
20	0	0	250	0	0	0	0	0	0	0	0	0	0	0	0
21	0	200	0	0	0	0	0	0	0	0	0	0	0	0	0
22	300	150	400	0	0	0	0	0	0	0	0	0	1	0	0
23	0	0	200	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	250	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	700	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	600	500	0	0	0	0	0	0	0	0	0	0	0	0
28	0	500	850	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	-1	-1	-1	-1	-1	-1	-1	-1	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	600	0	0	0	0	0	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	0	500	-1	0	0	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	0	300	180	0	0	1	1	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0
39	0	450	0	0	0	0	0	0	0	0	0	0	0	0	0
40	0	450	0	0	0	0	0	0	0	0	0	0	0	0	0
41	0	0	70	0	0	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	500	500	200	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	310	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	500	3000	0	0	0	0	0	0	0	0	0	0	0	0
51	0	2400	0	0	0	0	0	0	0	0	0	0	0	0	0
52	0	0	-1	0	0	0	0	0	0	0	0	0	0	0	0
53	0	900	200	0	0	0	0	0	0	0	0	0	0	0	0
54	0	600	1060	0	0	0	0	0	0	0	0	0	0	0	0
55	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0
56	0	223	-1	0	0	0	0	0	0	0	0	0	0	0	0
57	0	500	400	0	0	0	0	0	0	0	0	0	0	0	0
58	0	300	400	0	0	0	1	0	0	0	0	0	0	0	0
59	0	500	0	0	0	1	0	0	0	0	0	0	0	0	0
60	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0
61	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0
62	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
63	0	-1	-1	0	0	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	0	600	600	0	0	1	0	0	0	0	0	0	0	0	0
66	0	300	500	0	0	0	0	0	0	0	0	0	0	0	0
67	0	140	0	0	0	0	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	0	0	200	0	0	0	0	0	0	0	0	0	0	0	0
73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	0	98	0	0	0	0	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	0	-1	0	0	0	0	0	0	0	0	0	0	0	0	0
77	0	0	0	-1	-1	-1	-1	-1	-1	0	0	0	0	0	0

	PLWLOC	PLWFND	PLWKFC	PLWSTO	PLWCLB	PLWSUP	PLWBNK	PLWOTH	FRGLOC	FRGFNB	FRGSTO	FRGCLB	FRGSUP	FRGBNK	L1TYPE
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
10	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
13	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
18	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
19	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
21	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2
22	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
25	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
26	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
28	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
30	0	0	0	0	0	0	0	0	-1	-1	-1	-1	-1	-1	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
32	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
34	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
36	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
39	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
40	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
44	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
45	0	0	0	0	0	0	0	0	-1	-1	-1	-1	-1	-1	2
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
49	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
50	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
53	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
55	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
56	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
57	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
58	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
59	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
60	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
61	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
62	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
67	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
68	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
77	0	0	0	0	0	0	0	0	-1	-1	-1	-1	-1	-1	0

	LIK M	L1WORK	L2TYPE	HS AV	NLIKE	DKNO	REJECT	HINT	RISK	ACCMR	CONTR	MILLER	FOODR	BLDGR	BLOKR
78	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
79	0	0	2	1	1	0	0	0	0	0	0	0	0	0	0
80	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0
81	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
82	-1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
83	0	0	0	0	1	1	0	0	0	0	0	0	0	3500	0
84	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
85	0	0	0	0	0	1	0	0	0	0	900	0	0	0	0
86	200	1	0	0	1	0	1	0	0	0	0	0	0	0	0
87	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
88	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
89	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
90	0	0	0	1	1	1	1	0	1	0	0	0	0	3000	0
91	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
92	0	0	0	0	0	1	0	0	0	0	0	0	200	0	0
93	50	0	0	-1	-1	-1	-1	-1	-1	0	0	0	0	0	0
94	0	0	2	0	1	0	0	0	1	0	0	0	0	0	0
95	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
96	0	0	0	0	0	0	0	0	0	0	0	0	0	500	0
97	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0
98	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
99	0	0	0	-1	-1	-1	-1	-1	-1	0	0	0	0	0	0
100	-1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
101	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
102	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
103	-1	-1	0	0	1	1	0	0	0	0	0	0	180	0	0
104	0	0	0	1	1	1	0	1	0	0	0	0	0	0	0
105	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
106	50	0	0	0	1	0	0	0	0	0	0	0	0	0	0
107	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0
109	0	0	0	0	0	1	1	0	0	0	0	0	0	0	100
110	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0
111	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0
112	50	0	0	0	1	1	0	0	0	0	0	0	60	0	0
113	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0
114	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
115	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
116	50	0	0	0	0	1	0	0	0	0	0	0	0	0	0
117	0	0	0	1	1	0	0	0	0	0	400	0	0	0	0
118	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
119	50	0	0	0	0	1	0	1	0	0	0	0	0	0	0
120	50	0	0	0	1	0	0	0	1	0	0	0	0	0	0
121	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0
122	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
123	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
124	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
125	0	0	0	-1	-1	-1	-1	-1	-1	0	0	0	0	0	0
126	0	0	0	-1	-1	-1	-1	-1	-1	0	0	0	0	0	0
127	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
128	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
129	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
130	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
131	50	0	0	0	1	0	1	0	0	0	0	0	0	0	0
132	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
133	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
134	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	1	0	0	0	0	2000	0	0	0	0
136	0	0	0	1	1	0	0	0	0	120	0	0	0	0	0
137	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
138	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
139	0	0	2	-1	-1	-1	-1	-1	-1	0	0	0	0	0	0
140	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
141	-1	-1	-1	0	1	0	0	0	0	-1	0	0	0	0	0
142	0	0	-1	0	1	1	0	0	0	0	0	0	0	0	0
143	0	0	-1	0	1	0	0	0	1	0	0	0	0	0	0
144	-1	0	-1	0	0	0	0	0	1	0	0	3000	0	7000	0
145	0	0	-1	1	0	0	0	0	0	0	0	0	0	0	0
146	0	0	-1	-1	-1	-1	-1	-1	-1	0	0	0	0	0	0
147	0	0	-1	0	0	1	0	0	0	0	0	0	0	0	0
148	0	0	-1	0	0	1	0	0	0	0	0	0	0	0	0
149	50	0	-1	0	0	1	0	0	0	0	0	0	0	0	0
150	0	0	-1	0	1	0	1	0	0	0	0	0	0	0	0
151	0	0	-1	1	1	0	0	0	0	0	0	0	0	0	0
152	-1	-1	-1	0	0	1	0	0	0	-1	-1	-1	-1	-1	-1

	FURNR	MECHR	SEWR	SHOPR	HAWKR	CRFTR	TRADE2	CRPLOS	SBNK	SSTO	SCLB	SBUR	SLIV	SASST	SELSE
1	0	0	0	45000	0	0	1	0	1	0	0	0	0	0	0
2	0	-1	0	0	0	0	1	1	1	0	0	0	0	0	0
3	0	0	0	0	0	50	1	0	1	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
5	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
6	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
7	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0
8	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
9	0	0	0	0	600	0	1	0	1	1	0	0	0	0	0
10	0	0	0	0	0	60	0	0	1	0	1	0	0	0	0
11	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
14	0	0	100	0	0	100	1	0	1	0	0	0	0	0	0
15	0	0	0	0	1500	0	1	0	1	0	0	0	0	1	0
16	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0
17	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0
18	0	0	0	0	50	0	0	0	1	1	0	0	0	0	0
19	0	0	0	0	500	0	1	1	1	1	0	0	0	0	0
20	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	600	0	0	0	0	1	0	1	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
24	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
25	0	-1	0	-1	0	0	1	0	1	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
27	0	0	500	0	0	0	1	0	1	0	1	1	0	0	0
28	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
29	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
31	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
32	0	0	0	7000	0	0	1	1	1	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	0	0	0	50	0	250	1	0	1	0	0	0	1	0	0
35	0	0	0	50	0	0	1	0	1	0	0	0	0	1	0
36	0	0	0	3000	0	0	1	0	1	0	0	0	0	0	0
37	0	0	0	0	60	0	1	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
39	0	0	100	0	0	0	1	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
41	0	0	0	0	0	135	1	1	1	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
43	0	0	0	0	1000	0	1	0	1	0	0	0	0	1	0
44	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
45	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0
46	0	0	150	0	0	0	0	0	1	0	0	1	0	0	0
47	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
48	0	0	200	290	0	0	1	0	1	1	0	0	0	0	0
49	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
51	0	0	100	0	0	0	0	0	1	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
53	0	0	0	700	0	0	1	1	1	0	1	0	0	0	0
54	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
56	0	0	0	0	2000	150	1	1	1	1	0	0	0	0	1
57	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
58	0	0	0	0	0	100	0	0	1	0	0	0	0	0	0
59	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
60	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
61	0	0	0	200	100	0	1	0	1	1	0	0	0	0	0
62	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
63	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0
64	0	0	0	0	200	0	1	0	1	0	0	0	0	0	0
65	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
66	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
67	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
68	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
69	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	0	0	0	0	100	0	1	1	1	0	0	0	0	0	0
74	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
75	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
76	0	0	0	300	0	0	0	0	1	0	0	0	0	0	0
77	0	0	0	0	0	50	0	0	1	1	0	0	0	0	0

[illegible]

	SHOME	AC1R	AC1KM	AC2R	AC2KM	S1TYPE	VISITS
1	0	1000	26	0	0	0	0
2	0	-1	26	0	0	0	0
3	0	1500	24	-1	24	0	0
4	1	0	0	0	0	1	0
5	1	500	26	0	0	0	3
6	0	0	0	0	0	1	0
7	0	1000	24	1000	24	1	0
8	0	1000	26	1000	26	0	0
9	0	500	26	0	0	1	0
10	1	-1	27	0	0	2	0
11	0	1000	24	0	0	1	0
12	0	1000	24	0	0	0	0
13	0	1000	26	0	0	1	0
14	0	1000	24	1000	24	0	4
15	0	1000	24	500	24	0	4
16	0	1000	24	500	24	2	2
17	0	500	24	500	27	0	0
18	0	700	25	0	0	1	0
19	0	100	26	500	26	1	0
20	0	0	0	0	0	1	0
21	0	0	0	0	0	0	0
22	0	1000	26	1000	26	0	0
23	1	0	0	0	0	1	0
24	0	500	26	0	0	0	0
25	0	100	31	100	31	0	0
26	0	1000	28	1000	28	3	0
27	0	100	26	0	0	1	0
28	0	1000	26	1000	26	1	0
29	0	1000	24	0	0	3	0
30	0	-1	-1	-1	-1	1	0
31	0	-1	26	0	0	0	0
32	0	30000	25	1000	25	0	0
33	0	0	0	0	0	0	0
34	0	100	24	1000	24	1	0
35	0	100	24	0	0	0	0
36	0	1000	26	0	0	0	0
37	0	0	0	0	0	0	0
38	0	100	24	0	0	3	0
39	1	0	0	0	0	0	0
40	0	0	0	0	0	3	0
41	0	500	22	0	0	0	1
42	0	500	15	0	0	0	2
43	1	2000	24	0	0	0	1
44	0	1000	32	0	0	1	0
45	0	-1	24	0	0	2	0
46	0	-1	-1	0	0	0	0
47	0	-1	24	0	0	0	0
48	1	1000	40	1000	24	3	2
49	0	1000	26	-1	26	0	2
50	0	500	24	0	0	0	4
51	0	1000	24	0	0	0	4
52	0	1000	15	0	0	0	0
53	1	1000	25	20	25	2	0
54	0	1000	26	0	0	0	0
55	0	1000	24	0	0	0	0
56	0	500	24	0	0	1	0
57	0	1000	28	0	0	1	1
58	0	1000	24	0	0	0	0
59	0	1000	26	0	0	1	0
60	0	1000	26	0	0	1	0
61	0	1000	24	0	0	1	0
62	0	1000	24	0	0	0	8
63	0	-1	24	-1	24	2	0
64	0	1000	24	0	0	0	0
65	0	500	27	0	0	0	0
66	0	1000	24	500	10	0	0
67	0	500	24	0	0	1	0
68	0	500	28	0	0	0	0
69	0	0	0	0	0	1	2
70	0	0	0	0	0	0	0
71	0	-1	24	0	0	0	4
72	1	0	0	0	0	0	0
73	1	1000	24	0	0	0	0
74	0	1000	24	0	0	0	4
75	0	500	24	0	0	1	0
76	0	-1	40	0	0	0	4
77	0	0	0	0	0	0	1

	SHOME	AC1R	AC1KM	AC2R	AC2KM	S1TYPE	VISITS
78	0	-1	50	0	0	0	3
79	0	0	0	0	0	0	4
80	-1	0	0	0	0	0	4
81	0	-1	-1	0	0	-1	4
82	0	500	50	500	50	0	2
83	1	0	0	0	0	0	4
84	1	0	0	0	0	0	4
85	1	0	0	0	0	0	0
86	0	1000	50	1000	65	1	1
87	0	0	0	0	0	0	0
88	1	0	0	0	0	0	4
89	1	0	0	0	0	0	2
90	0	0	0	0	0	0	0
91	0	-1	50	0	0	0	0
92	0	500	50	0	0	1	0
93	1	30000	100	0	0	0	0
94	0	0	0	0	0	0	0
95	0	0	0	0	0	0	4
96	0	500	50	0	0	0	2
97	1	-1	-1	0	0	3	0
98	1	0	0	0	0	0	4
99	1	0	0	0	0	0	4
100	0	10000	500	500	50	1	0
101	1	0	0	0	0	0	0
102	0	0	0	0	0	0	0
103	0	1000	-1	1000	-1	1	1
104	0	599	50	0	0	0	0
105	0	0	0	0	0	3	4
106	0	-1	50	-1	130	1	4
107	1	0	0	0	0	0	3
108	1	0	0	0	0	2	4
109	1	0	0	0	0	0	2
110	1	0	0	0	0	0	3
111	0	-1	150	0	0	0	1
112	0	800	50	63	10	3	6
113	0	1000	300	0	0	0	0
114	1	0	0	0	0	0	0
115	0	0	0	0	0	0	2
116	1	-1	50	0	0	2	0
117	0	0	0	0	0	0	0
118	1	200	-1	0	0	2	4
119	1	-1	50	-1	50	0	2
120	0	1000	50	0	0	0	0
121	0	400	50	0	0	3	2
122	1	0	0	0	0	3	0
123	1	-1	200	0	0	0	4
124	1	0	0	0	0	0	3
125	0	0	0	0	0	0	0
126	1	0	0	0	0	0	0
127	1	-1	-1	0	0	0	0
128	1	0	0	0	0	3	0
129	1	0	0	0	0	0	0
130	0	500	50	0	0	2	0
131	1	-1	10	0	0	0	4
132	0	500	50	0	0	0	4
133	1	-1	-1	0	0	2	1
134	0	400	50	0	0	0	0
135	0	-1	50	-1	300	0	0
136	1	0	0	0	0	0	0
137	0	0	0	0	0	0	0
138	1	-1	-1	0	0	3	1
139	0	0	0	0	0	0	2
140	1	500	12	0	0	3	1
141	-1	-1	-1	-1	-1	-1	-1
142	0	-1	-1	0	0	0	2
143	0	-1	12	0	0	0	0
144	0	1000	50	100	50	0	1
145	0	0	0	0	0	0	0
146	0	-1	-1	0	0	0	0
147	1	0	0	0	0	0	1
148	0	0	0	0	0	0	0
149	0	1000	300	-1	50	0	0
150	1	0	0	0	0	0	1
151	0	0	0	0	0	0	1
152	-1	-1	-1	-1	-1	-1	-1