Risk, resettlement and relations : social security in rural Zimbabwe

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Risk, Resettlement and Relations: Social Security in Rural Zimbabwe

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door

Marleentje Dekker

geboren te Barendrecht

promotoren: prof.dr. J.W. Gunning
prof.dr. A.J. Dietz

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Marleen, January 2004

Content

1. Introduction

We are seated against the wall of a hut in Muringamombe village. The hut is filled with women; all are quiet and sit with their heads down. Suddenly the door opens and a new visitor comes in, she cries loudly and most women start crying with her. The visitor approaches the mother of the house and passes her condolences on the death of her daughter. Then she sits with her for some time and they softly talk and cry together. When new visitors arrive, the crying becomes louder again and the first visitor makes room for the new visitors to sit with the bereaved mother. The crying goes soft again until another visitor arrives. After some time, drums are beaten outside and we hear some laughter and agitated voices. Two men enter the hut, dancing and encouraging the women to dance with them. Some women dance, others clap and sing cheerfully. When the men leave the hut, everyone goes quiet and the sobbing starts again. Occasionally, a woman goes outside to assist a small group of women who are preparing food for the visitors. The remainder of the homestead is filled with men who sit together and talk. A small group of men is preparing to dig the grave while in a quiet corner of the homestead; two men are seated with a book. After paying their respects to the bereaved father and mother, each visitor approaches these men, nephews to the bereaved family, to pay their contribution to the funeral, their chema payment. The amount of each payment and the name of the provider are recorded in the book and at the end of the burial, the contributed amounts are announced, not on a personal title, but in categories such as the deceased's friends or his/her fellow church members.

Witnessing a funeral in Zimbabwe, in this case the funeral of a daughter of a plot holder in Muringamombe, one of the villages in our study, was for me one of the most impressive experiences of doing field research. The public display of grief and the open emotional and material support provided to the bereaved family is in stark contrast with most of our funerals in The Netherlands. At the same time, this funeral, as well as others and other ceremonies that I attended during my fieldwork, illustrates the solidarity in these rural communities, however strong or weak it may be. Without wanting to romanticise this solidarity, as it may well have reduced over time, may not provide sufficient protection to everyone in the community or against all the hardships experienced and may put a strain on household cash, food and labour resources, it does show that members of the community assist each other in times of need. In the case of a funeral, this assistance is multi-dimensional. Different persons (kinsmen, close friends, church members, neighbours and other villagers) provide support. Ranging from joint mourning (women crying together) and providing entertainment to distract the thoughts of the mourners (the dancing men) to practical pursuits such as the preparation of food or digging the grave. And material supports like the monetary contributions to the costs of the funeral and assistance in kind such as firewood, vegetables or mealiemeal, etc.

This dissertation is about such practical and material assistance in times of need. We consider a range of risks that are common in Zimbabwe, broadly labelled income and expenditure risk, and study the ways in which farmers respond to these situations. Although households also have a range of individual strategies to prevent, mitigate and cope with risk, we particularly focus on the ways households use their social networks to deal with crisis situations that befall their family. We address the role of non-household actors ranging from kin relations or lineage members to church members and the government. Our work starts from the economic literature on risk sharing. Risk sharing is typically defined as a system of mutual assistance relationships in a given group where any unpredicted event affecting one member is insured by a transfer from other members of the group (Dercon, 2000). This transfer is state-contingent; it depends on the income realisation of both the provider and the receiver.[1]

We also include elements from social security studies, which argue that many arrangements are not pure insurance (with a clear relation between premium and benefit), and livelihood studies that emphasise the importance of the institutional and social context in understanding risk coping strategies.

Our study is situated in Zimbabwe's resettlement areas. These areas were established in the early 1980s and provided small black farmers with the opportunity to settle on former commercial farms. The settlers received relatively large pieces of good quality land and settled in communities that differed considerably, both in their physical and social set up, from the communal areas, the areas where the majority of black smallholders were living before Independence and still lives. This a-typical situation of resettlement farmers allows us to study in more detail the influence of the social environment and different types of social ties or social capital on risk coping behaviour. As such, our work contributes to the growing literature on risk sharing and social capital and is relevant for the discussion on vulnerability and poverty.

1.1. Risk Sharing

For the *chema* payments described here, the risk sharing arrangement is rather explicit. In Muringamombe, as in many other villages in Zimbabwe, all villagers have agreed to participate in *chema* payments. At every funeral in the village, each adult man pays Z$10 while each adult woman contributes Z$ 5 and a plate of maize meal.[2] The level of these payments was jointly determined and is occasionally adjusted in response to increasing prices (the amount goes up) or the frequency of funerals (the contribution goes down). Relatives of the deceased are expected to pay a higher *chema* contribution, even when they come from far and have to incur considerable costs for transport to the funeral. The height of such kin contributions is determined within the family and partly depends on the resources available to the individual family member. Church congregations may have also agreed on a particular contribution to funerals at their members' household or more generally their fellow villagers.

[1] The term state-contingent has no relation to the political meaning of the word *state* as for example used in the concept nation state. In economics, the term state-contingent refers to the "state of the world". In risk sharing the term is used to indicate that payments or assistance are provided contingent on the realized outcome; only when adversities are actually experienced.

[2] This arrangement is different from a burial society, in which membership is often more exclusive and contributions are paid in regular intervals, irrespective of deaths.

These contributions are usually made without request or force as all funeral guests want to ensure financial assistance from their villagers and other relations in case they or another member of their household dies. Yet, the list of contributors and their donation is carefully monitored and if someone from the village has not attended the funeral nor contributed the agreed amount, he/she will be visited and queried about the reasons. Lack of resources is often a valuable argument for lower or delayed contributions. However, repeated delays or failures to contribute are not accepted. In such cases, the defaulter will be subject to gossip and (s)he will be further punished at the time of bereavement in his/her own household. Then, in consultation with the village head, fellow villagers will discuss how to treat the household that failed to attend and contribute to funerals in the past. They will neither attend the funeral nor pay any contributions or they will attend and pay their contributions in a very reserved way, as a formality, without the practical, emotional or spiritual support usually provided.

Bereavement in the household is an obvious occasion that calls for support; it often occurs unexpectedly and imposes considerable costs that will press on potentially already limited household resources. Clearly, there are many more situations that may threaten people's livelihood. Not necessarily as disruptive as death, but often related to the potential to generate sufficient income, such as the shortage of labour or draught power. In such situations labour or cattle sharing arrangements may bring solace.

The literature has emphasised two conditions that affect the operation of risk sharing arrangements. To provide full protection against the consequences of risks, participants in the arrangement should be able to monitor each other's behaviour and the "risk-sharing contract" must be enforceable. The first is important to have information about individual or household outcomes and the causes that led to these outcomes, while the latter is important to prevent participants with good outcomes to renege on their promise to assist those with bad outcomes. In the example of the *chema* payments in Zimbabwe, the outcome is observable and the possibilities for contract enforcement are predominantly related to the repeated and inevitable character of the risk insured -every household will at one time be confronted with a death- and the public disgrace that results from reneging.

Risk sharing can have many shapes and is certainly not restricted to explicit sharing mechanisms. It may also involve much more implicit bilateral gift giving arrangements or informal credit transactions through relations or institutions that are not normatively defined to do so (Benda-Beckmann and K., 1994). Such arrangements may be used to meet unexpected expenditures in case of medical bills, food shortages or in response to theft. In these implicit arrangements information and enforcement issues are even more important. Information and enforcement constraints are often reduced through customary rules and regulations that work best in a group that is homogenous in norms and values. It is therefore likely that risk sharing takes place in groups of limited size. As a consequence, these arrangements can provide insurance against risks that affect particular individuals or households, but cater less well in situations of risk that affect the whole group or community, such as droughts, pests, etc. In those situations support predominantly, but not exclusively, comes from outside the group, for example from relatives living elsewhere or in the form of public relief aid. Access to this external support may however be organised along similar lines as risk sharing arrangements.

Assistance received through risk-sharing arrangements often arises from a claim which is based on the recognition that membership of a community involves both an obligation to share resources and a right to support in case of needs (Swift, 1989a). There is increasing

evidence that risk sharing, rather than in exogenous one-dimensional delineated insurance groups such as a village or an ethnic group, is more likely to take place in subgroups or through bilateral relations. These subgroups are argued to be more homogeneous with respect to norms and values that enhance trust and therefore are more likely to overcome information and enforcement constraints. It is important to have stable relations that reflect a common identity, continuity and trust or to team up with people that abide by the same codes of behaviour, share the same rituals and use the same language (Platteau, 2000). The delineation of the sub-groups or bilateral relations for risk sharing will therefore depend on the social setting that is studied and may be defined along multiple dimensions. Fafchamps and Lund (2003) for example find that in the Philippines, risk is shared in groups of friends and relatives rather than the village. De Weerdt (2002) shows that risk sharing relations are determined by kinship, geographical proximity, the number of common friends, clan membership, religious affiliation and wealth in Tanzania, while Platteau (2000) more generally emphasises the importance of kin relations and in their absence church membership.

1.2. Zimbabwe

The life of many Zimbabweans is ruled by risk and uncertainty, especially since the first farm occupations in early 2000 started to disrupt the country that had been relatively stable until then. These invasions were allegedly aimed at resolving the unequal division of land between four thousand predominantly white commercial farmers and the black rural populations. In response to these occupations, many white farmers fled (or were forced to flee) their farms. By 2003, the number of white commercial farmers was reduced to four hundred and the confiscated land was theoretically available for "fast-track" resettlement of black communal farmers.[3]

In reality, as Andersson (2002) argues, these farm occupations and the subsequent fast-track land reforms were a strategic response of the government to divert attention away from economic mismanagement and to boost dwindling political support. The latter was evidenced by a clear "no" in the referendum on constitutional reforms held early 2000 that would grant more power to president Mugabe, and the unexpected high support for the opposition party MDC in the parliamentary elections later that year. The first farm occupations, allegedly organised by the government, were the prelude to a period of heightened political tension, ever increasing intimidation and an unprecedented economic crisis that is getting worse until today. By July 2003, Zimbabwe was the fastest shrinking economy in the world (DEG, 2003a). Scarcity of food and other basic necessities such as cooking oil and sugar alternates with full shops and stores but a lack of money to buy these goods. The official rate of inflation was pegged at 365 percent in June 2003 and the price of bread increased from Z$ 550 to Z$ 1.000 in July (Daily News, 2003b).[4] Although such price hikes disproportionally affect the urban population, farmers are also affected. In the preamble to the 2003/2004 growing season, they saw prices of inputs increase by more than 300 percent, while the new producer prices only increased by less than 200 percent (Financial Gazette, 2003).

[3] This land reform was labelled fast track land reform, reflecting to its unplanned nature and it also referred to as Zimbabwe's Agricultural Revolution (Daily News, 2003a).

[4] For comparison, a loaf of bread costed Z$ 8 in February 2000 (Daily News, 2003a) and the official exchange rate of the US$ to the Z$ increased from 1: 38 in January 2000 to 1: 814 in September 2003 (Currency Site, 2003).

The current instability and insecurity increasingly add to the many risks small farmers in Zimbabwe normally face. As their livelihood largely depends on rain-fed agriculture, they depend on the vagaries of the weather. Yet, even in a good rainy season many farmers live on a sensitive equilibrium that may be negatively affected by unexpected expenditures, such as funerals or medical bills, theft, fire, labour shortages (resulting from illness or bereavement), shortages of draught power or individual harvest failures. This dissertation is about these risks and will not consider the current instability and the risks and uncertainty ensuing from it. Much of the data used in this dissertation were collected before the political turmoil and economic downturn gained full force.

Zimbabwe is also a country with one of the highest HIV/AIDS prevalence rates in the world: an estimated 34 percent of the adult population is infected. AIDS-related illnesses and deaths are on the increase and will continue to do so for a still a considerable time to go. Obviously, this is not without consequences. Households will increasingly be confronted with a reduction in labour supply and increased costs to meet medical expenses, etc. Also, it may be more difficult to cope with these situations, as existing arrangements to share labour shortages, meet unexpected expenses and risk in general may not be able to meet the increased demands and may eventually collapse. Although we do acknowledge the potential impact of this pandemic, it is extremely difficult to disentangle AIDS-related illnesses and deaths from non-AIDS related illnesses and deaths and therefore, we will not specifically assess HIV/AIDS as a risk factor. Nor will we assess the impact of HIV and AIDS on risk sharing arrangements, partly because it is not easy to single out the impact of the pandemic from a range of other developments that were/are taking place at the same time. However, given the prohibition on labour migration from the resettlement areas until the early 1990s and the relative isolation of many resettled villages, it is believed that the incidence of HIV/AIDS infection may be lower in the resettlement areas under study compared to many other parts of the country (Serra and Kinsey, 2000).

The prevalence of risk in life is not a unique feature of Zimbabwe or other developing countries. Also in countries like the Netherlands, we run the risk of illness, old age, loss of income, etc. At the same time a relatively well-established social security system and possibilities to insure against illness, bereavement, theft and fire in the market provide protection against these risks. In many developing countries such provisions are either non-existent or not accessible for smallholder farmers and Zimbabwe is no exception. There is no comprehensive state-run social security system and the few schemes that exist, such as disability benefits and pensions, are exclusively targeted at formal sector workers. Additionally, public assistance programmes assume that able-bodied, small farmers, are generally able to grow sufficient food to meet their consumption needs (Kaseke, 1998). Although there used to be programmes to assist families in paying school and health fees, a limited budget and unclarity on eligibility on the part of the target group meant the possibility of the government to assist in non-food needs was generally limited. Given these observations, Kaseke concludes that food aid programmes during drought years are in fact the only direct public support available to small farmers.

Although there is an insurance market in Zimbabwe, offering a range of insurances from personal damages (such as life-insurance) to asset protection, the insurance companies predominantly cater for an urban based employed target group and large scale commercial farmers. Small farmers are simply not considered as a target group, either because transaction costs to attain an actuarial sustainable insurance are too high, or the willingness and ability of the target groups to pay premiums is perceived to be too low. An important exception is the

crop insurance for tobacco farmers, organised through the Tobacco Sales Floor, the only market for tobacco in Zimbabwe. Regardless of the size of the farm, each farmer pays a premium to protect his/her tobacco crop against hail or any other damages that may affect the crop from field to the sales floor. The premium for this insurance is based on the acreage of tobacco cultivated and is deducted from the sales price. Another initiative aimed at improving the social security position of small farmers was the introduction of a pension fund for small farmers in the mid-1990s, an initiative from a farmers union and an insurance company. The continuation of this scheme was however constrained by limited membership and difficulties to obtain financial sustainability (Mukora, 1998; Soerink, 2000).

Informal risk sharing arrangements, such as the *chema* payments described above, have been demonstrated to be important in environments where risks are pervasive and market insurance or public social security provisions are limited or non-existent. Several studies have illustrated the variety of arrangements that are operational in Zimbabwe to protect households against contingencies of various nature. Wolmer *et al.* (2002) for example highlight the importance of various labour and cattle sharing arrangements as the institutional underpinnings of agricultural development. Madembo (1998) hints at the potential importance of burial associations, rotating savings and credit associations or grain saving schemes in providing social security to the rural population. Hoogeveen (2001) argues that intra-village transfers provide partial protection against fluctuations in income, while Kaseke (1998) more generally emphasises support networks revolving around kinship ties or village membership.

The work of Bourdillon (1976), Swift (1989b) and Wolmer *et al.* (2002) also underlines the importance of close and extended kinship relations in providing assistance in times of need. Consequently, if people move away from their place of residence it is likely that their support network is altered or disrupted, especially when they move away from kinship relations. This happened for example when people migrate to town (Gluckman, 1960; Swift, 1989b), but has also been documented for resettlement areas (WLSA, 1997). Relocation to these areas often implied a move from a social environment that was characterised by dense kinship relations (the communal areas) to a randomly composed new community that consisted of mere strangers. This move away from kinship relations and settlement in an ecologically and socially different environment potentially affects risk coping behaviour. This is illustrated by the settlement history of the Matsika's presented in box 1.1, which also provides a more general impression of the resettlement process, risk coping behaviour in general and risk-sharing arrangements more specifically.

Box 1.1. Settlement history Matsika family

During the four years before Independence, Mr. and Mrs. Matsika and their fellow villagers were living in a keep, a protected village. The area where they live was heavily affected by the war of independence and the fighting was so severe that it was not safe to remain at their own homestead. Their cattle had perished in the war and their homestead had been destroyed. Despite the joy they felt when the war ended, they also did not know what to do or where to go. Fortunately, the new government offered small farmers the opportunity to acquire land on the former commercial farms and Mr. Matsika and his wife decided to apply for their own plot. This was not an easy decision. Where they used to live before the war, they resided amongst close relatives of Mr. Matsika; his parents and younger siblings, and two of his married brothers and their families.

Although their plot of land was small, as Mr. Matsika's father had to divide his land amongst his sons and they sometimes quarrelled with their relatives over land and other issues, it was also good to live with them. When one of their ploughing oxen was ill, they could use the ox of Mr. Matsika's brother and when Mrs. Matsika had to stay in the hospital after the birth of their first child, Mr. Matsika's father assisted them with money to pay for transport and medical fees.

With these experiences in mind, both Mr. and Mrs. Matsika were concerned how to cope with such difficult situations when they would move away from their relatives. On the other hand, their home was destroyed, they lost all their cattle and the younger brother of Mr. Matsika was now married and also demanded a portion of the land of his father. So they decided to take the chance, even though Mr. Matsika's father and elder brothers strongly disapproved. They felt the family should stick together in these difficult years just after the war, especially since Mr. Matsika's father was now getting old and could do with some help to rebuild his home and farm.

A few months after their application, Mr. and Mrs. Matsika received a message: together with 29 other families, they had been allocated a new stand in village 11 in Mupfurudzi resettlement scheme. In August 1980 they arrived in their new village and found the plot for their new homestead demarcated and their fields pegged. They were allocated 12 acres! This was four times the area that they had been cultivating in the communal area. But in the village, there was virtually nothing. There were no facilities, no structures, no cattle pens and even the fields were not ready to be cultivated. Every settler had to clear his fields from trees, bushes and stones and erect (temporal) structures for shelter. Mr. and Mrs. Matsika did not have a lot of resources to build their new homestead and to clear and cultivate their fields. Nor did they know their new neighbours and therefore they were reluctant to ask their assistance. Should not they go back to their home area where they could temporarily live with Mr. Matsika's father and then build their own homestead?

Then, Mrs. Matsika found out that the wife in one of the other settler households had the same totem as her, which made it easier to approach each other and help out with practicalities. Through her, she came to know more people in their new village and soon they started to work together; Mr. Matsika was an experienced thatcher of roofs, others brought a few heads of cattle and still others were skilled builders. Together, their skills and labour provided a good start. As the rains in the first season were exceptionally good, Mr. and Mrs. Matsika had a bumper harvest and were able to store lots of maize, to buy two heads of cattle and build a separate kitchen. The following three years were less successful. The rains were poor and their harvests low. As they could not survive on the food stocks that remained from the first year they had to rely on government food aid and food bought with the money that Mr. Matsika earned with piecework on the nearby commercial farm. This was sufficient to get through these meagre years.

After those three drought years, things got better. Mr. and Mrs. Matsika were able to plough their fields, cultivated maize and cotton and for several years they generated a reasonable income. They were now used to their new village; used to the new farming environment and new crop (cotton) and became good friends with some people in the village. They were able to acquire two more heads of cattle, put some money in the bank and shared some of their maize harvest with their relatives back home. Now that those first and difficult years were behind them, families in the village started to work more individually, and those who were in need of extra labour, would hire the services of others.

The drought years 1992 and 1995 were tough again. Although they had stored some food, this was not sufficient to feed the family, which now counted five children. The food provided by the government was limited in 1992 and could only be obtained after they worked in the Food

For Work Programme. This made it more difficult to work on the commercial farm to earn some extra income. Therefore, the Matsika's decided to sell one of their cattle. From the cash they received for this beast, they were able to buy maize and other necessities such as cooking oil, soap etc. In 1995, the food stored from the previous harvest and the more generous allocations under the Grain Loan Scheme made it much easier to cope. In the following years, things turned for the better.

Then, just before the last rainy season, things changed again. One of Matsika's oxen disappeared, allegedly it was stolen, and as their other cattle were not trained for the job, they faced difficulties in ploughing their fields. He approached one of his friends in the village and agreed to use two of his oxen to plough, in exchange for providing labour at his friend's field during weeding time. In the same season, his wife could not do a lot of work in the field as she had to take care of her mother who was ill and came to stay with them. As a result, their harvest was low and they ran out of food with three months to go before they would harvest their maize. Although he was reluctant to do so as he had left his home to look for greener pastures and was therefore expected to fend for himself, Mr. Matsika decided to ask his relatives in the communal areas to help him out. As he always took care of them when he was doing well, they were now willing to help him and were able to do so as their harvest had been good. They gave him one bag of maize. Although this was not enough to get through, it was sufficient to prevent Mr. Matsika from selling another cow as the remaining maize was "earned" by his eldest son who helped one of the "big" farmers in the village during weeding time.

Source: in-depth interviews and village history.

The resettlement programme that is central in this dissertation and under which the Matsika's were relocated is different from the fast-track resettlement programme initiated in the early-2000s. The first phase of land reform was (generally) a well planned relocation programme that distributed relatively large plots of land (12 acre) to a group of randomly selected farmers and as we will see later was accompanied by a wide range of support services and development of infrastructure. The fast-track resettlement programme distributed smaller portions of land to small-scale farmers and is far less organised.[5] The establishment of new farms and communities is not or hardly accompanied by development of infrastructure, such as the drilling of boreholes or the establishment of schools and clinics, to mention a few basic services (Harts-Broekhuis and Huisman, 2001). Moreover, the tenure status of the newly established farms is insecure, there were no or hardly any credit facilities and settlers were allowed to bring a limited number of cattle, three factors that considerably constrain the establishment of a successful farming operation.

1.3. Research methods, focus and relevance

The choice of Zimbabwe as the research country was not only determined by the pervasiveness of risk for rural households, the potential importance of informal risk sharing arrangements in coping with risk and the presence of a group of rural households that had been relocated relatively recently. A vital element was the existence of a unique panel data

[5] Although a considerable number of confiscated farms have been used to settle small farmers, much of the confiscated commercial farmland still laid idle in June 2003. Other farms have been allocated to Mugabe's crownies or to foreign "friends" of the current regime, such as the Libyan leader Ghaddaffi as payment for a continued provison of fuel (DEG, 2003b).

set that could inform us on these three elements, the Zimbabwe Rural Household Dynamics (ZRHD) data set. This data set is the result of a major research effort initiated and managed by Bill Kinsey that started in the early 1980s with the aim of monitoring the behaviour of resettled households. It contains information on 400 resettled households and since 1997 also includes 150 households from communal areas. The data from this research form the basis for this dissertation and are supplemented with both qualitative and quantitative material on the specific social setting of resettlement communities. The availability of both survey data and qualitative material on the villages and the households in our study allows an approach that combines statistical analysis and case study methods. In-depth interviews and case studies were not only used to formulate hypotheses and shape the quantitative analyses presented in the chapters of this dissertation, but also to illustrate outcomes and arguments ensuing from the formal analyses conducted.

Given the inaccessible insurance market and the limited public social security provisions for small farmers in Zimbabwe, the central question in this dissertation is how these resettlement farmers cope with risk and more specifically what type of social arrangements and social relations they use to enhance household security. Although we focus on resettled farmers, the availability of information on communal farmers allows for a comparative perspective as well. There are distinct differences between these two types of farming households that may affect their risk coping behaviour and more specifically the opportunities and arrangements for risk sharing. The resettled farmers live in recently established villages with centralised settlement patterns and a relative scarcity of kinship relations, social ties that are often regarded instrumental for risk sharing. Communal farmers on the other hand live in relatively longstanding communities, largely organised around kinship structures and generally characterised by a dispersed settlement pattern. Almost twenty years after resettlement, a distinct social structure has developed in resettled communities and most settlers actively participate in a wide range of religious and non-religious associations. Moreover, on average a resettled household has higher income and asset-levels compared to their communal colleagues. We will address the impact of these characteristics and developments on risk coping behaviour and support networks. We also consider in more detail the role of two specific institutions: the government and marriage relations, in providing protection against food shortages in drought years and loss of cattle respectively.

The relevance of our research is related to the importance of risk and risk coping in the development debate. These subjects form the centre stage in discussions on vulnerability and poverty and are believed to be the key to long term poverty alleviation and household security. Our study also presents insights in the social impact and social dynamics of resettlement communities and evaluates resettlement in Zimbabwe on social rather than economic indicators. These social indicators clearly have economic relevance as they shape the opportunities for risk coping behaviour and are likely to determine poverty and growth. The lessons learned from this resettlement experience can be relevant for future resettlement practices, both in Zimbabwe and elsewhere and specifically evaluates the opportunities for social capital development in newly established communities. We show that some initial social capital at the time of resettlement, especially kinship relations, is helpful. It encourages the development of a culture in the village that is more conducive to risk sharing. Yet, we also find that not all social capital developed after resettlement is equally suitable to be used in risk sharing relations and argue that our finding that social capital is highly goal and context specific is an important contribution to the social capital literature.

1.4. Structure of the dissertation

Following this introduction, the dissertation is organised in the following chapters. Chapter two reviews the literature that shaped our perspective on risk, risk coping and social relations. It starts with an overview of risk and uncertainty in general and Zimbabwe in particular and continues with an outline of various strands of literature considering risk and the social relations used to cope with it. In some of this literature the focus on risk is rather explicit, as is the case in the risk sharing literature that uses micro-economic models to explain household behaviour in uncertain environments. The livelihood approach emphasises that risk is one of a range of elements that shape people's livelihood: livelihood outcomes are determined by household's assets and activities and the access to these that is governed by a range of institutional, political and cultural factors. The relations between these elements are however not formalised, as is done in micro-economic risk studies. Social security studies advocate a broad perspective on the relations, institutions and arrangements that may provide security to individuals or households and argue for a functional approach that includes relations and arrangements that may not have an explicit insurance function. Although these strands of literature are traditionally distinct, we argue they can be usefully combined. Livelihood and social security studies clearly outline the range and type of elements that should be included in micro-economic models aimed at explaining household behaviour under uncertainty.

In Chapter three we describe the different sources of data we have used in our study. We first discuss the Zimbabwe Rural Household Dynamics data set and the peculiarities of working with a data set that covers such a long period and respondents from both resettlement and communal areas. Secondly, we describe data that were collected in the same communities for a research project on social capital. Then we give an outline of the information that we collected on social networks and risk sharing that supplements the ZRHD data. We discuss the methodologies we used in data collection, the difficulties and opportunities we were confronted with and the quality and usefulness of the information gathered.

Chapter four provides more details on the context of the communities we are studying, with a specific focus on the social environment at the time of resettlement and the evolution of social relations and networks over time. We also compare the current situation of resettled and communal households with respect to their household characteristics and the social relations they have in their respective communities. Information provided in this chapter refutes the premise that settlers completely settled on their own and arrived in new communities with virtually strangers, and shows that resettled households invested heavily in new social ties through participation in religious and non-religious associations. The social structures of the resettled villages are considerably and importantly different from that in the communal area.

In chapter five and six we consider in more detail the effect of resettlement on household coping behaviour and more specifically the type of social relationships used in risk sharing. Central in these two chapters is the question if the scarcity of kinship relations that was observed in chapter four affects the opportunities for risk sharing, and if so if the new social structures that have developed in the resettled communities provide alternative instruments for support. In chapter five we evaluate household responses to a range of risks and observe particular differences in coping behaviour between resettled and communal households. Although both resettlement and communal households predominantly cope with a shock through assistance from their support network, households in resettlement areas are more

likely to develop an individual response when they face a problem. We explain these observed differences by reference to household characteristics such as wealth, intra-village kin relations and household size and village level variables that may represent norms on sharing behaviour. We find that a difference in the kin-composition of the villages, which is believed to result in a distinct risk-sharing culture, is the dominant factor explaining these observed differences in household coping behaviour.

Finding a village specific culture on risk sharing does not imply that the village also represents the insurance group. Earlier work by Hoogeveen (2001) suggested that informal insurance in the villages in our study is only partial and therefore, the village should not be considered as the insurance group. In chapter six we follow the perspective of other recent studies that found that risk sharing is more likely to take place in subgroups in the village and ask which social relationships are instrumental in risk sharing in four resettlement villages in our study. To do so, we consider the village as a risk-sharing network and consider the risk sharing relations between households, rather than households themselves, as our unit of analysis. We use a model from social network analysis to analyse the determinants of network formation and the direction of flows of assistance. Despite high levels of civil social activities in these new, "kin-scarce" communities, we find that risk sharing most often takes place between households with relationships that pre-date resettlement, i.e. those that refer to a shared past. Risk sharing relations are also determined by past assistance relationships, sometimes as a reciprocation of earlier assistance, but also as charity, a continuation of previous assistance. We also find that the precise social relationship that facilitates insurance is highly village specific, which is in line with the finding of the village specific risk sharing culture found in chapter five and the development of a distinct culture of co-operation found by other researchers in the same communities.

In chapter seven we assess the impact of two government food aid programmes, that differed both in terms of their set up and the quantity of food available for distribution, on household consumption outcomes during the 1992 and 1995 drought years. On average, households were able to meet their consumption needs, partly because these government programmes were in place but also because they were able to obtain food from the market. More detailed consideration of the distribution of consumption outcomes however shows that these outcomes vary enormously. A considerable number of households were not able to meet their consumption needs, which suggest the programmes might have been better targeted. We analyse the determinants of per capita food allocations in the government programmes and found only limited responsiveness to household portfolio characteristics. We did find a geographical pattern in food distribution that did not reflect rainfall patterns. This difference rather reflects geographically differentiated attitudes towards resettlement farmers or experiences in running food programmes and/or a political use of the food aid instrument. The hypothesis on strategic implementation of food aid programmes is further supported by the importance of connections in obtaining higher allocations and the lack of responsiveness of the food aid programmes to large household sizes.

In chapter eight, which is based on joint work with Hans Hoogeveen, we take a closer look at Shona bride wealth payments and argue that this customary institution provides protection against the loss of cattle. Rather than a lump sum payment at the date of marriage, bride wealth is paid in instalments and thus creates a relation of indebtedness (*jeredzwa*) between a married man and his father in law. Combined with an agreement on the number, but not the type, of cattle to be paid for the marriage, these outstanding debts can be called in when need arises. We show that bride wealth debts are indeed called in when households face a shortage

of cattle and that this protection is enhanced by the creation of a large insurance pool. The choice of a marriage partner outside one's own lineage creates a chain of bilateral marriage relations with enforceable claims on cattle that allows to meet bride wealth obligations even when no surplus cattle are available in the household itself.

Finally, in chapter nine we bring together the findings of the previous chapters, conclude, and reflect on the lessons to be learned from our work and touch on some of the questions that remain. Our main findings relate to social capital. The social capital literature emphasises the merits of social interaction in the form of social relations, norms, trust and institutions for its role in promoting particular outcomes, including risk-sharing arrangements. Many social capital studies however, do not specify the particular structures, social relationships or attitudes that matter, nor quantitatively assess their importance. It is however possible and necessary to do so to understand how and why social capital is important. Our social network analysis of risk sharing relations shows that risk is not shared between households that are just somehow related. Only particular social relationships are instrumental in risk sharing and the type of relationship that matters is highly village specific. Hence, we conclude that geography matters and that not all forms of social capital are helpful. Finding that social capital is not always useful or constructive suggests it may in fact have negative consequences as well. Households lacking the specific type of social capital that is important to achieve a particular outcome in a particular setting, in our case sharing risk within the village, may in fact be excluded from these security arrangements and have to develop alternative arrangements or coping strategies.

2. Risk, Coping and Social Relationships: An Overview of the Literature

All over the world people face risks and uncertainties that affect their lives and livelihoods. Consider for example the risks of natural hazards like floods, droughts and earthquakes, security risks caused by war and civil unrest, financial risks in investments in the stock market or income risks due to unemployment or disability etc. Obviously, the type of risks and uncertainties that people face and the way they experience and respond to these risks once they occur differ immensely from place to place and from time to time. This chapter sets out the type of income and expenditure risks that we discuss in this dissertation and reviews different strands of literature that study the ways rural households in developing countries live and deal with risks and uncertainties.[6] In this dissertation we combine elements from livelihood studies, studies on risk and insurance and social security studies.

Studies on risk and insurance in development economics argue that risk is central in explaining household behaviour. Because risk is pervasive, household behaviour is shaped by strategies to prevent, mitigate and cope with it through self-insurance or risk sharing arrangements. Livelihood studies take a broader perspective and argue that risk is only one of the factors that influences household behaviour and livelihoods. These studies use an asset-based framework that outlines the various assets and activities that households use in making a living. Opportunities and constraints in the institutional, social and policy environment of these households shape their access to these assets and the pursuit of livelihood activities. This emphasis on contextual elements is especially important when studying social arrangements to deal with risk as we will see that the social and institutional environment largely influence the possibilities to overcome information and enforcement problems, two important constraints for efficient risk sharing. Social security studies advocate a broad perspective and argue for a functional approach to household security that includes relations, institutions and arrangements that may not have an explicit insurance function.

This chapter is organised in seven sections. In section one and two we present several taxonomies of risks and discuss the relations between risk, poverty and vulnerability. In section three we discuss the economic literature that presents a range of strategies to prevent, mitigate and cope with risk while section four outlines the livelihood approach. Section five reviews the literature on risk sharing and section six discusses some important issues brought forward in social security studies. Given the central role of social relations in these approaches, we provide a brief overview of the literature on social capital in section seven. Section eight concludes.

[6] Both rural and urban populations experience risks, these may be the same or different risks and they may respond to them in the same way or in different ways, depending on the nature and the impact of the risk involved. As our research focuses on risks in rural Zimbabwe, the remainder of this chapter is concerned with risk in a rural setting.

2.1. Concepts of risk

Risks have been the subject of much writing in academic literature, across disciplines and with respect to a large variety of risks (Renn, 1992). In industrial countries, the debate on risk is predominantly centred around technological, environmental and health risks, for example in relation to nuclear power, toxic industrial wastes or smoking behaviour. Much of the technical and medical literature studies how these risks can be assessed and managed, while studies in psychology, sociology and anthropology focus on the perception of risks (Douglas, 1986) and for example the role of the media and communication in this field (Blomkvist and Sjoberg, 1987). Although these type of risks are also present in many developing countries, studies on risks in these contexts are mainly concerned with uncertainties that individuals or households face regarding the supply of food and income (Scoones *et al.*, 1996), also broadly labelled income risks (Alderman and Paxon, 1992).

Although conceptually different, risk and uncertainty are often used in one breath when income and expenditure risks are discussed (Scoones *et al.*, 1996; Siegel and Alwang, 1999).[7] Risk and uncertainty refer to possible events, the actual occurrence of which is often referred to as a shock. A shock can be both positive and negative. In the context of income and expenditure risk in rural areas, a positive shock is for example a bumper harvest after good rains and increased income due to favourable developments in the prices of cash crops. Or a reduction in the costs for medical treatment resulting from the opening of a rural clinic that offers cheap and accessible medical care. Examples of negative shocks are a drought that minimises the harvest and causes livestock losses or the death of a family member that incurs substantial costs for the burial ceremony and possibly affects future production through reduced labour availability. Both the presence of risk and the occurrence of shocks affect people's lives and livelihoods, an issue that is discussed in more detail in section 2.2.

Income risks or shocks have been classified in various ways, in relation to their source and nature, their frequency, their intensity and the level at which they occur (Buchanan-Smith and Maxwell, 1994; Holzmann and Jorgensen, 2000). As we will see later, each of these dimensions affect the possibilities to deal with the risk. Income risks can be caused by natural hazards, such as floods, earthquakes and volcano eruptions, or induced by human behaviour, like loss of assets resulting from war, breakdown of sharing mechanisms in the community or inflation caused by economic policy. These non-natural risks can again be subdivided into various categories. Holzmann and Jorgensen (2000) for example distinguish health (injury or illness), life cycle (birth, old age, death), social (crime or war), economic (unemployment), political (discrimination, riots) and environmental risks (pollution, deforestation etc.). While Weinberger and Jutting (1999) list production risks (such as price risks), health risks (old age, epidemics), social risks (claims, crime and war)and policy or institutional risks (failure of local institutions, unspecified property rights).

It is also important to assess if shocks occur in isolation and what their impact is. Shocks can be repeated over time, such as consecutive drought years, or related to another such as illness

[7] Formally, risk refers to situations in which all possible outcomes are known, as is the likelihood of each occurring. Uncertainty on the other hand refers to situations in which many outcomes are possible and their likelihoods are unknown (Pindyck and Rubinfeld, 2001). The probability approach is often used in technical risk assessments (e.g. in relation to nuclear power and chemical plants) and actuarial approaches by insurance companies to assess risks to life and property. It is however argued that there are many situations in which the probabilities of a hazard occurring simply are not or cannot be known and that perceptions of risk should also be acknowledged their assessment. In practice therefore, the distinction between uncertainty and risks is often blurred and the terms are used interchangeably (Douglas, 1986; Pindyck and Rubinfeld, 2001).

and death. Repeated or consecutive shocks are more difficult to deal with compared to single shocks as households may have depleted their assets in coping with the initial shock, making it more difficult to absorb subsequent shocks. Additionally, some events occur with low frequency but have severe income effects, like old age or death in the family (so-called catastrophic events) while other events occur with a higher frequency but have less severe impacts, so-called non-catastrophic events like crop loss, temporary unemployment and transient illness. At the same time, the consequences of a single event with a large impact can linger on and affect future prospects. Illustrative in this respect is the study of Alderman *et al.* (2003) who document the long term consequences of early childhood malnutrition in Zimbabwe. They show that exposure to drought at a young age leads to reduced stature, a lower number of grades of schooling completed and a higher age at which school is started, all of which affect the opportunities of earning income as an adult.

Another important distinction is the level at which the shock occurs. An idiosyncratic or individual shock affects a particular individual or household, for example a death or an illness in the family, while a covariant or common shock affects all or a substantial number of individuals or households in the same community at the same time. Examples of the latter are price risks, weather risks, pests or the impact of war. It is not always easy to separate covariant and idiosyncratic risks. The risk of becoming ill for example is often thought of as idiosyncratic, affecting just the individual or household concerned. It can however have a large common component if there is an epidemic. The high prevalence rate of HIV/AIDS infection in Zimbabwe and many other southern and eastern African countries is illustrative here. As many households in a community are affected by the consequences of the disease, it could be argued that a risk that was first idiosyncratic in nature has more and more developed into a covariate risk. Like HIV/AIDS infection, many shocks have both idiosyncratic and covariant components and empirical work suggests the idiosyncratic component of income risk is relatively large. Deaton (1997) for example finds that common components explain very little variation in household income changes in Indian villages, while Murdoch (1991) and Udry (1990) suggest that more than three quarters of the total variance in household income in India and Northern Nigeria stems from idiosyncratic events.[8]

The distinctions made above may be useful for understanding the impact of risks and household responses to shocks.[9] In practice households face a variety of risks that cross the distinctions made. Therefore, in defining the risks to be studied in this dissertation we started from the risks that households perceive to be important and disruptive for their livelihood. Our work concerns both idiosyncratic and drought related harvest failures and the kind of idiosyncratic shocks that Huijsman (1986) calls background risks: illness, death and property losses that incur problems in production (shortage of labour/means of production) and increase the need for cash to cover unexpected expenses. For a more elaborate treatment of the shocks that we have studied and the reason for studying them, we refer to chapter five.

[8] The fact that idiosyncratic components are large does not necessarily mean the impact of idiosyncratic risks is larger as well. In fact, the impact of covariant events such as droughts is often much larger even if they occur less often. This can be illustrated by considering risks as deviations from a mean income. A large idiosyncratic component means fluctuations around the mean are predominantly caused by idiosyncratic events, while the size of the deviation from the mean, the impact of a shock, may in fact be larger for covariate events compared to idiosyncratic events.

[9] In section 2.3 we will see for example that households have more strategies to deal with idiosyncratic shocks compared to covariant shocks, notably because in the latter case many other households are affected as well and therefore the community is not likely to provide any relief.

2.2. Risk, poverty and vulnerability

Several studies document the pervasiveness of risk in rural livelihoods. Dercon (2000) for example show that in Ethiopia, three-quarters of households in their survey reported considerable hardship due to harvest failure in the past two decades, while as much as forty percent reported hardships due to government policy (42%), shortages of labour (40%) and shortage of oxen for ploughing (39%). Such hardships also occur in Zimbabwe. As much as 81 percent of respondents in the ZRHD survey experienced an idiosyncratic harvest failure between 1992 and 2000 and thirty percent reported a shortage of draught power while twenty-five percent suffered a shortage of labour (see also chapter 5). [10]

To get more insight in the importance and impact of such risks, it is revealing to consider the variability of income over time for example by looking at the coefficient of variation[11]. Murdoch (1995) calculates that the average coefficient of variation of farm profits amounts to 125 percent in South India. For the households in the ZRHD data set, Hoogeveen (2001) found a coefficient of variation for crop income of 69 percent over the period 1990-1998.[12] Interestingly, the coefficient of variation of household income in both studies is considerably lower, in India 40 percent and in Zimbabwe 52 percent. This suggests households are able to cushion the impact of agricultural income risk and partly protect total income and therefore consumption against such risks. Strategies used to achieve this are discussed in section two.

Considering the pervasiveness of risk and the resulting variation in income it has been argued that poverty measures, especially those measuring absolute income poverty, are too static (Chambers, 1989; Watts and Bohle, 1993; Ligon and Schechter, 2002; Elbers and Gunning, 2003). These indicators measure an ex-post state of being and do not capture the dynamics that have led to the outcomes nor tell us anything about the past or future status of the household involved. Besides, such measures treat the poor as a homogeneous group, while in the practice they are not. Consider for example two households with equally low income levels, but different levels of savings. When both are hit by a negative shock the one with a higher level of savings will generally find it easier to deal with a shock. It is argued that the concept vulnerability better captures such dynamics. Vulnerability is often defined as the exposure to risk and the ability to cope with it (Chambers, 1989). This definition lacks however the non-stochastic elements included in the current definition of vulnerability in the economic literature. Elbers and Gunning (2003) for example define vulnerability as the net effect of three processes. First, poverty determinants such as soil quality of the farm, education of household members or the general physical ability to labour (which is for example low for disabled persons). Second, household exposure to shocks such as droughts or illness. Third, the ability of households to cope with shocks, for example through insurance or the use of savings. The first and the third are non-stochastic elements, household characteristics that determine the general level of income and the ability to cope with shocks.

[10] This reference period included two drought years, 1992 and 1995, that affected many households. Almost a third of the households also reported an idiosyncratic harvest failure.

[11] The coefficient of variation is a measure of relative dispersion. It is calculated by dividing the standard deviation of a series by the average of the series. In case of the coefficient of variation for household income, one determines the mean and standard deviation for each household over the period under consideration and calculates the measure. The standard deviation is thus expressed as a percentage of the mean, the higher the number, the larger the variation in the series. Income is not restricted to the monetary income earned by households, but also includes the non-monetary production in the household (excluding domestic activities). For agriculture this is the gross value of the harvest, irrespective of whether the crops are sold, stored or consumed

[12] The calculations of Hoogeveen excluded the drought year 1992.

The second is a stochastic element and represents events which' occurrence is determined by probabilities.

That poverty and vulnerability are often related is vividly illustrated by Blaikie *et al.* when they consider the effect of landslides. "*Landslides may wash away homes in wealthy residential areas as well as those of the poor (although the former is less likely than the latter, as money also buys design and construction that minimises such events). When this happens in both areas, the impact is different. For the rich, the homes and possessions are usually insured, they will find it easier to find alternative accommodation and to continue with their income-earning activities after the disaster. They have reserves on which they can fall back and can obtain credit. The poor on the other hand usually have little cash reserves, are often not credit worthy and their entire stock of capital may be lost as it was assembled at the site of the disaster (home, clothing, tools etc). It will be difficult for them to find alternative shelter and if self-employed it might be difficult to continue working and they have to find alternative employment*." (Blaikie *et al.*, 1994 p.10).

Although those who are poor (as measured for example by the absolute poverty line) are usually also more vulnerable because they are more exposed to risks and have fewer opportunities to deal with it, this may not necessarily be the case. Illustrative in this respect is an example brought forward by Van der Geest who argues that subsistence farmers are more vulnerable to food insecurity caused by drought compared to teachers. But the latter, although generally less poor, are more vulnerable to food insecurity triggered by hyperinflation, because they rely more on the market for their food needs (Geest, 2002).

Many different definitions of vulnerability have been forwarded (Blaikie *et al.*, 1994; Longhurst, 1994; Siegel and Alwang, 1999; Holzmann and Jorgensen, 2000; World Bank, 2001), all of them contain at least the two elements referred to by Chambers: sensitivity and resilience. The first refers to the exposure to and the impact of the risk while the second refers to the ability to "bounce back" or cope with the shock (Blaikie and Brookfield, 1987; Ellis, 2000). In this context, Bohle *et al.* (1994) clearly distinguish between a household's capacity to cope and its potential to recover from shocks. Recovery clearly refers to coming back to the same (asset) level, while coping does not necessarily entail this. What this entails in practice can be illustrated with an example of a household that has a shortage of food because a wild animal invaded their fields and part of their harvest was destroyed. They may cope with this shock by selling a cow to have cash to meet their food needs. However, selling the cow means they have lost an asset and are not at the same asset level as before the shock occurred, hence they have not fully recovered.

In much of the early literature on vulnerability it has often been suggested that risks are an external threat to livelihoods, while the capacity to cope with the contingency is endogenous to the household and determined by the assets that the household owns or has access to (Chambers, 1989). We argue that the assumption that risks are exogenous to the household may be problematic. Although this could apply to natural hazards like floods, drought, earthquakes or volcano eruptions[13], it is less obvious in the case of idiosyncratic risks like illness, death, illness of cattle etc. It is not difficult to think of reasons why for example poor households are more likely to suffer from illnesses or being confronted with death; they may

[13] But even in some of these events one could argue that some households are more exposed to this particular hazard than others. Poor, marginalized and isolated people in a densily populated area may for example be "forced" to live or work on the slopes of a volcano and hence have a higher chance of being affected by a volcano eruption compared to rich farmers with command over land that is at a safe distance of this vulcano.

eat less as well as less healthy, they may work in more dangerous circumstances and be more prone to accidents, etc. In such situations risks or hazards cannot be considered exogenous to the household, but are related to the characteristics of the household.

2.3. Strategies to deal with risks: prevention, mitigation and coping

As we have seen in the previous section risks are not just theoretical possibilities but actually occur frequently in rural settings in developing countries. Therefore, households to a certain extent expect some contingencies in their lives and take this into account when choosing their portfolio of activities. Moreover, they plan strategies to deal with risks when they occur. Typically, households want to reduce income variability and maintain consumption when fluctuations in income occur. In development economics this behaviour has long been referred to as risk management and risk coping strategies (Alderman and Paxon, 1992; Deaton, 1997; Dercon, 2000). In this dichotomy, risk management strategies were defined as *ex ante* strategies aimed at income smoothing, that is to reduce the variability of income. Examples are the diversification of crops and fields in agriculture, the strategic migration of family members and the choice of a diverse portfolio of occupations. Risk coping strategies were defined as *ex post* strategies aimed at smoothing consumption given a fluctuating income. This could be achieved across time as self-insurance by borrowing, saving, storing food for future consumption and accumulating and selling assets. But can also take place at one particular point in time, across households, as mutual insurance, by sharing risk through formal or informal arrangements (Alderman and Paxon, 1992).

Both type of strategies have been considered important in understanding households' activity patterns but for a long time it was assumed that ex-post coping behaviour affected household welfare most. However, recent work on the estimation of vulnerability by Elbers and Gunning (2003) has shown that much of the effect of risk is actually reflected in ex-ante management behaviour, rather than ex-post coping behaviour. This implies that risk management lowers consumption permanently. Hence risk is not only associated with transient poverty as has been argued until now, but also with chronic poverty.

Although the distinction between *ex-ante* and *ex-post* is conceptually useful in distinguishing actions that smooth income from actions that smooth consumption, the reference to a particular time relative to the income generating process should not be interpreted too literally. As we will see later, many strategies for consumption smoothing that are used *ex-post*, require *ex-ante* action as well. Therefore, it is more appropriate to describe household risk management behaviour in terms of minimising the occurrence and impact of risk, planning particular responses to potential threats and exhibiting unplanned reactions to livelihood failures. Along these lines, Blaikie *et al.* (1994) distinguish risk prevention, risk mitigation and risk coping strategies, a typology that is more widely adopted (Siegel and Alwang, 1999; Holzmann and Jorgensen, 2000). This is not to say that prevention and mitigation strategies always precede coping strategies. Several authors have highlighted that household strategies to smooth income and consumption are part of a sequential planning process, where a combination of risk prevention, mitigation and coping is practised in anticipation and in response to, risky events and outcomes (Devereux, 1993; Siegel and Alwang, 1999).

Risk prevention strategies are aimed at reducing the occurrences of risk. Although the household cannot influence many risk factors directly, such as good macro-economic policies

or droughts, there is also room for households to reduce risk. They may for example put efforts in preventing illnesses by considering proper hygiene and nutrition. They may also choose to migrate from a particular risky area or to undertake low risk activities. Examples of these are cultivating drought resistant crops in drought prone areas or engaging in income generating activities with a more stable remuneration.

Risk mitigation strategies aim at reducing the impact of a risk if it were to occur. This can be achieved by *(i)* the diversification of income sources, *(ii*) the accumulation and diversification of assets and *(iii)* the participation in insurance arrangements. When diversifying their income sources, households will ideally aim at a portfolio with low correlation of risk between the different components. This means that the factors of risk for one income source (e.g. climate for agricultural production) are not the same as the factors that create risk for another income source (e.g. retrenchment in the urban sector). The most obvious way of achieving this is by combining farm and non-farm income sources. Other examples are the combination of crop and livestock activities or diversification of crop planted. The latter entails cultivating dispersed fields with different physical characteristics or by cultivating different crops in one field. Although it is often assumed such diversified cropping patterns have a lower average Blarel *et al.* (1992) show this is not necessarily the case. They find that farm fragmentation (planting different crops on different farm plots that are physically dispersed) does not have an adverse effect on the productivity of land in Ghana and Rwanda.

A similar argument can be developed for the accumulation and diversification of assets. Most illustrative here are financial assets like building up savings, increasing cattle herd size or storing food, but also for example human capital such as good health and skills to engage in alternative income generating activities when normal sources fail. Diversification and accumulation of assets is however not only providing livelihood security, investment in assets can be risky as the value and productivity of an asset can be affected by risk as well, as is illustrated in box 2.1.

Insurance arrangements based on risk sharing have various forms. These arrangements are usually organised around the payment of a premium that entitle the payee to assistance in case of adversities. In principle, risk can be shared at different levels. In a market, where the payment of a set market premium is the basis for the insurance. In the public sector, where social insurance is based on contributions and social assistance is financed by tax payments. Or through informal, personal arrangements often referred to as mutual assistance or local social security arrangements, where the payment of premiums and the receipts of benefits are usually not strictly defined. In practice, insurance markets are missing in developing countries and the financial and administrative capacity of many governments is too limited to provide basic security to its inhabitants.[14] Therefore, most rural households in developing countries participate in informal insurance arrangements to mitigate risks.

[14] State-based social security systems in developing countries have low coverage rates because they are usually restricted to formal sector workers. Extension of the systems to larger parts of population is hampered by limited financial resources, difficulties with monitoring and information and the limited capacity and willingness to pay contributions on the part of the insurees, related to a general lack of trust in institutions (Ginneken, 1999; Jutting, 1999; Biezeveld, 2002). The insurance market is usually non-existent or only partially existent due to difficulties in writing and enforcing market contracts, low levels of human capital and difficulties with communication due to a poor development of infrastructure. In combination with a risky environment, these factors lead to high unit transaction costs per insurance contract and therefore to high premiums, which cannot be paid by the majority of the population (Besley, 1995; Jutting, 1999). For the same reasons, labour and credit markets, considered to be possible substitues for insurance markets, are only partially functioning at best.

These informal or personal arrangements are not just in place to smooth income when low income is realised but also to shield the households against shocks that affect its capacity to generate income. Most illustrative in this respect are the labour and cattle sharing arrangements that provide an opportunity to deal with shortage of labour or draught power (see for example Scoones and Wolmer (2002) on such arrangements in Mali, Ethiopia and Zimbabwe) or sharecropping arrangements that provide access to land and inputs.

Box 2.1. Risky Assets

Accumulating cash savings is only sensible in situations with low inflation otherwise the value of money will be reduced considerably over a short period of time. Participation in informal insurance arrangements or investments in social capital can equally be risky, as the "premiums" paid or investments made might not be paid back when needed, for example due to enforcement problems. In such situations it may be wiser to invest in assets like cattle. However, such strategies may require substantial surplus as these assets are lumpy and are not without risk either. Pests may affect cattle, they may simply wander off or may be stolen, either as a one-time event or in more organised form such as cattle raids. Additionally, Dercon (2000) stresses that the return to assets may be low when income is low, while the terms of trade of assets relative to for example food, may be negatively affected in times of low income.

Risk coping strategies aim at alleviating the impact of the shock once it has occurred. In response to a negative income shock households can use assets that have been accumulated in good years, like cash savings or buffer stocks like food or cattle. Kinsey *et al.* (1998) document the importance of such buffer stock strategy to cope with drought in Zimbabwe. Cash generated through cattle sales was the most important source of survival during the 1992 drought for households in the ZRHD data set. The importance of cattle as a buffer stock has been illustrated more widely (Rosenzweig and Wolpin, 1993). Alternatively, households may borrow from neighbours, recall insurance debts or rely on other public or private transfers. Although most of these strategies are undertaken *ex-post*, i.e. after the income shock is realised, they were planned for before the risk occurred, as a risk mitigation strategy; cattle was accumulated in good years, food was stored, households paid their insurance "premiums", invested in social capital, etc.

Households can also resort to post-event coping strategies. They may earn additional income by sending children to work or by taking up activities that were not performed before. Dekker and Hoppenbrouwers (1994) for example describe how many households in Southern Zimbabwe started to pan for alluvial gold to generate income to buy food during the drought in 1992. Alternatively, households may decide to reduce their food intake or change their diets, for example by eating wild fruits and vegetables.

This distinction between ex-ante planned and post-event responses should not suggest that such post-event coping strategies are only used when ex-ante planned responses are not sufficient to attain the desired consumption level. Many studies have shown that households are not only, or even not primarily, concerned with attaining a desired consumption level, but also aim at preserving the opportunities for future income generation, even when this compromises current consumption. Pyle and Gabbar (1993) argue that households initially pursue strategies that protect the productive assets they possess. They generate alternative

income, consume food stores, recall loans, collect wild fruits, etc. When these strategies fail to bring sufficient relief, less favoured measures would follow like the rationing of consumption, sale of productive assets and the consumption of seed material. These strategies will affect the households potential to generate income in the future. Along these lines, (Chen, 1991) distinguished reversible from irreversible strategies. The latter leave households worse off and may result in an adaptation of livelihood or the development of new livelihood patterns.

The resources of the households, their agency and the institutional setting they live in will determine the type and sequence of strategies undertaken by the household.[15] To capture these intricacies, Siegel and Alwang (1999) propose an asset based approach to risk management in which the allocation of assets in response to risk is central. Ownership of or access to assets and the locational, political and institutional setting will determine the type and sequence of strategies that households undertake in the face of risk. They argue for example that households with a strong and diversified asset base will be less likely to invest in low risk activities as they know they can cope with risks in a variety of ways, while asset-poor households will be more willing to sacrifice income for less risk. In their framework, the usefulness or applicability of strategies largely depends on the functioning of markets for labour, assets, credit and insurance. As previously discussed, in practice, many of these markets are missing or only partially functioning. The approach of Siegel and Alwang brings together important elements of risk studies and the livelihood approach that is reviewed in the next section.

2.4. Risks and making a living: the livelihood approach

Livelihood, livelihood strategies or livelihood systems have become popular concepts in the late 1990s and early 2000s, both in development studies (Ellis, 1998; Scoones, 1998; Bebbington, 1999) and policy circles (Carney, 1998; Hussein, 2002). The concepts are not new but have gradually developed to represent an explicit approach of thinking about the complexities of survival in developing countries, notably in rural but also in urban settings (Moser, 1998; Rakodi and Lloyd-Jones, 2002). An important attribute of this approach is the recognition that only few households rely on a single income generating activity to support themselves and as such the approach is centred around the diverse portfolio that individuals, households and communities have established to make a living. This diversity is neither a localised nor a transient phenomenon. It is widespread and enduring: individuals often have multiple occupations and households truly have multiple income sources. In an overview of 25 studies conducted in the 1970s-1990s, Reardon (1997) shows that the share of income earned in the non farm sector ranges from 22 to 93 percent of total rural incomes, with an average of 25 percent.[16] It is also emphasised that diversification is not necessarily at odds with specialisation or division of labour. Although it is at an individual level, as individual diversification can only be achieved at the expense of specialisation households can diversify their activities by individual specialisation in different activities. [17]

[15] Based on these parameters, Nooteboom (2003) uses the concept "style" to describe different ways of coping in upland East Java.

[16] Reardon defines non-farm income as the income from local non-farm wage employment, local non-farm self-employment and migration income, whereas farm income is defined as cash and in-kind income from cropping and livestock husbandry.

[17] One could argue that diversification of activities through time (i.e. own account farming during the agricultural season and non-farm income in the slack season) would not be at odds with individual specialisation either.

2.4.1. Early livelihood studies

Livelihood, literally "means of living", was traditionally used to describe the ways people make a living. Evans-Pritchard (1940) used it for example to describe how the pastoral Nuer in Southern Sudan made their living as herdsmen, fishermen and gardeners and Kimble (1960) applied the term to describe the economic activities of various tribal groups in Tropical Africa. In these studies livelihood merely referred to the natural resource base (land, water, forest and minerals) that people had at their disposal and how they managed this resource base to achieve a certain standard of living. Similarly, the term was often used in geographic studies in the 1980s and the 1990s that were aimed at understanding the relations between individuals, households and communities and their physical environment. Although not necessarily or by nature, these studies often focussed on the way "poor" households dealt with hardships that the physical environment presented.[18] Either in the form of seasonality (Foeken and Hoorweg, 1988; Chen, 1991), proneness to drought (Reitsma *et al.*, 1992), climate change (Bohle *et al.*, 1994), or natural hazards (Blaikie *et al.*, 1994). These studies highlighted the type of strategies that households employed to make use of the opportunities provided by or deal with the constraints given by the natural environment. Dietz *et al.* (1992) for example distinguished accumulation strategies (aimed at improving the means of production), betterment strategies (improving consumption), sustenance or adaptive strategies (social manoeuvring to preserve a consumption and/or wealth level), mechanisms to cope with seasonal stress and survival strategies to cope with exceptional crises. The main argument of these studies was that individuals and households were not passive victims of structural constraints. Rather, they have agency and are flexible in dealing with situations and actively try to improve their lives.[19] Given the resources at their disposal and the context they live in, they have different options to make a living and individuals and households are constantly adapting their portfolios to changing circumstances. Compared to the earlier concept, this approach not only considered the economic or natural resource base, but also intangible resources such networks of reciprocity and mutual assistance or cultural knowledge. Besides, making a living was not only defined as meeting daily basic needs, but also to fulfil social and ceremonial obligations to maintain status and conserve ties, that is to prevent social exclusion, and to preserve or improve (re) productive capacity (Dietz *et al.*, 1992).

These early livelihood studies were centred around three concepts; resources, strategies and outcomes, while little explicit attention was paid to the processes that bounded these together (Scoones, 1998). The recent advances in thinking about livelihoods consider these three concepts more explicitly and emphasise the (social) structures and conditions that influence access to resources, the activities undertaken and the subsequent livelihood outcomes.[20] By

[18] Although the current concept of livelihood and livelihood studies has largely been developed in the context of poverty and vulnerability in developing countries, the framework could just as well be used to study the way the non-poor make a living and in Western contexts. See for example Wallman (1984) who describes the lives of eight inner city households in London.

[19] It is often argued that livelihood studies resemble studies of "genre de vie" in classical French geography (Haan, 2000). In response to the physical determinism of the nineteenth century, Vidal de la Blache for example argued that the relationship between the natural environment and its in habitants was neither singular nor deterministic. Differences between natural regions were rather explained by differences in human activity, which was as much influenced by social reality and force of habit as by the natural environment. This possibilism also emphasized that people have a choice, they choose from what nature has to offer (Claval, 1976).

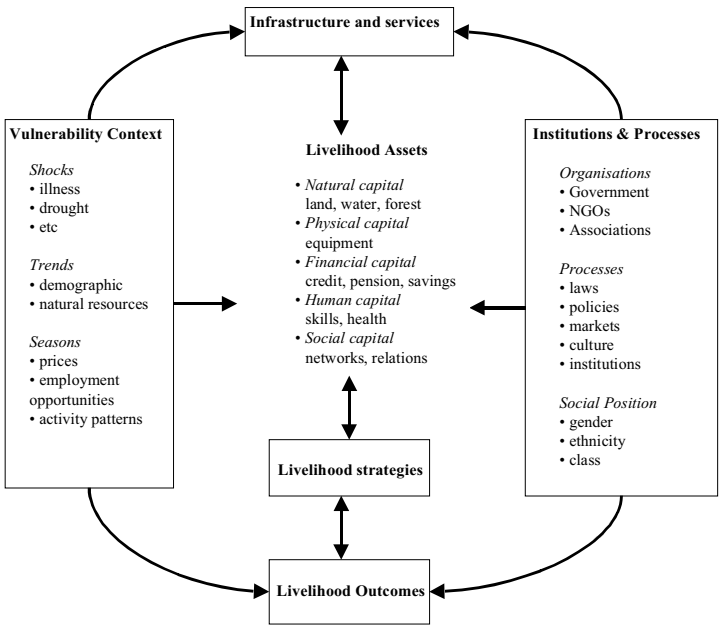
[20] Examples of this approach are the Sustainable Rural Livelihoods Framework developed at IDS (Chambers and Conway, 1992; Scoones, 1998), the Sustainable Livelihood Approach adopted by DFID (Carney, 1998), the

doing so, the studies partly, but not necessarily, moved away from the central focus on the constraints and opportunities to make a living as presented by the physical environment. This allowed for the inclusion of a broader spectrum of socio-economic and institutional processes and a variety of shocks that facilitate or constrain household's endeavour to make a living, as was earlier advocated by Polanyi (1977). Although this approach clearly contrasts with conventional macro-economic plans for sectors and sub-sectors, this is not unique to the livelihood approach. Current work in micro-economics increasingly incorporates the role of access to assets in household models and emphasise the diverse range of assets and income sources to make a living, see for example Janvry and Sadoulet (1995, 2001).

2.4.2. Current livelihood studies: assets, access, activities and outcomes

Although the current approaches differ in some aspects, the basic principles and lay out of the livelihood frameworks are very similar: livelihoods are constructed from assets and activities and the differential access to these based on institutional and social considerations. The four major elements of the framework: assets, access, activities and outcomes, are represented in figure 2.1 and discussed below.

Figure 2.1. The Livelihood Framework.



Source: adjusted from Rakodi and Lloyd-Jones (2002).

framework of Capitals and Capabilities advanced by Bebbington (1999). Ellis (2000) brought together much of the empirical and theoretical literature in this field.

Individuals, households or communities draw upon different assets, capitals or resources to make a living.[21] These assets can be both tangible and intangible and are generally disaggregated in five categories: natural, physical, financial, human and social capital. Actors strategically choose a combination of these assets to ensure or improve their livelihood. When a household for example wants to increase agricultural production, it may need natural (land), productive (technology), financial (credit) and possibly social capital (to have access to labour in labour sharing arrangements). As not all assets can be used directly in livelihood strategies, it is also important to consider how assets are converted to or substituted in other assets. Financial assets like savings are for example easily converted to cash and hence offer more flexibility compared to for example social capital whose conversion to cash is often subject to norms and sanctions. Moreover, the determinants of ease of conversion or substitution may be different for different households, individual household members or different communities.

Assets do not necessarily have to be owned by individuals or households to make a living, they can also be controlled, claimed or through other means accessed by individuals, households or communities. The vulnerability context and policies, institutions and processes (Scoones, 1998) or mediating processes (Ellis, 2000) determine the access of actors to these assets and how these assets can be used in livelihood activities. Some of these factors, like seasons, trends and shocks, are regarded as exogenous factors, while others like social position,[22] institutions and processes are more endogenous because they are shaped by the community or society that the actors are part of. Given this vulnerability context, social position, institutions and processes determine the access of individuals, households and communities to assets that are used in livelihood strategies. Social position refers to the enabling or constraining factors related to social constructs such as gender, class, age and ethnicity. In many settings, women for example often do not have access to land in their own right.

Conditional on their access to assets and the context they live in, households have a range of activities that they undertake to pursue a livelihood. Ellis (2000) distinguishes activities based on natural resources (gathering, food cultivation, cash crop cultivation, livestock keeping, brick making, thatching etc) and non-natural resource based activities (rural trade, services, manufacture, remittances and other pensions. The combination of these activities is often referred to as the livelihood portfolio. Income (both cash and in kind contributions to the material welfare) is the most direct and measurable outcome of the livelihood process. But it is not the only the level of income and its stability that are relevant outcomes. Some authors stress a sustainable livelihood in which households are not only able to satisfy their basic needs, but also to cope with and recover from stresses and shocks and maintain or improve their assets position, without undermining the natural resource base (Scoones, 1998; Ellis, 2000). Other authors, like Bebbington (1999) and Kaag *et al.* (2002) argue that livelihood outcomes should also be defined in terms of experiential needs as assets are not only

[21] Often assets, resources and capitals are used interchangeably and it is not clear what distinguishes one from the other. Bebbington (1999) argues that assets are resources that have been accessed, but generally does not distinguish between the two. On the other hand, capital seems to suggest ownership in economic sense and the use of the concept capital has been criticized on ideological grounds (Smith and Kulynych, 2002). We do not take a particular stand in this debate and use the term capitals to avoid confusion and inclarity, as it is commonly used within the livelihood framework.

[22] Ellis (2000) refers to social position as social relations. As we refer to social relations in the context of risk sharing (see section 2.5) and more specifically to certain social relationships in the empirical chapters of this dissertations, we use the term social position here, to prevent confusion with the term social relationship used elsewhere in the book.

instrumental in making a living, but can also make living meaningful and allow for emancipatory action.[23] A similar argument has been made by Arce and Long (2000) who emphasised the processes of identity construction, or a sense of belonging, that is inherent in the pursuit of livelihoods. Bebbington therefore argues for the inclusion of another type of asset: cultural capital.[24] Although this makes the role of cultural practices in livelihood construction more explicit, it remains unclear how this type of capital can be measured (Kaag *et al.*, 2002).

By their very nature, livelihood studies take a broad and dynamic perspective on the scale of analysis. Although often focussed on livelihoods of "households" in certain "localities", the studies acknowledge the importance of extra-local relationships (whether rural-rural, rural-urban or transnational) and extra-local conditions such as macro economic policy, commodity prices on the world market and the process of globalisation (Haan, 2000). Recognition and consideration of extra-local relationships is directly related to the importance of social capital and migration in the pursuit of a livelihood. Especially the latter is a challenge for the delineation of the household, the unit that is usually considered in livelihood studies. In many cases, households transcend a particular geographical locality and include members that belong to the household but do not usually reside in the household. In such situations, defining the household as a unit that is based on co-residence or eating from the same pot may be too restricted. Therefore, the livelihood approach recognises that the household is a variable social arena, which definition largely depends on the cultural and socio-economic setting that is studied. At the same time, it is recognised that households are units of co-operation and conflict in which individual members generally have differentiated access to resources, activities and different livelihood outcomes. This requires a consideration of intra-household processes as well.

Like the early livelihood studies, the new generation of studies start from the principle that actors have agency, i.e. that they can actively shape their lives. However, Kaag *et al.* (2002) argue there are many inequalities, barriers and processes of exclusion that make it easier to make a living for some and more difficult for others. Think for example about power inequalities, market structures and norms and sanctions around social capital. In principle such issues are defined in the framework, in terms of access to assets and activities. In practice however, they may be easily overlooked and the livelihood framework does not offer a theoretical perspective on how to analyse these issues that are beyond the household.[25] The

[23] To illustrate that assets are not only instrumental, but also empowering, Bebbington gives two examples. Rural people may for example decide not to migrate to town where income opportunities are better because they find the maintenance of cultural and social practices that accompany rural residence more important (a similar argument is developed on the socio-cultural dispositions of rural-urban migrants by Andersson (2002). In such evaluations, meaning is more important than income. Additionally, being able to read and write is not only a skill that may improve access to income opportunities, it also improves the ability to discuss, debate and negotiate and possibly change the dominant rules and relationships that govern the ways in which resources are controlled. It is also empowering.

[24] To allow for an explicit evaluation of the non-material livelihood outcomes, Bebbington deliberately adds cultural capital as a livelihood asset. Although he does not present an explicit definition, cultural capital seem to represent the cultural practices of households and communities and as such has many similarities with Bourdieu's symbolic cultural capital. Bourdieu (1986) specifically referred to symbolic cultural capital in relation to the social context that regulates the access to resources. Bebbington acknowledges that this form of capital cannot and should not be quantified in livelihood research and can and should only be included as a narrative. As it will be difficult to disaggregate cultural capital to the level of the households or the individual, we argue that such narrative is especially useful in the discussion on "access" to assets as part of the institutions and processes box in figure 2.1. rather than to consider it an asset in itself.

[25] Similarly, the approach lacks concepts to incorporate personal characteristics that contribute to agency.

framework is not explicit about how to understand the way these policies, institutions and processes influence impact on the choice of livelihood strategies.

Although these structural constraints can be relatively enduring, they are not fixed. Individuals, households and communities respond to these structures that regulate access to assets and will try to challenge, change or manipulate the terms and conditions that govern access, moreover, access to or command over assets will enhance people's capability to do so. Thus, the context should not be considered as a static factor, which may be implied when a livelihood is modelled as a system of assets, access and activities. Rules change through negotiation and renegotiation, conditions vary and households are exposed to positive and negative shocks. It is therefore important to regard the pursuit of a livelihood as a process. The assets-access-activities framework is iterative and unfolding over time for individuals, households and rural communities (Ellis, 2000). This is illustrated when we consider how households respond to risks and cope with shocks through a range of planned and unplanned activities in the next section.

Following Kaag *et al.* (2002), we view livelihood as a sensitising concept: it emphasises that risk is not the only aspect that affects daily lives and household decisions and that households have a wide range of assets and are subject to various contextual opportunities and constraints to pursue a livelihood. Also useful is the distinction between the social relations (social capital) and the arrangements that can be made with these (institutions, social position), an issue that will be explored in section 2.7 on social capital. Although the livelihood framework clearly spells out the wide range of factors that influence the access to assets that are used or converted in livelihood strategies, the framework is not explicit about how to understand the way these policies, institutions and processes influence impact on the choice of livelihood strategies. In short, the relationship between access, assets and household behaviour is not formalised. We will use insights from risk sharing and social security studies to better understand the role of social relationships and (informal) institutions in making a living and dealing with risks.

2.5. Risk sharing

Risk sharing arrangements typically involve a system of mutual assistance relationships in a given group where any unpredicted event affecting one member is insured by a transfer from other members in the group (Dercon, 2000). This transfer is state-contingent: it depends on the income realisation of both the provider and the receiver. To see how this could work, consider the stylised situation described by Deaton (1997).

Imagine a group of rural cultivators who live in the same village, but whose plots are scattered around the village, are sown to a range of different crops, and are subject to different risks. Some farmers will be richer than others by virtue of their larger or more productive landholdings and/or from assets accumulated in the past. Suppose that all are risk averse and would thus be willing to sacrifice some of their average income for greater income stability. Each has diminishing marginal utility of consumption, so that the welfare loss associated with a poor harvest is greater than the welfare gain associated with a good one. If there are enough farmers and their risks are uncorrelated, then before each farmer knows how good his or her harvest will be, they would agree to a pact whereby each agrees to pool the surpluses above and shortfalls below their individual means. Surpluses will be

transferred to households with shortfalls so that each would be guaranteed their own mean income

The underlying principle of the arrangement is that all households do their best to attain a good harvest by allocating sufficient labour and inputs to their crops, while the final distribution of the harvests is a lottery. Some farmers have a good draw (surplus harvest) while others have a bad draw (shortfall) and the chances of having a good draw or a bad draw are equally distributed across participants. If the draws are idiosyncratic, that is affecting one or few participants, bad draws can be fully insured. However, when incomes are more positively correlated, that is when risks are correlated, as we would expect in an agricultural village where harvests are often co-determined by the level of rainfall, there will be less harvest to share in the pool. It will still be advantageous to pool individual deviations from the average outcome, so that each farmer's consumption is smoothed as much as possible, but it is not possible to have full insurance.

2.5.1. The full insurance hypothesis

Empirical studies have shown that the possibility for risk sharing is not just a theoretical construct. Several authors found evidence for the responsiveness of private transfers to shocks. In Botswana, Lucas and Stark (1985) found for example that households living in drought affected areas received more remittances from migrant family members compared to households that lived in areas that were not affected by drought. More recently, Fafchamps and Lund (2003) show that informal borrowing and gifts increase when rural Filipino households experience a negative shock.

Although indicative of the presence of risk sharing mechanisms, these findings do not tell us how these mechanisms operate and the level of insurance that is actually achieved. Several authors have tried to empirically estimate the extent of insurance in rural economies by formulating and testing the so-called "full insurance hypothesis" (Townsend, 1994; Deaton, 1997; Grimard, 1997; Ravallion and Chaudhuri, 1997; Jalan and Ravallion, 1999). The full insurance hypothesis considers a group of people, usually a village, that face both aggregate shocks (for example related to the weather) and idiosyncratic variations in income. As it is theoretically possible to insure all idiosyncratic shocks, but not the aggregate or covariate shocks, household consumption should not be affected by household outcomes, but move in perfect correlation with aggregate outcomes. This hypothesis is usually tested by regressing household consumption on both household and group (mostly village level) income measures and the full insurance hypothesis will be accepted if the coefficient on household income is non-significant.[26] This test was performed in various rural settings and no evidence was found in support of the full insurance hypothesis; household income always entered the consumption equation significantly. However, the results also did not preclude a partial level

[26] Much of the literature on risk sharing has focused on the ability of the household as a unit to protect consumption and assumes risks are fully shared within the household. Recent empirical evidence however suggests that this is not the case. In Ghana, Goldstein (2000) rejected full insurance at the level of the household and found that women share their risk with other women in the village, while men have a wider and less defined insurance pool that includes at least members of their clan. In Ethiopia, Dercon and Krishnan (2000) assessed whether men and women were equally insured in case of health shocks and they found that women in poor southern households were not sufficiently protected against these health shocks, while their husbands were.

of insurance as household consumption outcomes also depended on aggregate income realisations.

In these studies, the full insurance hypothesis has been presented as a measure of the level of informal risk sharing in communities. Some authors have pointed out this is not correct (Hoogeveen, 2001; Fafchamps and Lund, 2003). They agree that the full insurance hypothesis measures the extent of insurance in a village but argue that it does not tell us whether this insurance is achieved through self-insurance (such as assets sales) or mutual insurance (gifts or informal loans). Hoogeveen (2001) therefore adjusted the full insurance test to take into account consumption smoothing through buffer stock sales. Applying it to the ZRHD data, he argued that if changes in household consumption did not co-move with changes in household income *and* household asset levels this would indicate evidence for the presence of community level insurance. As household income co-determined household consumption Hoogeveen also had to reject the full insurance hypothesis, but like the others, he found some evidence on partial insurance, as village level variables were also significant determinants of household consumption.

Limited commitment and asymmetric information

Finding evidence of partial insurance rather than full insurance is in fact not surprising as there are at least two reasons why the proposed risk sharing scheme may be constrained in practice: limited commitment and information asymmetries (Ray, 1998). First, individuals and households do have an incentive to join an insurance arrangement *ex-ante*, when they do not know what their harvest will be, but also to renege on their obligation to share part of their harvest when they have realised a good harvest *ex-post*. Their commitment to the arrangement is likely to be limited. This will undermine the operation of the scheme as opting out of the arrangement by some or all participants with good harvests means there will be less or no surplus in the pool and participants with current shortfalls will receive a lower or no transfer from the pool. This results in incomplete insurance. For an efficient operation of the arrangement, participants should therefore be able to enforce the promises made and force households with good harvests to transfer their surplus to the pool. In practice this is not easy, as often there is no legal basis on which participants can rely to make binding contracts. Usually, the arrangements are rather implicit, based on customary rules and behavioural norms and enforcement depends on the possibilities to punish those who renege. Possibilities for punishment are however enhanced by the repeated nature of the lottery. Sharing risk is not a one period game in which participants cannot be punished for shirking behaviour, but a repeated game in which future coverage depends on transfers made (let's say the premiums paid) in good years. Whether or not the threat of future exclusion will be a sufficient punishment to guarantee commitment to the promises will depend on at least two factors; the degree to which participants feel they will need assistance in the future and their discount rate, the degree to which households value future income streams (Coate and Ravallion, 1993). Alternative mechanisms for punishment take the form of social pressure, gossip or ostracism.

Secondly, when participants are ensured of a transfer in case of a shortfall, they may reduce their effort or increase risk taking behaviour. In insurance literature this is called moral hazard. Here, the classical example is a male head of household who, rather than working and investing in his fields, spends most of his time and money in the local beer hall. It should be obvious that his fellow villagers are not willing to supplement this household's harvest shortfall with the surpluses that they realised through hard work. Also, an assured transfer with harvest shortfalls may attract participants that on average have more harvest shortfalls

than others for example because they always have a shortage of labour or inputs. This is called adverse selection. Also, households may pretend to have a low harvest to induce a transfer while in fact they realised an average or above average harvest and therefore should not be entitled to an insurance transfer. These phenomena are likely to affect the distribution of outcomes in the pool and hence undermine the insurance arrangement. To ensure that maximum effort is put in and the arrangement is only called upon when truly needed, households in the insurance pool need to be able to monitor each other's behaviour and observe the harvest that is realised. This is however not only important to prevent insurance on false grounds, but also to observe who is in a position to transfer surplus to the pool, to enhance opportunities for enforcement. In case of asymmetrical information, when not all participants in the pool have the same information on the outcomes of other participants and the behaviour that led to these outcomes, complete insurance will not be provided.

Not all idiosyncratic risks may be equally insured. Fafchamps and Lund (2003) for example find that rural households in the Philippines are better insured against funerals and unemployment of the household head or his spouse than against sickness or unemployment of other household members. In this dissertation we also find evidence that risk sharing arrangements are more responsive to some shocks compared to others (see chapter 5). We argue that the particular pattern of risks that are insured is related to the information and enforcement constraints. Some shocks are more easy to observe compared to others and norms and values in a particular community may determine that one is more likely to receive assistance for some negative events, while it is more difficult in others.

To summarise: a risk sharing scheme works best if participants are able to monitor each other's behaviour and have means to influence each other's behaviour and enforce the implicit insurance contract. These criteria are usually met in groups that are relatively small, such a rural villages. This restriction in group size implies that risk pooling schemes can only insure against idiosyncratic risks and not against risks that are more covariant in nature. For this reason, villagers will also have incentives to seek partnerships with people outside the village, whose harvests or incomes are not correlated.[27]

The full insurance hypothesis usually considers the village as the risk sharing pool. Although information and enforcement constraints may be reduced in the confined geographical area of a village as compared to a higher level of aggregation, it is not difficult to see why they still exist. Flows of information will be different across households, depending on the physical and social distance between them and the similarity in their activity patterns. Moreover, the population of a village is likely to be heterogeneous with respect to values and norms that are necessary to prevent participants with limited commitment to opt out when they have received good incomes.

2.5.2. New Approaches to risk sharing

Given the lack of empirical evidence to support the full insurance hypothesis, work on informal risk sharing has taken two, partly related, directions. Theoretically, several authors have tried to model insurance arrangements as mechanisms that attempt to deal with

[27] Note however, that the level of dispersion in the insurance pool affects the level of risk that can be insured. When the village is the insurance group, a local drought is likely to affect most or all households in the pool, it will be covariant for that group of households. However, if we consider a family with members that reside in different parts of a country as the insurance or risk pool, a local drought may in fact be an idiosyncratic that can well be insured.

information and especially enforcement problems. While empirically, research has focussed on defining the relevant level of aggregation in an insurance pool.

Limited commitment models

The first strand of literature uses a game-theoretical approach that presents risk sharing as a multi-person decision problem in which players (i.e. participants in a risk sharing arrangement) are assumed to take strategic decisions. In such an approach, risk sharing is modelled as a game in which binding contracts are not possible (a non-co-operative game) and enforcement of the insurance contract can only be realised through repeated interaction. In a *static limited commitment model* a household decides on its transfer to the insurance pool after income is realised and the amount transferred only depends on the level of income that is realised. Coate and Ravallion (1993) show that theoretically, in such situations, the level of risk sharing that can be achieved is only second best compared to a situation in which contracts are binding. This can be explained with reference to the idea that a household with a favourable outcome needs to be partially compensated through a reduction in the size of their transfer to the pool, in order to agree to remain part of the insurance arrangement, otherwise they will renege. Therefore, insurance will only be partial. Coate and Ravallion (1993) also found that the level of compensation is sensitive to the level of inequality in income realisations, the discount rate and level of aversion to risk of the participants.

More recently, dynamic versions of this model have been developed and tested. Such models allow for sequential decisions, decisions that partly depend on past risk sharing behaviour. Rather than looking at the movement of household income and consumption, the empirical relevance of these models is tested with transfer equations. In the *dynamic limited commitment model* of Ligon *et al.* (2002) current transfers not only depend on current income realisations (as in the model of Coate and Ravallion) but also on the history of transfers, that is, whether households have been net-receivers or net-providers of insurance. This relation is estimated with household data and the results of these estimations are calibrated to consumption paths that are subsequently compared to the actual consumption that is observed in village economies. Generally, consumption paths generated by this dynamic limited commitment model fit the data better than the full insurance model. Other applications of this type of models specify the effect of the presence of private information (Ligon, 1998) and altruism of insurance partners (Foster and Rosenzweig, 2001) on current transfers.

Endogenous insurance groups

The other strand of literature has focussed on the identification of the appropriate group for risk sharing. Tests of the full insurance hypothesis indicated that the village, an exogenously defined insurance group, was possibly too heterogeneous and therefore several researchers became interested in the choice of insurance partners.[28] The search for suitable partners could be described in terms of finding the right mix between heterogeneity and homogeneity. On the one hand, partners should be different enough to prevent perfect correlation of risks (different activity patterns, different wealth levels, different social backgrounds etc.). On the other hand partners should be similar enough to surmount information and enforcement constraints, issues that are at least partly related to norms and values and relationships of trust.

[28] Dercon and De Weerdt (2002) argue the village was taken as an insurance group for two reasons. First, it was argued that information and enforcement problems are likely to be small between the members of a geographically confined area. And secondly, the sampling strategy and questionnaires used to collect household data typically allow the identification of villages for analysis.

Platteau (2000) argues that enforcement mechanisms work best in kinship groups as these are usually stable relations that have the required common identity and continuity and kin members trust each others behaviour. Alternatively, shared membership in associations, especially churches, ensures that members abide by the same codes of behaviour, share the same rituals and use the same language. In doing so they acquire a common identity that encourages co-operation, honesty and the possibility to identify members that are suitable for a risk sharing arrangement. Empirically, Grimard (1997) identified ethnic relations as a possible vehicle for risk sharing in rural Ivory Coast. Although he found that household consumption was more stable in ethnic groups that are geographically spread than across inhabitants in rural village, he also rejected the full insurance hypothesis in ethnic groups. Other authors argued that it is more likely that insurance takes place in groups that are smaller than the village. Recent empirical work in Pakistan, the Philippines and Tanzania has provided evidence for this risk sharing in sub-groups in the village (De Weerdt, 2002; Murgai *et al.*, 2002; Fafchamps and Lund, 2003).[29] Compared to the exogenous administrative boundary of the village, these sub-groups are more likely to be self-selected and thus endogenous.

These studies have used different approaches to provide evidence on sub-group insurance in village economies.[30] Fafchamps and Lund (2003), who studied risk sharing networks in rural Philippines, argue that if risks are efficiently shared at village level, gifts and loans received in crisis situations should not be affected by what happens to one's friends and relatives. To test this hypothesis they used a so-called egocentric social network approach (Scott, 1991). Before the start of their survey each household was asked to identify a number of individuals on which it could rely in case of need. This allowed Fafchamps and Lund to define an ex-ante risk-sharing network. Subsequently, they collected information on the situation of the household and all its network partners. They find that gifts and loans to a household in problems are not independent of the situation of their network members and conclude that most gifts and loans for consumption smoothing takes place within networks of close friends and relatives and not at the village level. While Fafchamps and Lund do look at the configuration of insurance relations from the household's point of view, their data does not allow a consideration of the overall structure of exchanges. Such an analysis requires detailed information on every pair of households in the defined universe of potential insurance partners. In social network analysis this is referred to as a full network approach (Scott, 1991). In this approach, applied in two recent studies, the relationships between households are taken as the unit of analysis rather than the household itself. Murgai *et al.* (2002) do this in the context of water exchanges in two villages in irrigation schemes in Pakistan, while De Weerdt (2002) used it to analyse ex-ante risk sharing relations in a village in rural Tanzania. The advantage of this so-called dyadic approach is that it does not rely on proxy indicators to get insight in social interaction, but provides details on the actual relationships that are used in risk sharing. As such it emphasises the importance of specific social relationships to individuals or households and potentially recognises the methods of contract enforcement and information gathering.[31]

[29] Note however that insurance in sub-groups does not necessarily preclude the existence of full insurance at village level. As long as sub-groups overlap so that no households are left out, full insurance at village level can be attained (Dercon and De Weerdt, 2002; Murgai *et al.*, 2002).

[30] Although these authors are not necessarily aware, the methodologies used originate from social network analysis, or to are to some extent similar to the models used in that field, see also chapter eight.

[31] In chapter 6 of this dissertation we will elaborate on this approach and its methodological consequences when we study the determinants of informal insurance relations in resettlement villages in Zimbabwe.

Murgai *et al.* (2002) take a transaction cost approach and model the choice of risk sharing partners and the quality of the insurance provided as a function of two types of transaction costs. Association costs in establishing links with insurance partners and extraction costs to use these links to obtain insurance. They argue that the level of these transaction costs determine the level and type of insurance to be observed in the village and consider how these costs are determined by physical distance, kinship and exposure to risk. They find that insurance is more likely to take place in clusters rather than bilateral relations: households with more kin in the village, closer neighbours and greater risk exposure, insure through larger clusters and more intensive exchanges. In measuring the effect of transaction costs, Murgai *et al.* (2002) predominantly focus on establishment costs, while possibilities to deal with limited commitment (extraction costs in their terminology) are only considered in kinship relations. De Weerdt (2002) considers a wider array of social relations that could help in reducing the problem of limited commitment in rural Tanzania. He develops two approaches to find the determinants of sub-group formation. First, he considers the effect of existing social relations like religion, kinship and friendship on the presence of ex-ante risk sharing relations between two households in the village. Secondly, De Weerdt identifies clusters of households and empirically determines what factors influence their formation.[32] He finds that kinship, geographical proximity, the number of common friends, clan membership, religious affiliation and wealth strongly determine the formation of informal insurance networks in rural Tanzania. However, when Dercon and De Weerdt (2002) evaluated the efficiency of these clusters in providing insurance against health shocks, they found that even within these smaller networks of self-selected households, risk is not fully shared. This finding is attributed to the possibility that households are members of several networks. In such case, full insurance would imply that a household must insure its network partners against claims laid upon them from other networks.[33] It is likely that the insurance of such claims, that are in fact cases of re-insurance, is limited and therefore, full insurance will not be attained in clusters with lots of overlap.

2.5.3. Multiple Dimensions

So far we have presented the stylised risk sharing arrangement in terms of harvest realisations in a rural village, where villagers with a shortfall receive transfers to the level of their average harvest. The scheme could also exist in different groups, be aimed at situations other than harvest failures and refer to different arrangements at various levels of formality. Following Deaton's example, the village is a metaphor for any identifiable group that agrees to share risks such as a church congregation, kin group, lineage or association. They can pool harvest or income, but also other risks. Burial societies for example aim to cushion the unexpected and high expenditures that are incurred when a family member dies. In such societies, monthly payments to a common fund entitle the member-households to receive defined benefits: money to pay for (part of) the funeral costs (food, coffin, transport etc.). This transfer is supplemented by contributions made to a more informal funeral fund that is set up at the burial, where relatives, friends and fellow villagers are expected to make (small) contributions of cash and food when they come to attend the funeral, as was described in the

[32] The identification of these clusters was based on within cluster connectivity: the observed links as a percentage of the maximum possible links. In his village of 119 inhabitants, De Weerdt identified 1114 clusters with connectivity higher than 0.6. Obviously, these clusters are not exclusive, households in a cluster have links to households outside the cluster, and many households are part of several clusters and thus interconnect them.

[33] That this happens in practice is for example illustrated in chapter 8 of this thesis where it is shown that different groups are linked by bilateral debt-relations and as such create an extended insurance pool.

introduction. Other arrangements are in place when a household experiences a shortage of labour or when households do not have sufficient trained cattle to prepare their fields. One or more pair(s) of oxen can for example be used to plough the fields of each household in an extended family, such as a number of brothers and their adult sons. Usually this is done on the basis of seniority; the field of the eldest living brother is ploughed first, followed by the second eldest brother, while the youngest adult child closes the line. Such labour and cattle sharing arrangements can be used to prevent low-income realisations caused by labour or draught power shortage.

Although the arrangements that we are discussing are usually not formal in the sense that they have a formal legal basis on which participants can rely to make binding contracts and to enforce promises, the organising principles of the arrangements typically vary. Sometimes, especially in informal institutions that are explicitly set up to protect households against the consequences of particular risks, the premium to pay and the coverage received is well-defined and laid down in rules and regulations. An example of these is the burial society in which well-defined monthly payments are required to obtain certain specified benefits. Failure to meet these obligations may result in withholding the benefits. While in the case of the funeral fund, contributions are given to ensure assistance in the future as all households will be confronted with a death in the family at some point in time. In other cases, the arrangements are much more implicit and "contracts" are based on customary rules and behavioural norms. Most of the time, the premium to pay and the entitled coverage are not well specified. As a matter of fact premiums may actually not be explicit at all as providing assistance at present does not necessarily guarantee the return of assistance (= the coverage) in the future.

So far we have described the risk sharing arrangement as a multi-lateral arrangement where risks are shared and transfers made in a group of participants. The arrangement could however also be bilateral, between two households. Moreover, the transfers of cash or kind that are aimed at sharing risks are not restricted to gifts but can also include informal loans. This is for example illustrated by the work of Udry (1990) in Northern Nigeria, who found that repayment of informal loans depended on the income realisation of both borrower and lender. For most loans no explicit interest rate or repayment date was set and the realised interest rates were lower and repayments periods were longer for debtor households who have experienced adverse shocks, while realised interest rates are higher and repayment periods shorter when creditor households experience negative shocks. Other work also established the risk-sharing nature of informal credit transactions, Fafchamps and Lund (2003) for example found that in the Philippines, risk is shared through flexible, zero-interest informal loans combined with pure transfers.

Similarly, it has been argued that one should be careful to interpret a transfer or gift giving as a one-time transfer, restricted to that particular point in time. Several authors, most notably Mauss (1967), have argued that gift giving and gift receiving is part of culture. Giving is not an end it itself, presenting a gift creates opportunities to receive a counter gift in the future while accepting a gift is accepting the obligation to return a gift in the future. Along the same lines, Dzingirai (2001) argues that giving is a form of saving and Fafchamps and Lund (2003) suggested that providing gifts today may be motivated by ensuring the possibility of obtaining gifts in the future. As such also gift giving may have characteristics of risk sharing. As in informal credit transactions, the risk sharing nature is not determined in the contingent character of giving or loaning out, but in the state contingent determination of repaying the credit or receiving a counter gift.

Platteau (1997) explains that such conditional reciprocity is at the heart of an insurance arrangement: a person pays premium (in our case assists others) to receive benefits (receives assistance) in case of bad luck in the future. Such benefits will however only be received when he or she is actually hit by bad luck. Theoretically therefore, it is possible that a participant will only pay premium and never receive the benefits. Platteau (1997) however argues that many of the mutual assistance arrangements found in rural communities are based on the principle of balanced reciprocity rather than conditional reciprocity.[34] An arrangement based on balanced reciprocity means the return of a gift or transfer is certain and does not depend on the occurrence of bad luck. The timing and the form or the return payments are however flexible, repayment is not set at a particular date nor in strict equivalents of the assistance provided (premium paid).

Platteau's argument on balanced reciprocity shows that risk-sharing practices may not be insurance in pure form. In practice, as has been mentioned before, in many arrangements the premiums paid and benefits to be received may not be clearly spelled out or certain when entering the arrangements. A more loose relation between premiums and benefits is also advocated in the social security studies.

2.6. Social security studies

Following practices in the Western world, traditional social security studies were concerned about the need and potential for social policies at government level, for example to protect individuals against unemployment, illness, old age, etc. (ILO, 1984; Ahmad *et al.*, 1991). These studies referred to modern, formal institutions that are regulated by the state. Several authors have highlighted the shortcomings of this characterisation to describe the reality that exists in many developing countries (Benda-Beckmann, 1994; Leliveld, 1994; Benda-Beckmann and Kirsch, 1999; Jutting, 1999). Jutting summarises the criticisms in three points. First, it assumes an acceptable standard of living and is only aimed at a protection against a fall in the standard of living, rather than to achieve a higher standard. Secondly, the risks referred to are specific for the ecological and socio-economic setting of the developed world and do not consider environmental and medical contingencies such as droughts, earthquakes and epidemics. And thirdly, according to this understanding, social security has to be largely provided by the state or public institutions, it therefore misses out much of the protection that takes place through local personalised arrangements.

Unlike the focus on public interventions in these early studies, current social security studies consider the question what social relations do to cover all kinds of insecurities in life (Bruijn and Dijk, 1995). These social relations are not necessarily restricted to informal or personal relations such as kin, neighbours or clan members, but may also comprise relationships vis-à-vis organisations such as churches, NGOs, state departments or international organisations. The current studies also emphasise that social security arrangements are not necessarily actuarially fair, as is the aim of private insurance companies (Atkinson, 1989). The relationship between risk, premium and benefit may not be strict or even at the centre of the arrangement. Finally, social security studies also consider assistance to households that fall below an acceptable minimum level of income or living standard. The community defines

[34] At the same time, Platteau (1997) argues that the principle of balanced reciprocity is not necessarily at odds with informal insurance, for example because risk sharing may aim at insurance of risky events with frequent realisations or aim at insurance of multiple risks or certain events that occurr at uncertain dates.

this minimum level and living below this level may not necessarily be triggered by an unexpected event.

Social security arrangements do not apply to all people under all circumstances, they are influenced by the cultural and socio-economic conditions, the personality of individuals involved and past experiences. Social relations may be the basis of social security arrangements but they are, and need to be (re) negotiated constantly. The prevailing norms and values influence them and may be conflicting, for example between individuals of different age, gender or wealth. Moreover, crisis situations may put social relations under strain and exclude some people under certain conditions. This may apply when shocks are experienced on an individual level (e.g. for a wife, who upon the death of her husband is excluded from the security provided by the kin network of her husband), but even more so when a shock hits a whole community, e.g. in case of a famine or earthquake. The mere fact of exclusion under certain conditions means the social security system cannot just bounce back after the crisis is over; the social relations that were the base of the social security system have been altered by the situation. Such changes can be both exogenous and endogenous, as social security relations and the normative framework that enables them may be subject to manipulation.

To get at these dynamics, (Benda-Beckmann, 1994) proposed to use a functional rather than an institutional approach. An institutional approach to social security only considers social relations and institutions that are normatively defined to provide protection. In practice, these relations and institutions may not actually deliver this service in practice. Moreover, such an approach may overlook social relationships and institutions not normatively defined as social security institutions, but having a social security function. A striking illustration is the bride wealth payments in Shona marriages that are discussed in chapter 8 of this thesis. Although customarily regarded as compensation payments for the upbringing and (re) productive rights of the girl, the customary practices surrounding the payment also makes the institution a source of insurance. A functional approach on the other hand starts from the multi-functionality of institutions and relations and recognises that different sources of social security, subject to different rules and regulations, may be used as the same time. Illustrative in this respect is the fact that the small pension of retired civil servants, provided by state institutions under the rules of state law, is often not enough to secure a living. The pensioner will therefore also depend on other resources such as savings, yields from a plot of land or support of relatives, the access to which is governed by customary law.

Although the analyses in this dissertation are not about livelihoods or making a living in general but specifically focus on household's responses to risks and shocks, the concept social security is useful in our study. It emphasises that local social arrangements to deal with risk may not be insurance in it's strictest form; a range social relationships may provide security in many different situations and the benefits received from such relationships or arrangements may not be directly related to the premiums previously paid.

2.7. Social capital

Social relations feature prominently in the literature on both risk sharing and social security arrangements and are often referred to as social capital. As social capital also features as one of the assets in the livelihood framework and is a highly debated concept, we provide a brief overview of the issues in social capital research. For a more elaborate overview, see for

example Portes (1998), Woolcock (1998), Dasgupta and Serageldin (2000), Woolcock and Narayan (2000), Lin *et al.* (2001), Sobel (2002) and Durlauf (2002a).

The concept social capital is increasingly used to explicitly include social interaction or the vitality and significance of community ties as a determinant of observed behaviour. Originated from sociology, the concept is now widely applied in other academic fields such as economics, anthropology and political science. Moreover it is used to explain a wide range of outcomes at different levels of aggregation. Woolcock (1998) mentions family and youth behaviour, but social capital has also be found to matter in schooling and education (Coleman, 1988); community life (Fernandez Kelly, 1995); business environment and competitiveness (Fukuyama, 1995); democracy and governance (Putnam *et al.*, 1993; Rose *et al.*, 1998); collective action, public health and environment (Ostrom, 2000); economic development (Knack and Keefer, 1997) and development interventions (Grootaert and Bastelaer, 2002).

Given its widespread application across disciplines, social capital has been defined in many different ways. Some authors equate social capital with trust and trustworthiness, others regard social capital as a form of social relations or social networks, while still others think of it as an aggregate of behavioural norms. Also, social capital is thought to be individually owned while others claim it is relational and hence resides in relationships, institutions or communities. The current agreement is that social capital is a multi-dimensional concept (Harris and Renzio, 1997; Woolcock, 1998; Woolcock and Narayan, 2000). It has various forms and dimensions, both at an individual and a societal level.

The Social Capital Initiative of The World Bank has studied the relevance of social capital in the context of development and distinguishes structural and cognitive social capital. Structural social capital reflects networks, associations and institutions, while cognitive social capital encompasses attitudes, norms and values, reciprocity and trust. Both forms of social capital are present at micro, meso and macro level (Grootaert and Bastelaer, 2002). It should be clear that the consensus on the multidimensional character of the concept does not mean that the debate about social capital has reduced. Box 2.2. summarises three important issues in this debate.

Although it is important that the critical role of institutions, social networks and the underlying norms and values in various outcomes is acknowledged, the breadth of the concept also poses a danger. It may become a “catch all” for the merits of social interaction, without specifying the particular structures, social relationships or attitudes that matter. It is precisely for this reason that we are hesitant to use the concept social capital. Following Grootaert and Bastelaer (2002) we specifically define which dimension of social capital we will study, and refer to it in those terms rather than social capital in general. As explained later will also use different methodologies to do so and briefly reflect on the insights generated.

Box 2.2. Three points of discussion in social capital research

Despite the agreement on its multidimensional character, the term social capital remains highly debated as some authors have argued social capital lacks some properties of capital in the traditional economic sense of the word, for example because it cannot be build individually nor alienated (Dasgupta and Serageldin, 2000; Grootaert and Bastelaer, 2002). Also, the concept capital suggests one form can be easily replaced by another in the pursuit of making a living (Smith and Kulynych, 2002); and therefore that a lack of natural capital, such as land, can be made up by a high stock of social capital. In practice this is highly unlikely as access to both forms of capital are likely to be related.[35] These authors argue social capital should be called something other than capital, such as social or moral resources, intangible assets or social capabilities (Arrow, 2000; Smith and Kulynych, 2002).

Yet, others emphasise that social capital is capital referring to its productive characteristics and the fact it can be stored, accumulated, exchanged or depleted (Narayan and Pritchett, 1997; Robison *et al.*, 2002). Some even treat the creation of social capital as a simple investment model (Glaeser *et al.*, 2002).

Secondly, social capital is often only associated with positive outcomes while there are many examples of how it could have negative effects. Both on an individual level, in the form of social exclusion and at the level of the society, where group-based thinking can exacerbate inter-group hostility and result in ethnic and economic segregation (Portes and Landolt, 1996).

Finally, there are many debates about the operationalisation and measurement of social capital and it is argued that it is difficult to establish a statistical link between social capital and outcome variables. As there may be omitted characteristics that explain the relationship between social capital and outcome variables, there is a potential endogeneity problem that calls for instrumental variable estimation. Additionally, it is difficult to ascertain the direction of causality between social capital and outcome variables (Grootaert and Bastelaer, 2002; Durlauf, 2002b).

We study one particular phenomenon in which social capital plays a role, in risk sharing arrangements, and we operationalise social capital as social relationships that provide access to resources.[36] In the context of risk sharing, these relationships are a means to gain access to labour, money, ploughing cattle and grain in times of crisis situations. Given the constraints to achieve efficient risk sharing arrangements, it is important to find the type of relationships that are instrumental in dealing with information and enforcement constraints. We argue with (Granovetter, 1985) that risk sharing relations are embedded in social relationships. The norms, values and trust that are embedded in these relationships facilitate economic transactions, in our case informal insurance transfers. In terms of the two dimensions proposed by Grootaert and Bastelaer (2002), we therefore argue that the cognitive dimension

[35] Related to this is the criticism that social capital does not consider power relations and that it actually obscures the role of power, class and politics (Cummings *et al.*, 2003).

[36] This dimension of social capital is close to the definition of the concept proposed by Bourdieu (1986). He argues social capital is "the aggregate of the actual and the potential resources that are linked to the possession of a durable network of more or less institutionalized relationships".

of social relations matters most but that these are actually embedded in and not necessarily distinct from structural forms of social capital.

To conceptualise these cognitive dimensions of social relations, we go back to Swift (1989a), who introduced the concept *claim* to further develop the role of assets in Sen's entitlement approach.[37] Such claims embody access to production resources, food, labour or animals and are based on the implicit recognition that membership of a community, whether it is a village, kin group, lineage or church involves both an obligation to share resources and a right to support in case of needs. Claims originate for example from stock friendships (an animal loan system among African pastoralists), gift giving, participation in labour parties or tax payments to the government, the "premiums" we referred to earlier. Like other assets (such as food stores, cattle or jewellery), claims can be cashed in when households face a crisis; loaned animals can be recalled, labour debts called in and community support mechanisms activated. These claims, we argue, cannot be cashed in automatically. Whether the common identity that is created through these relations is instrumental for informal insurance, depends on the particular context in which the household lives and the personal characteristics of the individuals involved in the relationship.

2.8. Conclusion

In this chapter we set out the type of risks we consider in this dissertation and reviewed different strands of literature that are useful when studying the social arrangements that are used to deal with such risks. Our research focuses on the social arrangements of small farmers in rural Zimbabwe to deal with what we broadly label income and expenditure risks. We are concerned with the type of risks that households identified as important and disruptive. Hence we consider a range of risks that are rather different in nature. We are not just concerned about income realisations, but also consider shocks that could result in low income, such as labour shortage, or high expenditure needs, such as the death of a family member. Some of these are major shocks, such as death or illness, while others are milder, such as lack of cattle to plough. We have shown that these risks are pervasive in rural Zimbabwe and have a considerable impact on the variability of income over time. In this dynamic context, vulnerability is an important concept. Vulnerability is concerned with exposure to risk and the ability to deal with it.

Several strands in the literature deal with household coping behaviour. We have shown that risk studies in development economics do so very explicitly while livelihood studies stress the presence of a wide range of factors aside from risk that determine households' activities. Both approaches represent distinct strands of literature with traditionally limited cross-fertilisation. Apart from and given the different perspectives on the influence of risk on household behaviour, these approaches study the impact of different types of risk and assess different measures to evaluate the outcomes of the livelihood process. Risk studies are often concerned with outcomes such as income, expenditures and consumption, while livelihood

[37] Swift (1989a) argued for a more detailed analysis of the role of "assets" in the framework of production, consumption and exchange that Sen proposed in his entitlement approach. He defined assets as tangible and intangible stores of value that can be mobilized in a crisis. Swift distinguished investments, stores and claims. Investments can be made in human capital, productive assets or collective assets such as irrigation systems. Stores are food stores, stores of real value such as jewelry or cash and savings. Claims are claims on other households in the community for food, labour or animals, claims on patrons or chiefs for help in need or for example on the government or the international community.

studies also acknowledge the importance of meaning and sustainability. In this chapter we have argued that despite these differences, both approaches are complementary. The concepts and models from risk studies allow for a concrete analysis of the ways in which households respond to shocks, while the livelihood approach emphasises that resources used and outcomes attained should not only be defined in economic terms. The framework clearly outlines the range of assets and contextual influences that determine livelihood outcomes. Although early risk studies may have isolated risk from contextual factors, the review above shows that current risk studies increasingly pay attention to the particular context in which these strategies take place.

The complementarity of the two approaches is best illustrated in the discussion on risk sharing, the part of the risk and insurance literature that is concerned with the informal social arrangements that households use to deal with risk. Such arrangements are typically defined as a system of mutual assistance relationships in a given group, where a transfer from other members in the group insures any unpredicted event affecting one member. Initially, these studies on risk sharing focussed on establishing the efficiency of these arrangements, the level of insurance that was attained. Theoretically, all idiosyncratic risks can be insured but in practice the efficiency of these arrangements is hampered by the difficulty to monitor the behaviour of each participant (asymmetrical information) and to fully enforce the insurance contract in the presence of participants with limited commitment. Recent advances in risk sharing literature consider in more detail the determinants of the level of insurance and address the relevant level of the risk sharing group which calls for analysis on the type of institutions and social relations involved in providing protection. Here risk sharing studies greatly benefit from social security studies, that emphasise that social security is not only provided through relations, institutions and arrangements that are normatively defined to do so, but also through relations, institutions and arrangements that may not explicitly have such a role. Udry (1990) has for example demonstrated that informal credit relations often have insurance characteristics and Fafchamps and Lund (2003) argue that gift giving relationships may also have those attributes.

Institutions and social relations are also central in research on social capital. Although we are reluctant to use this concept, because it is highly debated, haphazardly applied and therefore in danger of being a "catch all" without real content, some of the issues discussed in this field are highly relevant for our study on risk sharing. For example the distinction between structure (social network, institutions etc.) and cognition (norms and values, trust, attitudes etc.). We argue that in the context of our research, these dimensions cannot be easily separated as risk sharing arrangements, like many economic transactions in developing countries, are embedded in social relations and based on claims. The attitudes, norms and values embedded in these relations make it easier to deal with issues of information and enforcement and therefore are instrumental in risk sharing. However, such facilitating attitudes, norms and values are no guarantee for sufficient protection as claims are not automatically converted into access to resources, they represent a potential. To attain security, claims need to be effectuated and the possibilities to do so depend on the particular context household lives in. Here again, the livelihood approach offers a useful framework.

These reflections on social security, risk sharing and social capital have stressed the importance of social relations in providing security to households. But also that these social relations are not just a characteristic of an individual or a household, they involve another actor and hence are relational. This suggests a standard social capital measure such as the number of memberships in associations, will only be a proxy for what we are interested in.

This does not provide us with information on the particular type of relationships, or arrangements that actually provide security. Therefore, we argue that a social network approach that takes the relationships between households rather than households as a unit of observation will be useful in gaining more insight.

3. Data and Data Collection

The study in this dissertation was inspired on earlier work on risk and insurance in rural Zimbabwe (Kinsey *et al.*, 1998; Hoogeveen, 2001). This work was based on a unique data set, the Zimbabwe Rural Household Dynamics data (ZRHD data), that collected annual survey data on a group of resettled farmers in Zimbabwe. Our study considers the same households and largely builds on data collected in this data set. The ZRHD project continued data collection until the end of 2001, which allowed us to incorporate questions in the annual survey that were relevant to the specific topic of our research. A considerable part of the information presented in this dissertation was however not obtained through survey questions or were only partly available from the questionnaires. Here we specifically refer to cultural practices, the impact of resettlement on social life and detailed information on the social composition and cohesion in the villages in the data set. Much of our fieldwork was aimed at documenting such information, an effort that was greatly enhanced by another research project on the development of social capital in these communities that started just after our project.[38]

This chapter describes the survey data and the methodologies used to collect additional information. Section one describes the Zimbabwe Rural Household Dynamics data set and discusses critical issues in the use of these data. Section two provides information on the civil social activities and lineage data collected by Barr and that are available for our analysis. Section three gives a chronological overview of our fieldwork and the methodologies used for data collection. Section four explains in more detail several participatory research methods that were used in village, focus group and household meetings, while section five elaborates on the in-depth interviews and interviews with key informants that contributed to our understanding of the study subject. Section six concludes.

3.1. Zimbabwe Rural Household Dynamics Data

The ZRHD data set is a panel data set that monitors the development of rural households that were resettled in the early 1980s, the first phase of land reform in Zimbabwe after the country gained independence in 1980. The data set is based on an annual survey conducted under four hundred rural households that live in three resettlement schemes, representative of three major agro-ecological zones in Zimbabwe. Mupfurudzi is situated in an area of high agricultural potential, Sengezi has moderate potential while in Mutanda the potential for rain-fed agriculture is restricted.[39] These schemes were organised around the individual settlement of families in clustered villages. Each family was allocated a residential plot, twelve acres of

[38] For more information on the project "From Strangers to Neighbours: Identifying the pre-conditions for social capital development" we refer to Barr (2002).
[39] For more information on the resettlement schemes, their agro-ecological conditions and other characteristics we refer to chapter four of this thesis.

arable land and the right to use grazing land on communal basis. The households in the data set live in twenty-two villages, nine in Mupfurudzi (in total 230 households in the sample), six in Sengezi (100 households) and seven in Mutanda (70 households).

The first survey in 1983/4 established a baseline for the four hundred households who were re-interviewed in 1987 and every year between 1992 and 2001. In 1997 the panel was extended with 150 households from six villages in the communal areas to enable a comparison between communal and resettlement areas. The selection of these communal villages was based on the place of origin of the settlers in the resettlement schemes. For each scheme, the two villages in the adjacent communal areas that provided most settlers to the villages in our sample were chosen. In each of these villages twenty-five households were randomly selected to be included in the data set. An overview of the households in the sample, with reference to the villages and type of area is presented in table A.3.1. in Annex 3.1.

As the ZRHD project aimed at studying the dynamics of households who were provided with an opportunity to start a new farm, the project collected detailed information on farming activities. Most prominent were questions on crop production, yield and sales, inputs and labour, equipment and cropping practices, stores of crops and inputs, livestock possessions and transactions, etc. The collected data also cover household composition and changes therein, asset ownership, off-farm and business activities, knowledge and attitudes, health and child care, household food and non-food expenditures, remittances, land, education, formal and informal credit transactions, social investments, bride wealth payments and child anthropometrics. Questions on these issues formed the core of the questionnaire in each year. At the same time, questions on varying other themes were included in the questionnaire, according to the policy issues addressed at the time. The following thematic questions were relevant for our work: The experience of resettlement (1984), drought and coping mechanisms (1993), drought and recovery (1995), marriage payments, marital instability, drought and Grain Loan Scheme (1996), drought and recovery, risk, bride wealth payments, social ceremonies (1997), support relations (1999) and risk coping (2000). The questionnaire was divided in three to four parts and administered to the plotholder and his wife. Teams of two; a man and a woman, who were responsible for different parts of the questionnaire, enumerated the interview. The man administered part one and two with the plotholder while the woman enumerator asked part three (and four) to the woman in the household. When the plotholder was a woman, the full questionnaire was administered to her, sometimes assisted by her adult son(s).

The availability of such detailed information over a prolonged period and the fact that these farmers are predominantly engaged in rain-fed agriculture and therefore vulnerable to weather shocks, makes the data set suitable for a study on risk and insurance. It covers for example two major drought years (1992 and 1995) and reports on several idiosyncratic risks. Moreover, earlier work on the data generated a number of insights that are relevant for our work. Hoogeveen (2001) for example documented the impact of risk on the income and consumption of these farmers. Over time, their income fluctuates by 40-60 percent, while their consumption fluctuates by 25-35 percent. These findings indicate that the households are only partly successful in coping with the income risk (consumption is not fully protected). Hoogeveen also shows that part of this insurance is realised through informal risk-sharing arrangements in the village, while Kinsey *et al.* (1998) provide evidence that cattle play an important role in household coping strategies. Selling cattle is a dominant strategy to generate cash in drought years. However, during drought years, these buffer stock and informal

insurance strategies are not sufficient to smooth consumption. Households also change their consumption patterns, for example by reducing the number of meals they consumer per day and changing their diets. That this is not without consequences is illustrated by Hoddinott and Kinsey (2001) who found that child growth in the study areas was not only reduced by the 1995 drought, but also that this reduction was more permanent: no catch up growth was recorded after the drought. In a later study, Alderman *et al.* (2003) further confirm that early childhood malnutrition has long term consequences. Pre-school children who were exposed to the 1982-84 drought, delayed in starting school and showed a loss of stature and a lower number of grades of schooling attained as adolescents (as measured in 2000).

The existence of this long-term data collection project was not only beneficial in terms of knowledge it had generated, both on the research areas and risk and insurance, but also in terms of research infrastructure. The ZRHD project had a motivated research team, with several field researchers who had been involved in various data collection efforts over the years, both quantitative and qualitative. This meant that it was always possible to do fieldwork with field researchers or research assistants that were known in the villages. The field researchers shared a lot of information with me on cultural norms and practices, the developments in the villages and anecdotes on particular families and villages. Moreover, several field researchers had an academic background and were therefore useful intermediaries between western academic thoughts and the local residents and their practices. This proved to be extremely useful, especially when, during our final field stay, the unfortunate coalescence of a particular data collection exercise, jealousies and a tense political situation led to our accelerated departure from Mupfurudzi.

Before we discuss the other sources of data used in this dissertation, we would like to review several characteristics of the data set and the sample population that need to be considered before we use the data in our analyses. We look at the unit of observation in the survey, land ownership, cattle and wealth, comparisons over time and comparisons between the resettlement and communal area households.

Unit of analysis

At the time of resettlement, each settler household was allocated a residential stand in a village and this is the unit at which data are collected. Initially, in the early years after resettlement, these stands were predominantly inhabited by nuclear families that comprised on average 7.4 household members. After almost twenty years, the occupation of such stand has increased to an average of 9.4 household members and the composition is rather heterogeneous. Some stands are occupied by a household with a so-called nuclear composition, a husband, his wife (or wives) and their children, while others are horizontally or vertically extended.[40] In such cases each of the women (co-wives, daughter in law, sister in law etc.) usually have their own kitchen. This suggests that the difficulties to delineate the household and do justice to the variety of living arrangements that exist, that are often referred to in development research (see for example Ellis (2000) are certainly relevant here. To complicate matters, the settlement pattern in communal areas is different. Although

[40] Horizontal extension refers to co-residence with members of the same generation (e.g. adult brothers with their respective wife or wives and children), while vertical extension means co-residence of members from different generations (like parents with their adult son, and possibly their parents). For more information on current household composition, we refer to chapter four on the social characteristics of resettlement.

households often live next door to their close kin relations, the residential plot is more often inhabited by a nuclear family.[41]

Although these differences in the units of observation are not ideal, they are a given that we have to deal with. There are two issues that are important. First, as two respondents per plot are interviewed on all activities of residing members, there is a potential danger of underreporting at the level of the plot in large households, especially on issues such as income, credit, consumption and transfers. A review of per capita income sources suggests that this may be the case. Per capita income whether measured as agricultural income or total income, per capita, per labourer or per adult equivalent, is significantly lower in households that are larger.[42] It is however not clear if this difference should be fully attributed to underreporting in larger households or to the negligible marginal returns to extra labour, as is suggested by Deininger *et al.* (2002).

Secondly, the composition of a stand may influence the livelihood of the people living there, and more specifically the way a household deals with a shock. One could for example expect that an extended household that exists of more than one consumption (and possibly production) units finds it easier to share the risks with other units on the same stand, rather than with households on other stands. To single out this potentially intervening effect of household size on the processes that we are studying, we will control for differences in household size by including the number of kitchens on a plot in our analyses. In case this variable is a significant explanatory of observed behaviour, we should be careful not to interpret it too literally, in terms of the effect of an additional household member, but also consider it in the light of the issues discussed here.

Land

In many studies in developing countries, the ownership of land (or access to land for that matter) is used as a variable to distinguish categories of farmers. In the case of the resettlement farmers, this is not sensible, as land ownership is principally equal, with all resettled households having use rights to twelve acres of arable land and legally there are no landless in the resettlement areas. From this, it should be obvious that the households in the panel are not typical of rural households in many parts of Zimbabwe. They have been given access to superior resources, which in a considerable number of cases have been used successfully to build up a base of assets, particularly livestock (Kinsey *et al.*, 1998). However, two qualifications need to be made. First, considering the maturation of households and the lack of opportunities to get land elsewhere, many adult sons remain on their father's stand. *De jure* they are landless, but *de facto* their parent(s) often allow them to cultivate a portion of the land allocated to them. As referred to above, sometimes such allocations are made rather explicitly and married adult sons set up their own "home" on the plot of their parents. While in other occasions, the son is allowed to cultivate a part of the fields while he is expected to contribute to the household pot and potentially save a little to prepare his future move away from the plot. Secondly, although it is not possible to buy land and plotholders are formally not allowed to lease or rent/borrow land, this does happen in practice. Information from the survey indicates that each year a small proportion of households

[41] In communal areas 85% of the households have one kitchen, while in resettlement areas this number is significantly lower at 54%; almost half of the stands have more than one kitchen.

[42] The correlation coefficient of per labourer agricultural income, measured as the crop income per unit of labour power in the household, and the units of labour in the household is -0.11 with a significance level of 0.000. The per capita total income in the households is also negatively correlated with household size: -0.12 at 0.0000 significance level.

(ranging from one to three percent) clears some additional land to raise income, to meet the needs of their growing family (incl. adult children) and occasionally because their other land was of bad quality. A similar proportion borrows or rents land on the informal land market. In 2000, six percent of the resettled households rented or gave out land, predominantly to help other households in need, to their children or simply because they do not have enough labour, inputs or assets to farm all the land by themselves. Most of the time this land is provided without any predetermined payment (62 percent), or it is exchanged for inputs, money, labour and ploughing services. Three percent of the resettled household indicated they borrowed land in 2000; to give to their children or to increase their acreage under cash crops, they paid money or with ploughing services but claimed they did not receive land for free.

Cattle and wealth

In Zimbabwe, wealth is closely associated with ownership of animals, especially cattle but also small stock like goats (Scoones *et al.*, 1996). Animals provide status, have productive properties (ploughing[43], transport, manure), dietary benefits (milk and meat), income generating potential (hides, income through ploughing or transport, manure) and serve as an important buffer stock, to be sold in case cash is needed. In light of all these functions, households preferably have a herd that is mixed in composition. Respondents indicate the ideal size of a cattle herd ranges from eight to twelve head and it is preferably composed of trained and young oxen for (future) ploughing, cows for breeding (reproduction and milk) and bulls and heifers for ceremonial purposes. This variation in herd composition makes it difficult to compare the herd of one household with the herd of another household. Two households can each have six heads of cattle, but need not be equal in terms of cattle wealth. The mean price of the different type of cattle for example varied in 1999 from Z$ 3000 for a heifer or a young ox to Z$ 3500 for a bull or cow and Z$ 4500 for a trained ox. Therefore, a herd of three heifers and three cows has less value than a herd of three cows and three trained oxen. To be able to compare herds across households or across time, Hoogeveen (2001) constructed a livestock equivalent scale. Based on the median sales prices for each of the livestock in each year between 1992 and 1999, Hoogeveen constructed an average median value for each type of animal. Then, he expresses the value of the different types of livestock in trained oxen equivalents and aggregates these to arrive at a livestock equivalent herd value. Hoogeveen used the following fractions: trained oxen, 1.00; cow, 0.71; heifer, 0.58; bull, 0.83; young oxen, 0.59; calf, 0.30; donkey, 0.18; sheep, 0.08; goat, 0.06 and pig, 0.06. This constructed value of the herd is used throughout this dissertation as an indicator of wealth.

Comparisons over time

The advantage of a panel study is that it allows researchers to make comparisons over time. Although we only partially explore this opportunity in our study, there are a number of issues that need to be clarified before a comparison over time can be made. First, many of the core modules of the questionnaire, notably those eliciting information on household composition, assets and agricultural production remained unchanged since 1994. This facilitates the comparison of data from different survey years. Secondly, the data in fact monitors roughly the same households over time as sample attrition is limited. Gunning *et al.* (2000) report that approximately ninety percent of households interviewed in 1984, were re-interviewed in 1997, while Hoogeveen (2001) reports this was eighty-five percent in 2000. There was no systematic pattern to the households that dropped out. Some were inadvertently dropped

[43] Households with sufficient draught power can cultivate more land and use their land more productively. Hoogeveen (2001) shows that a lack of sufficient draught power (a ploughing pair) means that households are trapped in a situation of poverty. Such households cultivate less land, attain lower yields per acre and generate just enough to make a living but not enough to save and invest in cattle to improve their situation.

during re-surveys, a few disintegrated (for example when all adults died) and government officials responsible for overseeing these schemes evicted a small number. The low sample attrition does not however mean that all remaining households are original settlers. Although this is still often the case, after some twenty years a considerable number of original plotholders have died. In such cases their (first) wife or an adult son usually inherited their plots, while only occasionally the plot was taken over by an extended family member.

Finally, considering the high rates of inflation in Zimbabwe it is important to correct for differences in prices when comparing monetary variables, such as gross household income, over time. This is usually done through the use of a price index. In Zimbabwe, the Central Statistical Office produces Consumer Price Indexes that are based on urban household shopping baskets, these are presented in table 3.1. Although such urban based indices are often considered to be less applicable for rural households[44], it is not possible to construct a rural CPI, simply because not all the relevant information is available. After a comparison of the development of prices that are reported in the questionnaire (food, consumer durables and livestock), the urban-based Zimbabwe CPI and a rural based Uganda CPI, Hoogeveen (2001) concludes that the urban-based CPI is a good proxy for inflation in the rural areas as well. [45]

Table 3.1. Weighted Price Indices

Year	1995	1996	1997	1998	1999	2000
Weight	1.00	1.21	1.44	1.90	3.01	4.70

Source: CSO (1999, 2001)

Comparisons between Resettlement Areas and Communal Areas

With data that cover two distinct categories of farmers, those who are land reform beneficiaries and those who are not, it is very tempting to make comparisons between the two type of farmers and attribute the observed differences to the resettlement initiative. There are however two important characteristics of the data set and the study population that need to be considered before we can do so.

First, we review on the sampling strategy used in the survey. The resettlement schemes (the strata in our sample) were randomly selected from the resettlement schemes that were established in each of the three natural regions in the early 1980s. The villages in each scheme (the clusters or primary sampling units in our sample) were also randomly selected and an attempt was made to make a census of all resident households in each village. In practice, this was however not accomplished. Only in Mupfurudzi a near-census was realised.[46] In Sengezi and Mutanda the households in the sample were randomly selected from the villages. As a consequence, the number of sample households are not evenly distributed over the three different natural regions, households in Mupfurudzi are over-represented relative to households in Sengezi and Mutanda. While sampled households in the communal areas are equally divided across these three regions; 50 households in each region, 25 in each village. (An overview of the percentage of households from each village that is included in the sample is presented in table A3.2. in Annex 3.1.)

[44] The argument is that the composition of rural and urban shopping baskets differ considerably, and therefore the weights to be given to consumption items, for example because rural households usually spend less on housing and transport and more on food.

[45] This procedure is also used by other researchers in Zimbabwe, see for example Scoones (1996)

[46] With a near-census we mean that with the exception of a few every single household in the village was interviewed.

The probability of inclusion in the sample may not have been the same for all households in the three resettlement areas and differences in environmental characteristics of these areas are likely to affect household characteristics such as crop income, area cultivated and possibly household size. Therefore, the sampling strategy is likely to influence comparisons made between communal and resettled households, which means it is necessary to correct for the over-representation of households in Mupfurudzi. This can be achieved with sample weights. Although ideally such weights would reflect the number of households resettled in that natural region on a national level, it proved impossible to ascertain the population statistics necessary to do so to create a nationally representative sample. Hoogeveen and Kinsey (2001) however argue that within sample comparisons can be made by allocating sampling weights in such a way that the weighted number of resettled households in each natural region becomes identical. The weights to do so are reported in table 3.2. After weighting in this manner, summary statistics can be generated that compare means of the resettled households with means of the communal households without a bias towards resettled households in region with the highest agricultural potential. [47] Throughout this dissertation, we use these weights to correct for potential biases if we compare results or outcomes between households in communal and resettlement areas.

Table 3.2. Weights to correct for sample design

Region	NR II	NR III	NR IV	Total number of households
Resettlement Households	1	2.30	3.29	400
Communal Households	1	1	1	150

Source: Hoogeveen and Kinsey (2001).

A second issue that potentially affects a comparison of households in resettlement and communal area households is the selection process of land reform beneficiaries. We want to be sure that the selection of resettled households was random, so that differences between land reform and non-land reform beneficiaries, is not caused by differences in their initial conditions. This is rather difficult to establish, especially retrospectively. Hoogeveen (2001, p.41) embarks on this mission and compares several of such initial conditions such as the land used for cultivation and the number of cattle owned prior to 1980 and the age and education of the head of household. As the comparison of means of these characteristics between communal and resettled households did not yield any significant differences, he concludes these do not affect differences in later performance. Although his analysis is correct and convincing for the variables used, it does not rule out the possible effect of characteristics that are less easy to observe. Think for example about an adventurous or pioneering spirit or the ability to cope, that may have stimulated settlers to move away from their previous place of residence to build up a new life and at the same time enhanced their agricultural performance in the new communities. The possibility of the influence of such personal characteristics should therefore be considered in the comparison of resettled and communal households.

[47] Hoogeveen and Kinsey show there is considerable difference between weighted and unweighted summary statistics, with the latter resulting in sizable overestimations: unweighted agricultural income is for example inflated by 39 percent relative to its weighted equivalent.

3.2. Civil social activity and lineage membership

In 2000, Barr and a group of Zimbabwean field researchers collected data on civil social activity in all the villages in the study. For the resettled communities they established memberships of all household members in every year since resettlement. This was done in two stages. First, a meeting was organised in each of the villages, attended by one adult member of every household in the village. During this meeting a list of all the non-political groups that had ever existed in the village was drawn up.[48] The output of these meetings was an exhaustive, village specific list of groups that either existed in 2000 or at some time during the history of the villages. Such lists were the code sheets for the next stage, which involved the recording of individual household's civil social histories since resettlement.

For villages and households in the communal areas, Barr collected information on the memberships in existing associations only. No attempt was made to reconstruct the development of civil social activities as it proved to be important to have a "year zero", a year in which the village did not exist and at which effectively there was no civil society, to aid the recall process. The availability of this wealth of information to our study is greatly appreciated and we use membership variables in two chapters of this dissertation. In chapter 4 we use a membership variable that counts the numbers of groups to which at least one household member belongs, while in chapter 6 we use the membership information to construct relationship variables that identify which households in a village share membership in associations.

Barr also collected information on the lineal origin of adult household members that is determined by their *dzinza*, *chidawo* and *mutopo*.[49] This information revealed that household heads relate to seventy different chieftancies, some of them outside Zimbabwe. We used this detailed information for the analysis of risk sharing networks in four of the villages in chapter 6, but it was expected to be too detailed to use in analysis of food consumption in chapter 5. To include some measure of clan membership, we used a more aggregate measure that was developed by Barr (2004). With reference to customs and culture, the chieftancies were classified according to their geographical location. This resulted in twelve Zimbabwean groupings and one group containing all foreigners, mainly Mozambicans and Malawians. Once the heads had been assigned to one of the clan groupings, several lineage variables were constructed and used in the analysis. Examples are membership of the largest lineage group represented in the village, a dummy variable that equals one if the household head is member of this lineage, or the proportion of household heads in the village that has the same lineage as the household head. These lineage variables are also used to describe the social setting in resettled villages as presented in chapter 4.

The database thus created by Barr contains information on lineage background and membership in associations for all households in the sample villages in Mupfurudzi and

[48] Barr used the following prompt list; churches and mosques, religion-related group, groups related to agriculture (buying inputs, production, marketing, information and training), professional associations, funeral or burial societies, savings, credit or other finance-related groups, community organizations, literacy or awareness groups, women's groups, youth groups, cultural groups (drama, choir, music etc.), sport clubs, ethnic and clan groups, union or protest movements. Political groups were neither asked about nor recorded when mentioned as a precaution in the light of the political environment that existed at the time of the fieldwork. Memberships to agricultural marketing boards and credit associations for inputs were listed but are excluded in this study as these are indicative of the accouting/debt management systems of large-scale organizations that interact with the villagers rather than civil society of the villagers themselves.

[49] Chapter four describes in more detail the meaning and significance of these lineage indicators.

Sengezi and for the sample households in Mutanda and the six communal villages in the ZRHD data set.

3.3. Chronology of fieldwork

For our study, a total of nine months were spent on fieldwork in Zimbabwe, divided over four periods. Two field visits, early 1999 and early 2000, coincided with the annual survey of the ZRHD project that took place in the course of the agricultural season. The other two periods of fieldwork were deliberately planned during the Zimbabwean winter, in 1999 and 2001. As the Zimbabwean winter is the slack season in the agricultural cycle, respondents were less time-constrained, which greatly enhanced the possibilities to organise village- and group meetings to gather information. An overview of fieldwork activities is given in table 3.3.

The first field trip was used to get acquainted with the research areas and to get a feel of issues relevant for our work. The second period of field work was predominantly used to collect information on kinship relations in the research communities and gain additional insight in the local implementation of the 1992 and 1995 food aid programmes that were administered by the (local) government. During the third fieldwork, I partly assisted with the implementation of a specific module on coping behaviour in the 2000 ZRHD survey that is used in chapter 5 and 6, and used in-depth interviews to elaborate on specific local arrangements that provided protection to households. In the last fieldwork period we completed the information on kinship structures and selected three villages in Mupfurudzi resettlement scheme for a detailed study on risk sharing relations. We selected Mupfurudzi for this purpose as the sample in that area was a near census, which made it easier to construct network data. The three villages are similar in terms of accessibility or isolation. They are not far apart and situated at the southern end of the resettlement scheme. They do have different social dynamics that may be related to their religious orientation; an issue that is further explored in chapter 6. In Mudzinge, a large number of households still adhere traditional religion, while Zvataida is mainly apostolic and Muringamombe is protestant. Our work in the villages comprised of several village and household level meetings and included the enumeration of a short-form questionnaire for non-sampled households (see also chapter 6). This work was aimed to gain more insight in the histories of the villages and the opportunities for risk sharing and the cultural norms and values governing such arrangements and actual practices that are observed.

Our second and fourth field visits partly overlapped with Barr's experimental fieldwork. Where possible we combined village meetings not to stretch the time-demands on villagers. Often, these combinations proved to be mutually reinforcing. The experiments provided an extra incentive for household members to participate in our exercises, while these provided welcome entertainment during the sometimes-lengthy experimental sessions. As the experimental work was aimed at generating insights in trust and risk sharing behaviour, we set up the research activities in such a way that the possibility that the content and outcome of the group exercises influenced the economic experiments, or vice versa, was minimised. The experiments on trust (see also Barr (2003b) and chapter 6) were combined with the social mapping exercise while the risk sharing experiments coincided with a meeting in which the village picture books were presented (see also section 3.4.2.).

Table 3.3. Overview of fieldwork activities and methods for data collection

February-March 1999	August-September 1999	February-March 2000	July-September 2001
Logistic support survey team In-depth discussions with item lists on labour exchanges, living arrangements and funeral contributions etc. Interviews with key persons in local administration and village leadership Focus group discussions: community structure and associations	Social mapping in Mupfurudzi and Mutanda Interviews with key informants on food programmes during 1992 and 1995 (local administration and village leadership) In-depth interviews with item lists and genealogies Interview with key informants on accessibility of insurance market	Logistic support survey team for the module on risk coping behaviour In-depth discussions with item list: living arrangements extended families, choice of marriage partners and arrangements for bride wealth, enforcement issues in bride wealth payments and funeral contributions. Interviews with key informants in local administration	Social Mapping Sengezi Village studies Muringamombe, Zvataida, and Mudzinge in Mupfurudzi. Village histories and picture books Short form questionnaires non sampled households In-depth discussions with proverbs and bride wealth hypothesis. Sengezi: PRA social relations PRA risk sharing

3.4. Participatory Research Methods

To introduce our work in the village and to elicit specific information at different stages of the study we developed several participatory research instruments. These instruments are based on existing participatory research methods (PRA-methods) such as village mapping, matrix ranking, time-lines and a village picture book, some of which were adjusted to suit our context and purpose.[50] Although the use of such participatory instruments in project planning has often been glorified, especially because it is used to generate information at the community level directly with members of the community, there have been some critical reflections as well (Mosse, 1994; Goebel, 1998). Mosse (1994) for example suggests that: "*PRAs involve public social events, which construct local knowledge in ways that are strongly influenced by existing social relationships, such as power and gender, and therefore, certain kinds of knowledge are often excluded. Like any external intervention in a community, the social event will be shaped and influenced by social processes which may only be detectable in retrospect*".

Although we would argue that these issues are less pressing when PRA methods are used in research because it does not touch directly on private interest in (future) development projects, it would be naïve to assume such processes do not influence data collection as well.[51] Therefore, power and gender issues played a role in the design of our methods. We not only used participatory methods in meetings at the village level, where men and those in power could dominate the data collection process[52], but also in separate meetings for men and women, focus groups of randomly selected households in the village and individuals.

Here, we describe the social mapping exercise that we used to construct our database on intra-village kinship relations, the village histories and picture books that we used as an introduction to our final fieldwork and two ranking sessions on risk sharing and social relations that informed us on several dimensions of risk sharing behaviour.

3.4.1. Social Mapping

In Zimbabwe, it was commonly assumed that the individual-centred approach to resettlement with its random allocation of plots disconnected resettled households from their kin relations who stayed behind in the communal areas (Kinsey, 1982;

[50] For an overview of the principles of using participatory methods in research we refer to (Chambers, 1997). For more information on of specific methods we refer to Mosse (1994), Mazzucato and Niemeijer (1996) and World Bank (1999).

[51] In fact, a researcher can also be used in local (power) disputes. Towards the end of our work in Mudzinge, the village headman and some of the villagers for example entreated us, to exclude the head of one household from our work. The person in question was involved in a local court case for the physical abuse and subsequent death of a bull and was not willing to apologize and pay compensation to the owner of the beast. As this person was not behaving the way a good villager should, the village leadership deemed it reasonable that he would be denied the small, in kind, benefits that were related to participation in our work. To underscore the seriousness of the situation, it was made clear to us that if we did not comply with their request, we would be denied access to the village for future work. After some deliberations, we decided to comply with their request. Interestingly, the man in question was indeed excluded from the final meetings we had in the village, but his four wives were present and participated to the fullest.

[52] We carefully instructed our facilitators to be aware of and responsive to situations in which this happened.

WLSA, 1997). Patchy information from the questionnaires and informal conversations with the respondents suggested otherwise; reference was made to relatives that lived in the village, both blood and marriage ties. To gain more insight in the kinship structures in the resettlement villages, we developed a social mapping exercise, initially to be implemented in a few villages to have some background material. It turned out that indeed a considerable number of households did not resettle entirely on their own, but also that villages differed a great deal with respect to their kinship densities. Moreover, the social mapping instrument proved to be a very powerful and time-efficient data collection tool. Therefore, we decided to use it as a primary data collection tool in all villages in the ZRHD data set, and construct a separate data set on kinship relations.[53] Information from this data set is presented in chapter 4 and used in the analyses in chapter 5,6 and 7.

Our social mapping exercise was designed to elicit information about kinship ties between households living on different stands in the same village. We called a meeting with representatives from all stands in the village and asked villagers to draw a map of their village that indicate the location of all residential stands and important land marks. Two or more villagers usually drew this map on a sandy area surrounded by a circle of participants. Little paper flags with the name of the plotholder marked the stands, as registered in the survey, or as indicated by the participants in case of non-sampled households. We then asked the villagers to use different colours of string to link stands that are connected through kin relationships.

We initially distinguished relationships between parents and children, siblings, extended family, marriage relations and extended marriage relations. We probed for the precise nature of each of the relations mentioned by the villagers to be able to label them correctly. After the first map, we slightly adjusted the kinship categories in line with the patri-linear organisation of the Shona and ended up using the following four broad groups:

- Close blood relatives; father, mother, son, brother
- Extended blood relatives; uncle, aunt, niece, nephew, cousin, grandparents, grandchildren etc.
- Close marriage relations; married sister or daughter[54], brother or sister in law, son or daughter in law, marriage partners of grandchildren, co-wives.
- Extended marriage relations; all other relations by marriage, e.g. close blood relatives of the marriage partners of nieces and nephews. This group excludes the

[53] As this was not initially planned for, it was not possible to visit all three research sites during the second fieldwork and we decided to postpone the collection of kinship data in Sengezi to the fourth fieldwork period. Although these different years of data collection potentially affect the comparability of the data as new relations could have been established, this danger was reduced by two methods. In Sengezi we carefully probed on the history of relations and excluded the relations that were established after 2000 from our analysis and we explicitly probed on relations that could have existed in the past, but not anymore because households moved away, members died etc. Secondly, we updated the 1999 relations in Mupfurudzi and Mutanda with information on changes in the household composition from the ZRHD survey.

[54] These are considered a marriage relation, as the daughter or sister leaves the house to live with her husband ('s family). After that, she is no longer considered as a blood relative, but she is part of her husbands family, the children born from her are no blood relatives either, but belong to the lineage of her husband.

connection between households that are both connected through another household by marriage.

Apart from probing on the exact nature of the relationship between members of households that resided on different stands, we also addressed the historical dimension of the relation. We wanted to know whether a particular relationship had developed when both households already lived in the new community, as was the case for many marriage relations, or if the relationship stemmed from the time before resettlement. If the latter was the case, we asked if both resettled at the same time on a different stand, or one followed the other and possibly lived together for some time. This allowed us to reconstruct the kinship networks at the time of resettlement in the early 1980s and how they developed over time. As such we ended up with information on the time of resettlement, in the mid-1980s and in 1999/2001.

Given the lack of such a clear date of establishment in the communal areas and the generally more complex nature of relations between the households in the villages, we were not able to reconstruct the 1980 kinship structure of communal area villages. We were able to construct the current kinship structures in the communal areas. The larger number of households in the villages and the intricate relationships between them did call for a slightly different approach. In the first four villages (adjacent to Mupfurudzi and Mutanda) we decided to start the mapping from the perspective of the sampled households, and extended the map while discussing their relationships to other households in the village. This means that the households in the sample were covered but not necessarily all households in the village. In the communal areas adjacent to Sengezi, we initially used the same methods, but soon found that we missed out information. There, we resorted to a different methodology to construct kinship relations. Based on a list of current resident households (as obtained from the headman) we constructed a village genealogy that went back as far as three to five generations. This provided us with a very detailed understanding of relationships between households and the processes through which so-called "strangers" (i.e. those not related to the two-three lineages represented in the villages) gained access to land in the village territories. (More insight in the position of such strangers in the villages is provided in Box 3.1.) To assess the influence of this different methodology, we also applied this method in one of the communal areas in Mupfurudzi and found that the genealogy method yielded significantly more relations and a more accurate description on their nature the social mapping exercise.[55] Unfortunately, time and safety constraints did not allow us to apply the genealogy method in the other communal areas as well, therefore we need to be aware of this potential bias in our data for some of the communal area villages. This means we have information on the intra-village kinship relations of all households living in the sample villages in the resettlement areas at three points in time, while we have information on the "current" intra-village kin relations for most of households in the sampled communal villages.

[55] Regression analysis shows that villages in which the geneological methodology was used (Chichera, Sengenda and Chigwedere) have a significantly higher number of reported relations. These differences are confirmed when we compare the results for the one village in which we used both methodologies. With the social mapping instrument, we found that 10 percent of the households on the map did not have kinship relations to other households in the village and the average number of relations in the village was reported to be 4.1. With the genealogy method, only 3 percent of all resident households in the village did not have relatives in the village, and the average number of relations counted was 16.9.

Box 3.1. "Strangers" in kinship land.

The presence of "strangers" in the ZRHD sample repeatedly led to discussions with the village headman in communal villages. As respondents in the survey and participants during group meetings, in-depth interviews or economic experiments were often rewarded for their time (usually in kind and in case of the economic experiments with cash winnings), the headman expressed his concern that the "strangers" in their village also benefited from this. Although he and his fellow kinsmen did not begrudge his token payment, they felt it was problematic that lineage members in their village were excluded from this benefit. The "strangers" were perfectly welcome to join the meeting and receive the attached benefits, but preferably not at the expense of relatives who were excluded from the sample.

As both representatives of households involved in a relationship were often present at the meeting, it was usually easy to elicit information about the character of these relationships. On two occasions, relations were indicated but the two households not present and the group indicated that it was not appropriate to discuss the type of relationship between these households when no representatives were around. Information on these relationships was elicited from the respective households at a later visit to the village. A similar approach was followed when particular relations were laughed about or proved sensitive when they were referred to. These were later considered in private and were often unofficial liaisons or "forced" marriages for which a bride wealth agreement was yet to be established.

Of course, there is the possibility that some relations were not mentioned, most likely when both households involved in the relations were not present at the meeting and none of the others present knew are felt in place to report on this relationship. However, we find this not very likely, as not many households remained unrepresented in the meetings and comparison with information later revealed or extracted from the survey confirmed the accuracy of the data collected with the social maps.

3.4.2. Village histories and picture books

To serve as an introduction to our 2001 fieldwork in their villages and to increase our understanding of the history of the resettled communities, we asked the villagers in Mudzinge, Zvataida and Muringamombe to make a village time line. In consultation with the village head we called a village meeting to be attended by one adult representative from each household, preferably with an equal participation of men and women. After some initial discussions to explain the reason for our stay and the purpose of the meeting, we split up in two groups, men and women respectively. Two field researchers (a man and a woman) started the facilitation process as follows:

"We would like you to go back to the time that you settled in this village. To the time, that there were no misha[56], no fields, no facilities etc. And then look at your village now, it is clearly established, not only are there houses, fields and a bore hole, but also a community has developed. From people that did not know each other well, or

[56] Misha is the plural of the Shona word musha, that means homestead

could even be strangers to one another when settled, you have now become a village community. This signifies a major change, both in physical terms and in terms of community life. We would like you to think about these changes and tell us important events, accomplishments, periods, etc. that mark the development of the village. Starting from the first settlement: what happened in the village and how this affected village life. This could be positive events, f.e. the establishment of a club, a church, borehole, agreement on funeral assistance. Or negative events, like a drought, the death of an important person in the village etc.

One person from each group was asked to write down years and events on a flip chart in front of the group and the field researcher asked participants to elaborate on the events that were mentioned.

At the end of the separate group meetings, we explained that we wanted to facilitate the creation of a village photo-book (the idea of the picture book was based on previous work by Mazzucato and Niemeijer (1996). This photo book was meant as a record for the village to be shown to visitors or for their children, to remind them of how they lived in the year 2001. To achieve this we wanted to ask two men and two women in each village to take us around the village and show us things they considered important in their village and life, to take pictures and collate these pictures in a book. After the general idea behind the picture book was discussed, we asked each group in the village to select two participants (two men and two women) that could represent them for making the book. Two criteria for selection of photographers were set by us; they should be old enough to know the village and its history well, but young enough to have good eyesight and be able to walk around.

We returned the next day and were taken around in two separate groups, a female field researcher and me joined the women while a male research assistant joined the men. We provided one-time use cameras and explained the (wo)men how to operate them. They took pictures and explained activities, persons, land marks, infrastructure etc. that they deemed important in their life. Again, these issues were extensively discussed to get more insights in village dynamics. Next, we developed the films in Harare and returned the pictures to the villages, with books, pens, sheets etc, with the request to make a book. While we kept on working in the village, the photographers were working on the books and when these were finished, they were presented to and discussed with their fellow villagers as "entertainment" during group meetings that were organised for an economic experiment.

The village histories and picture books did not so much serve as an icebreaker (as suggested by Mazzucato and Niemeijer (1996) because the villagers were well aquatinted with the ZRHD project and its field researchers and to some extent with me. Both activities did however prove to be good way of introducing our work and ourselves again, and paved the way for many personal and in-depth interviews. They also provided us with valuable background information on the process of resettlement, information that could not be reconstructed from the surveys, which is predominantly used in chapter 4 and 6.[57] Also, the villagers gave much emphasis to events and occasions that affected their livestock possessions, thereby confirming the importance

[57] This is vividly illustrated by the remarks of one of the field researchers in our team for the village histories and photo-books. He said "*It is incredible, I have been visiting these villages for the survey for seven years now, but today I learned about things in this village that I have never heard before*"

of cattle for their livelihood. Moreover, they primarily mentioned external interventions, especially by the government and to a lesser extent by NGOs, rather than intra-village initiatives. A finding that stresses the settler's attitude towards the government: as an institution that "should", should provide them with means to develop, should assist them in times of need, etc. Both issues will return regularly in this dissertation.

3.4.3. PRA Risk sharing

To follow up some issues raised by participants in the risk sharing experiment conducted by Barr (2003a), and to gain more insight in information and enforcement constraints for risk sharing in the small village economies, we developed a risk sharing ranking exercise. The following questions were central in this exercise: Are participants in a risk pool secretive about their actual state of affairs? And if so, why? How do participants in a risk pool deal with information asymmetry? How can participants in a risk pool enforce the sharing contract, enforce reciprocity? Does the repeated character of the arrangement make it easier to enforce the contract/ more difficult to opt out?

The exercise consisted of two stages, a story telling round and a ranking exercise, and was conducted in groups of four. Two men and two women were randomly selected from literate household heads and their wives in a village[58] and were asked if they were willing to participate in the assignment. If so, they were each asked to bring a friend of the same sex to complete the group. The meeting with the group of women and the group of men was organised separately and held on different days or part of the day. This selection procedure was deliberately used to allow for an open atmosphere in the discussions. A total of eight groups were met in four villages; three villages in Sengezi Resettlement Scheme and one in the adjacent communal area. Two field researchers conducted the exercise; an experienced facilitator and a scribe, who made records of the discussion and prompted follow up questions.

In the first stage of the meeting, and to set the stage, the facilitator began a story….

"O*nce upon a time there was a man whose harvest failed. Long before the next harvest was due, his family was beginning to run out of maize and he decided that he had to seek help…..*"

….and asked each participant to continue the story with a few lines. Then, some situations were hypothesised by introducing some BUT's or WHAT IF's to see how the group changed the later parts of the story in response. If not brought up by the participants in the first round of story telling, the following situations were suggested:

BUT and WHAT IF?

- The man and his family had fallen on hard times through no fault of their own
- The man and his family had fallen on hard times because the man was lazy

[58] Considering the fact that the average number of years in school of adult household members is approximately five, this restriction means we did not select the "average" villager for this exercise, but rather the ones that were better educated.

- The man and his family had fallen on hard times due to planting at the wrong time
- The man and his family had fallen on hard times as he and his family got very ill when they needed to be working in the fields
- The man and his family suffered in silence
- What if he had been helpful to others in the past
- What if he had refused to help others in the past

In the second stage of the exercise, participants were asked to rank various situations in relation to characteristics of risk sharing as an insurance arrangement. Seven real-life situations that were representative of abstract categories of risk were written on green cards[59], while criteria for ranking were provided on red cards.

Real-life situations
- Permanent negative situation labour (old, disabled, small families and/or out of favour with your family)
- Permanent negative situation land
- Permanent negative situation capital (equipment, lack of cattle; wealth status, poverty trapped)
- Unexpected, short term negative situation labour; illness or death in the family
- Unexpected, short term negative situation land; rainfall, waterlogging, drought, baboons, pests
- Unexpected, short term negative situation capital; sick cattle, theft of equipment
- Unexpected, short term negative situation cash; to buy inputs, hire draught power, labour

Ranking criteria or questions
1. In which situation is one more likely to provide help? (When is it your responsibility to help)
2. In which situation is it easiest to get sufficient information about the status of the one to be assisted? (Follow up questions: how do you know that the explanation given by the farmer is true, what do you need to know before you decide to assist, can people easily fool you about their exact status?)
3. In which situation does one expect help from others?
4. In which situation is one more likely to suffer in silence?
5. If one provides assistance, in which situation is one more likely to expect reciprocation of assistance at some point in time?(Follow up question: is there a way this can be enforced?
6. In which situation are relatives more likely to assist?
7. In which situation are non-relatives more likely to assist?

The red card was put on the floor and the participants were asked to list the real-life situations beneath them, on the understanding that the situation in which one is more likely to provide assistance, the situation in which it is easiest to have information etc. is positioned directly beneath the question on the red card. After each question, the participants were asked to draw a line in the list that indicated in which situations

[59] These situations were first discussed with the participants to make sure there was agreement on their meaning and the differences between the situations. Additional green cards were provided to allow for additional situations that came up in the meeting.

assistance will not be received, it is not possible to have information, one does not expect to receive assistance from others, etc.

The scribe took minutes of the discussions during the ranking process and both the facilitator and scribe were probing for the reasons behind the ranking order to increase our understanding of risk sharing arrangements in practice. This exercise provided us with local perspectives on the constraints that are central in the risk sharing literature (information and enforcement). The participants were perfectly aware of the processes captured in abstract notions such as shirking behaviour, observability, balanced or delayed reciprocity, the repeated character of the risk sharing "game" and the difficulty to share risk in case of covariant risk. It also showed, that the punishment for reneging, often defined in terms of exclusion of future assistance, albeit in principle possible, is not always put to practice. Using the argument of "teaching someone a lesson" or educating him/her on social behaviour, assistance may be delayed but is usually not withheld, basically because the children in the family will otherwise suffer. This finding is further confirmed by Barr's risk pooling experiment that presents evidence that less information will not always result in less risk sharing. People may give fellow villagers the benefit of the doubt when information is available or may turn a blind eye to compromising information to prevent a socially undesirable situation (Barr, 2003a).

Finally, discussions on the real life situations that we initially presented as an example for one abstract risk category indicated a difference between rainfall and pests. The latter is regarded as a situation that can still be influenced by the household involved, and therefore is not something that "befalls" a household. The crops should be monitored and protected if affected by pests (for example by pesticides) and the fields should be guarded to protect the crops against (wild) animals. Additionally, a distinction was made between old and young widows. Although the latter may have dependent children, she is able-bodied and should (after some time) be able to fend for herself, while elderly widows are generally not in such a situation.[60]

This exercise on risk sharing, and the one on social relations described in the next sub-section, was meant to round up the three months of fieldwork in these villages. However, the political developments in the research areas constrained us in such a way that we decided to reschedule these methods to another research area: Sengezi. Obviously this was not ideal as the sequence of activities was especially designed in such a way as to gain all the relevant information to support the network analysis presented in chapter 6 and to allow for a comparison of data collection methods. Although the latter is not possible as the results are obtained from different populations, the information from these ranking exercises is still illustrative in understanding the results that emanate from our analyses in chapters 5 and 6.

3.4.4. PRA Social Relations

To gain more insight in the meaning of particular relationships and how these affect possibilities for sharing risks, we also developed a ranking exercise on social relationships. Based on the questionnaires, social maps and previous discussions, we listed seventeen relationships in random order on laminated cards and asked respondents to indicate the type of relations they had to households that lived on other

[60] Note that widows are only referred to as women. Usually widowed men quickly re-marry.

stands in the village.[61] Then we asked the respondent to rank those relations according to their importance in providing assistance (in cash, kind or services) in times of need. The ranking was done visually by the respondents with the cards in front of them. They were given ten beans and asked to value their relationships with a number of beans, where a larger number of beans meant that these relations were more important to them. Notes were made on the remarks provided by the respondent during the ranking process and when the relationships were ranked, the respondent was probed on the outcome of the ranking; why he/she valued particular relationships more or less than others. During these discussions a deliberate attempt was made to reflect on different relationships in a more abstract manner, to move away from the personal characteristics of the individual concerned. In such a way we were able to gain insights in the characteristics of the different relationships that facilitate risk sharing in terms of information flows and enforcement issues. Finally, respondents were asked if the listed relationships and their rankings would have been different when they would have lived in the communal areas. If this question was answered affirmatively, respondents were asked to elaborate on the reasons why.

In three villages in Sengezi Resettlement Scheme, sixty-three respondents participated in this exercise, thirty-nine women and twenty-four men. The respondents participated in private, with the exception of two elderly women who were not able to read and had difficulties with the ranking concept. Their daughter in law who resided with them on the stand assisted them.

The information collected in this exercise was useful in two important ways. First, it contributed to our understanding on the importance and relevance of different type of relationships used in risk sharing as discussed in chapter 6. Second, undertaking the exercise showed it was rather difficult to abstract from the personal relationship respondents were involved in. Not all members in the same church, or from the same totem, or with the same geographical origin were equally valued. A personal relation also depends on the history of the relationship and the personal characteristics of the individuals involved. Therefore, having a particular social relationship (e.g. attending the same church, having the same totem) may be a necessary, but not a sufficient condition to provide or receive assistance in times of need.

3.5. In-depth Interviews

During each of the fieldwork periods we conducted a series of in-depth interviews. Some of these interviews emerged spontaneously during the survey rounds when a field researcher notified what he/she thought was "an interesting case" for me, for example households that recently experienced the death of the household head, households that were "socially excluded" in the village, "successful farmers", "influential people" etc. While others, actually most, were organised with household that were selected for particular characteristics. We talked to households that were cattle rich, cattle poor, large in size, small in size, with a widowed female household

[61] The relationships listed were: parents; brother/sister; son; uncle or aunts; other close blood relatives; extended family members; totem relations; son in law/brother in law; daughter in law/sister in law; father/mother in law; other marriage relationships or relatives of your spouse; persons who attend same religious group; Sahwira (special friend); friends; neighbours; those who lived in same geographical area before settled, those who are member of the same club/association.

head, polygamous, rich in social relations, had scarce social relations, reported a marriage of a daughter or son, reported lots of risk sharing relations or few such relations etc. Initially, such interviews were semi-structured interviews on subjects such as funerals and funeral contributions, the importance of cattle and ways to obtain them, choice of marriage partners, forms, functions and timing marriage payments and the settlements of bride wealth debt at death or divorce, labour or cattle sharing arrangements, food aid programmes etc. For the more sensitive subjects this semi-structured interview method was suitable to generate initial insights and ideas only. The discussions in such interviews, with exceptions of course, were often normative only. They were about what "ought to be" rather than "what is", and provided limited opportunities to get at real practices and discuss for example the punishment of deviant behaviour (other than discussing how deviant behaviour is normatively punished).

The two ranking exercises described before proved to be instrumental in gaining more insight in real practices, but it also helped to construct household genealogies[62], structure discussions with Shona proverbs, or by presenting an hypothesis. The proverbs, as listed in box 3.2, allowed us to distinguish customary ideals from real practices, reasons for differences between these two, to discuss various arrangements used in sharing risks (delayed reciprocity), how it is determined if someone is eligible for assistance and that gifts are always remembered.

Box 3.2. Proverbs that were used as a reference in in-depth interviews

"To give is to put by"

"Keep it so that tomorrow it may keep you"

"A plate goes where the other comes from"

"If a man's beard catches fire, others should extinguish him"

"A cooking stick is given to the one who does not complain or ask for it"

"What kind of a luxury life does a lice have, to bite the one who is carrying it?"

"Watch where you came from, where you go might be night"

"The child of a chief is a slave in another area"

"A Relationship is a half measure, it is filled by being given food"

"Whatever you have secured, eat it with relatives, a stranger forgets"

"A son in law is like a fruit tree, one never stops eating from it"

Source: Hamutiyinei and Plangger (1987).

[62] With these individual genealogies we asked respondents about the geographical residence patterns of their close kin relations and how this affected the opportunities for sharing risk, for example in terms of transaction costs.

The hypothesis that we formulated and tested on the risk sharing element of bride wealth payments (see also chapter 8) was also presented to respondents. After explaining our case to the respondents (see also box 3.3), we asked them to reflect on two issues. First the possibility that outstanding bride wealth payments is a form of indebtedness that can be called in in times of need and hence provides security. And secondly, that the chain of bilateral debt relations make it easier to pay bride wealth debt as claims and liabilities can be exchanged in the chain. These issues were discussed with 24 respondents in three villages in Mupfurudzi Resettlement Scheme: twelve men and twelve women, both young and old, with and without children. Ten respondents had a monogamous marriage, two were married in a polygamous union, while two were divorced, three widowed and five not yet married.

Box 3.3. Hypothesis on lobola payments that was propounded to respondents

We have learned a lot about the importance of lobola payments in marriage by our conversations with you and other people. And through these conversations we have developed a hypothetical perspective on the payments that we want to share with you. So far we have learned that lobola payments have several functions. It can bind two families together, it can make the bond between the couple stronger, the payment is a customary and spiritual recognition of the marriage and compensates the family of the bride for her upbringing, the labour she provides for the family of her husband and the children she is going to bear.

Lobola is usually paid in instalments, one or two head of cattle at the time of marriage and the remainder can be paid over a long time. The fact that these payments remain outstanding for a long time is very interesting to us, and is also very particular for Shona marriage payments. We argue that this could improve the security of the households involved. Most notably that of the father in law.

The outstanding payments could be defined as a debt; the son in law is indebted to his father in law. In such a situation, the father in law can call upon his son in law to pay the cattle when he wants to have them. If the father in law calls in the payment at the time that he is not doing very well (f.e. when he has few cattle himself and it is difficult for him to plough his fields) and receives one from his son in law, this improves his situation.

Yet, it may be difficult for the son in law to meet the request of his father in law when he himself is having few cattle. However, since many families are connected through these so-called debt relations, the family of the son in law could call in one of their debtors to pay a head of cattle that is then transferred to his father in law.

Apart from the individuals and households in the villages, we talked to a number of key persons such as representatives from VIDCOs and WARDCOs[63], village

[63] VIDCO (Village Development Committee) and WADCO (Ward Development Committee) were local government structures to promote development at the local level. Each district consisted of several WARDs and each WARD on its turn consisted of several VIDCOs. In the communal areas a VIDCO encompassed usually one village, while in the resettlement areas the villages were smaller and therefore two or more villages formed a VIDCO. In resettlement areas this was the only structure of local leadership and representation was in practice restricted to members of the ZANU(PF) who were democratically elected every four years. In 2000 this government structure was partly dismantled by the re-installation of traditional village heads (sabhuku), appointed for life by the chief and should be of the same totem as the chief (as is the case in the communal areas). Although this policy change was

headmen, health workers, a spiritual healer, church leaders, agricultural extension workers, resettlement officers, social welfare officers at district level and provincial level, district administrators, etc.

For privacy reasons, the names of families, persons and villages have in some cases been altered.

3.6. Conclusion

The data for this dissertation originate from various sources. In this chapter we presented these sources and described the way these data were collected. The starting point and major source of information is the Zimbabwe Rural Household Dynamics data set, a unique data set that comprises a long term panel of land reform beneficiaries or resettled households (1984-2001) and a shorter panel for non-resettled or communal households (1997-2001). This data set contains a wealth of relevant information and the long panel on these households provides an opportunity to study issues such as risk and risk coping behaviour, issues that need a long-term perspective rather than a cross section analysis.

It is important to realise that the resettled households are not representative of rural households in Zimbabwe. In the early 1980s, these households were allocated good quality land of considerable size and were settled in communities that differed considerably from their original place of residence. In the next chapter we elaborate on these differences in socio-economic settings in resettlement and communal areas. The presence of both resettled and communal farmers in the ZRHD data set allows for a comparison between those who benefited from land reform and those who did not. Such a comparison is possible because there is no evidence for a difference between initial individual conditions between resettled and communal farmers. To do so, we need to use sample weights to correct for the over-representation of households from Mupfurudzi, the resettlement scheme with highest agricultural potential, in the sample.

The a-typical situation of resettled farmers allows us to study in more detail the influence of the social environment on risk coping behaviour and more specifically risk sharing arrangements. To this end we collected additional information on intra-village kinship relations and a wide range of qualitative material on the conditions for risk sharing, characteristics of social relationships, marriage arrangements and the local implementation of food aid programmes. This qualitative material allows us to shape and contexualise the quantitative analyses performed in the empirical chapters of this dissertation.

The information on kinship relations was used to construct a database containing on the intra-village kinship relations of all households in the resettlement villages in the ZRHD sample. The variables in this database measure intra-village kinship relations, differentiated to close and extended blood and marriage relations, at three different times: at the time of resettlement, after the first years of resettlement and the

announced and officially carried through on a national level, in 2002 this new leadership structure was only operational in Mupfurudzi Resettlement Scheme, and not in Sengezi and Mutanda. (For more information on the changes in local leadership structures see Kinsey and Shambare (2002).

relationships in 1999. The kinship variables for communal households are less extensive and comprise information on the current intra-village kinship relations for all, and in some cases part of the households residing in the communal villages in the ZRHD sample. Combined with the lineage and association data collected by Barr, we were able to construct a very comprehensive data set on intra-village social relations.

Although the data set thus created does not cover all relationships for all households living in all sampled villages, the information thus created is very relevant for our work. It allows for the inclusion of variables on social relationships in our analyses in chapter 5 and 7 and more specifically forms the basis for the social network analysis that is proposed in chapter 6.

Annex 3.1. Households in the sample and the villages

Table A.3.1. Breakdown of the sample population in 2000

Mupfurudzi	Number of households	Sengezi	Number of households	Mutanda	Number of households
Chitepo	23	Mungo	19	Village 27	10
Mudzinge	28	Goto	24	Village 13	10
Muringamombe	25	Rundu	23	Village 14	13
Mutoramepho	14	Mawiri East	14	Village 10	8
Pedzanahmo	13	Mawiri West	13	Village 11	9
Zvataida	26	Injina	9	Village 8	10
Tongogara	43			Village 6	9
Gwetera	29				
Zvomanyanga	27				
Adjacent communal area village					
Paswavaviri	25	Sengenda	24	Mupariri	24
Chichera	24	Chigwedere	22	Nyangani	25

Source: ZRHD data 2000

Table A.3.2. Number of households in the research villages in 2000 and the percentage of households in the sample (in brackets).

Mupfurudzi	No. of hh in village	Sengezi	No. of hh in village	Mutanda	No. of hh in village
Chitepo	30 (77)	Mungo	49 (39)	Village 27	33 (30)
Mudzinge	33 (85)	Goto	55 (44)	Village 13	23 (44)
Muringamombe	28 (89)	Rundu	41 (56)	Village 14	41 (32)
Mutoramepho	14 (100)	Mawiri East	36 (39)	Village 10	57 (14)
Pedzanahmo	13 (100)	Mawiri West	37 (35)	Village 11	33 (27)
Zvataida	27 (96)	Injina	23 (40)	Village 8	31 (33)
Tongogara	50 (86)			Village 6	31 (29)
Gwetera	33(88)				
Zvomanyanga	40(68)				
Adjacent communal area village					
Paswavaviri	45 (56)	Sengenda	49 (49)	Mupariri	34 (71)
Chichera	76 (32)	Chigwedere	39 (56)	Nyangani	63 (40)

4. Starting a new life: the social and economic characteristics of resettlement.

4.1. Introduction

Resettlement can be a stressful process. The Zimbabwean case, where resettlement in the early 1980s was voluntary, is no exception. The statements of settlers in box 4.1 illustrate that despite the great opportunities offered to the settlers, they faced many challenges. Residential plots and arable fields had to be cleared and huts, kitchens and granaries had to be constructed, etc. Moreover, these tasks had to be accomplished in a relatively short time in a new social environment that was considerably different from the place where settlers resided before they were resettled.

In this chapter we describe the social environment and selected characteristics of the settlers at different moments in the resettlement process. This account is based on survey data from the ZRHD data set (notably from 1983/4) and the kinship, lineage and association data and findings from the social mapping exercises and the village histories and picture books. Throughout the chapter we compare the three different resettlement schemes in our study and where possible compare resettled communities to communities in the communal areas. [64]

We find that households generally did not resettle on their own, many settled with at least one household they were acquainted with, either because they were relatives, shared the same totem (lineage background) or because they used to live in the same geographical area. Resettled households also actively invested in new social relationships in their communities, notably in religious and non-religious associations. Yet, in 2000, the social structure in resettlement communities is considerably different from that in communal areas: kinship structures are less prevalent and of a different nature in resettlement villages while these villages display a higher level of non-religious civil social activities. Finally we find that resettled households have increased in size and are considerably larger than households in the communal areas, a finding that we attribute to the continued residence of adult children on their parents plot.

This predominantly descriptive chapter sets the contextual stage for the analyses in the subsequent chapters of this dissertation. After a general description of the first phase of land reform in Zimbabwe and the resettlement schemes in our study in

[64] To maintain readability of the main text, we mainly present tables with summary statistics at the level of the resettlement schemes and communal areas. Village specific information on social relations is presented in the tables in the Annex and show considerable variation at the village level.

section two, we evaluate some of the socio-economic characteristics of the resettled households prior to resettlement and in the first years after resettlement in section three. Section four reviews the initial social relations in the resettled communities while section five elaborates on the development of such relations over time and compares the current social structure of resettled and communal communities. We address the socio-economic characteristics of the resettled households after some twenty years and compare them with present day characteristics of communal households in section six and section seven concludes.

Box 4.1. When we came here……..

"When we arrived here, we were happy to have new pieces of land, long fields."
Zvataida village

"When we first arrived in this village, it was just bush, thick bush that made you scared to walk around at night. We cleared the bush to make our homesteads, where we built a pole and dagga house to sleep in and a kitchen for cooking. Then we also cleared the bush on the fields that were pegged for us by the agricultural people. All trees and stumps had to be removed otherwise we could not plough. The government assisted us that first year; they ploughed one acre plots and gave maize seeds for each of us…."
Muringamombe village

"We were happy to find that the government had drilled a borehole for us when we arrived. It is important to have good water supply. In other villages the government also helped people to carry their possessions to the village. This helped them very much, but it never happened to us in Zvataida"
Zvataida village

"The second year we were here there was a drought that affected us very much. We were new to this area and did not yet have proper fields, so our production was low and we did not know what to do. The government gave us money, mealiemeal and kapenta and most people resorted to their garden to survive.
Mudzinge village

"Just after we arrived in the village, most of our cattle were eaten by lions. This affected us much because now we had less draught power. Many of us had never seen a lion before. The game people came to help us and we moved the cattle kraals from the border of the village to nearby our homesteads…"
Zvataida village

"In 1983 and 1984 we were contributing labour to the building of the school. It is best for our children to be educated and now it was possible to go back to the communal areas to collect the children that we had left behind to stay with our relatives."
Mudzinge village

"In 1986 the grinding mill was established in our village. Before, we had to travel all the way to Chakonda or Madziwa Mine to have our maize grinded. As this was troublesome, we handed in our grievances to the resettlement officer and he advertised for some one to establish there….."
Muringamombe village

Source: Village histories of Mudzinge, Zvataida and Muringamombe

4.2. Land Reform and three Resettlement Schemes

Just after independence in 1980 the Government of Zimbabwe embarked on a land reform program to redistribute land from the commercial farming sector to smallholder farmers. The land reform program had four components; the establishment of family farms (model A), collective farms (model B), individual cultivation on a core estate (model C) or extensive ranching (model D). In model A schemes, individual families were settled into villages and allocated with a residential plot to build their houses, 12 acres of arable land and the right to use grazing land on a communal basis. Settlers received permits to use the residential, arable and grazing land but the actual ownership of the land was not transferred to them and remained with the state.

The resettlement program was based on voluntary resettlement and interested farmers applied out of own choice. The applicants were screened on several criteria; they had to be aged between 25 and 55 years, married or widowed[65] and not in formal employment. Additionally they had to be either a refugee or other person displaced by the war, including those who lived in a protected village or keep; landless or near landless residents of the communal areas or small scale farmers with insufficient land to maintain themselves and their dependants (Deininger *et al.*, 2002). Upon resettlement, the settlers had to give up all rights to land in the communal areas. They were expected to work exclusively on the establishment of their new farm and initially the head of household nor his spouse were allowed to (seasonally) migrate to town to generate (additional) income (Kinsey, 1983).[66] It is not clear to what extent these rules were enforced. Legally, resettlement officers had the right to withdraw permits and evict farmers who did not abide by these rules. We received accounts that the mere threat and occasional implementation of such eviction was sufficient for most settlers to follow the rules. Some exceptions will be demonstrated in this chapter, notably with respect to giving up other land rights.

The resettlement schemes in our study are model A schemes. In these schemes, to prevent favouritism, settlers were randomly selected and allocated residential plots and fields. The residential plots were clustered in a compact village with cattle kraals located on the outskirts. The arable fields and grazing areas were located outside the village, with some fields as far as two hours walking away. With this lay out, villages in resettlement areas are more densely settled and less widely dispersed than most villages in communal areas. There, arable and grazing land is usually consolidated and residential plots with cattle kraals scattered in between. This means that the physical distance between next-door neighbours in villages in the communal areas is much larger than in the resettled villages.

In the early years after independence, the government invested heavily in infrastructure and support services in the resettlement areas. At least one service

[65] Women were only eligible for resettlement when they were widowed and had dependent children.

[66] From the early 1990s the prohibition on labour migration was lifted, in part to allow resettled farmers to earn money to deal with the food shortages caused by the 1992 drought, but also as a response to an increasing rate of default on agricultural loans (Kinsey *et al.*, 1998). Given the importance of rural-urban migration in the spread of HIV/AIDS, this initial prohibition on labour migration - combined with the relative isolation of many resettlement villages - may mean that the incidence of HIV/AIDS may be lower in the resettlement areas under study compared to many other parts of the country (Serra and Kinsey, 2000).

centre was established in each scheme, with a depot for seeds and fertilisers, space for businesses like grocery stores and a grinding mill, and offices and houses for agricultural extension and veterinary staff. With material and labour input from the settlers, the government established dip tanks for cattle, schools and clinics and the settlers had preferential access to agricultural extension, veterinary services and credit (Deininger *et al.*, 2002). In the first agricultural season after settlement, the government ploughed one acre and provided inputs to each settled household to grow maize. Later, the government incidentally assisted some villages with small projects like wire to construct a paddock or seedlings to start a gum plantation. At the end of the 1980s the settlers could obtain a housing loan from the government to improve their standard of housing. Despite all these efforts, Kinsey (2002) reports that access to facilities is generally lower in resettlement areas compared to communal areas, especially with respect to markets, as these operate more efficiently in areas with higher population densities.

Earlier work on the data that we use in our study has shown that resettlement has generally been successful.[67] Although Hoogeveen and Kinsey (2001) report no out-performance of land reform beneficiaries for nutritional indicators for children, Kinsey *et al.* (1998) find an impressive increase in herd size for resettled households. This accumulation of assets is confirmed by Gunning *et al.* (2000) who also find an increase in real income for resettled households since the early 1980s. This increase can be attributed to an increased return to assets (mainly land and capital equipment). To evaluate the costs and benefits of land reform, Deininger *et al.* (2002) compare the performance of resettled farmers to communal farmers that applied for resettlement but were refused.[68] Their results confirm much of the previous results; resettled households perform better in agriculture (they have a considerably higher acreage under cultivation, higher maize yield per acre and higher crop income per acre), have a larger herd, higher expenditures and a higher value of capital stock. Although the differences in crop income, the value of livestock and the value of capital stock persist on a per capita basis, the differences in per capita expenditures are lower than expected. Because resettled households are generally larger in size compared to communal households, they spend an extra US$ 17 per capita per year on consumption compared to communal households that were rejected. Given the high investments in the resettlement programme, the authors argue this benefit is rather low.

4.2.1.Three Resettlement Schemes

The ZRHD data have been collected in three model A resettlement schemes with different agro-ecological potential. Table 4.1. presents selected characteristics of the schemes and figure 4.2. shows their location in Zimbabwe. The area with the highest

[67] Other authors confirm the benefits of land reform in other resettlement areas. See Harts-Broekhuis and Huisman (2001) on resettlement schemes in Insiza District, southern Zimbabwe.

[68] One could argue that households that opted for resettlement may have personal characteristics that both influenced their choice to be resettled and their performance now, e.g. they are more entrepreneurial or less risk-averse. By comparing resettled farmers to those communal farmers that applied for resettlement but were rejected, one can control for such personal characteristics. Additionally a difference in performance now can be related to a difference in initial conditions in the early 1980s, for example, although this was not the policy, it may have been the richer farmers who were resettled in the first place. Matching communal farmers that applied but were rejected, with resettled farmers that faced similar conditions in 1980 solves this problem.

agricultural potential is Mupfurudzi Resettlement Scheme, is located some 100 kms north of Harare. It has fertile soils, rainfall is generally reliable and there are large tracks of land available for grazing. The main road between Shamva and Mt. Darwin runs through the area that is also home to Madziwa Mine. This nickel mine provided (temporal) employment opportunities, allowed for small-scale commercial activities (such as shops and a vegetable market) and guaranteed a regular bus service between the area and Shamva or Harare until 2000, when the mine was closed. Sengezi is a relatively small resettlement scheme with medium agricultural potential and is located 150 kms southeast of Harare. The area for grazing is limited and a few villages have small scale irrigation facilities and grow vegetables that are marketed in Hwedza, a small town that is within walking distance from some villages and on a frequent bus service from other villages. Mutanda is located some 300 km from Harare in southeastern direction. The area is relatively large but has limited agricultural potential with less fertile soils and lower quantity and reliability of rainfall. Distances are large, transportation is limited and the few mines in the area are too small to offer employment opportunities. The service centre at Mt. Zuma is not easily accessible from all villages in the scheme and the condition of the roads has been deteriorating over time and restricts transportation considerably during the rainy season. Although the mean area available per household is officially reasonably high, the large number of squatters that reside in Mutanda flatters this figure.

Table 4.1. Selected characteristics of the three resettlement schemes in 1983

Characteristics	Mupfurudzi	Sengezi	Mutanda
Province	Mashonaland Central	Mashonaland East	Manicaland
District	Shamva	Hwedza	Makoni
Predominant Natural Region	II	III	IV
Area (ha)	34500	8400	43900
Year settlement officially began	1980	1981	1981
Number of villages	18	8	29
Number of settler households	565	289	575
Mean area available per household (ha)[69]	61	29	76

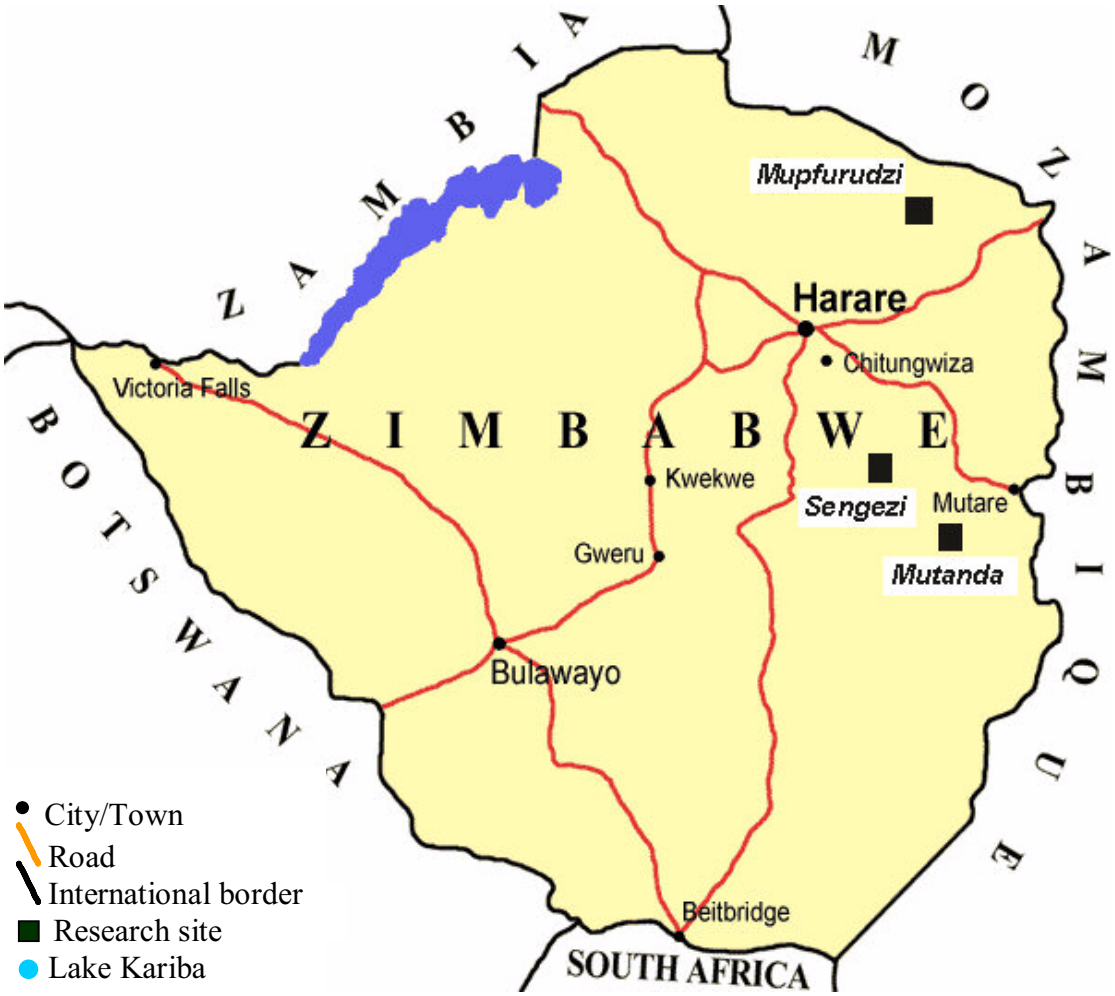
Source: adjusted from Kinsey (1998)

Mupfurudzi is a planned resettlement area. Several former commercial farms, some of which were left vacant by white farmers who fled the country during the war of independence while others were bought by the government with the specific purpose of resettlement, were amalgamated and designated for resettlement. A village was planned on the territory of each of the former farms, the size of which determined the number of households to be resettled in that village. Residential and arable plots were randomly allocated to farmers who were affected by the war. There was a strong involvement of the government to provide services and facilities, a feature that is still observable today. Although the resettlement officer resides outside the area since the cutbacks on expenditures on local governance in 2000, the agricultural extension officers still live and operate in the area to provide extension service.

[69] The mean area available per household is the total amount of land that is available in the area. Part of this is destined for crop cultivation and residence (including business centers and other infrastructure) and the remainder is available for grazing; usually grazing land is more marginal land or terrain that is difficult to cultivate.

Sengezi was settled in a similar fashion, with considerable involvement of the government in the development of infrastructure. The new plots were randomly allocated to farmers who applied, predominantly from the communal areas. Many of these settlers are said to have been "forced" to resettle by their previous neighbours who considered them to be anti-social or because they belonged to the wrong political party (Kinsey *et al.*, 1998). Settlers characterise themselves as “thieves, crooks and criminals”, suggesting they were not only materially deprived but also socially excluded, an image that will be partly confirmed by the data presented in this chapter.

Figure 4.1. Location of the resettlement areas in Zimbabwe



Resettlement in Mutanda largely resulted from illegal squatting.[70] After independence families from nearby communal areas moved to the deserted farms and settled randomly in the area. The status of most squatters was legalised under what was called *The Accelerated Resettlement Programme* that was launched in 1982 to tackle the most serious instances of squatting (Kinsey, 1982). Villages were established

[70] Kinsey (1983) describes two forms of squatting. On some farms, the former commercial farm workers were squatting, basically to make a living as they had nowhere else to go. On other farms, squatting was sometimes deliberately used to enforce resettlement in the early 1980s. This was the case in Mutanda.

through minimised planning in which the building of infrastructure such as clinics, bore holes, schools, etc. had low priority. This did not however stop the influx of new squatters. Under instigation of two rivalling chiefs who wanted to extend their power and without any discouragement from the government, squatters continued moving in. They took residence in the squatter camps that were established by the government to control the squatters' movement or in the bush. A new round of squatter legalisation took place in 1999 by increasing the number of residential plots in the existing villages and clearance of additional fields on the village territory. Still, the new plots were not sufficient to settle all squatters, and since the word of legalisation went around and attracted even more squatters, the squatter population continued to increase.[71] Compared to Sengezi and especially Mupfurudzi, Mutanda had far less government involvement; the resettlement officer moved out of the area long before this was the new policy and extension, veterinary and medical services are less well staffed. In the area one gets the impression that settlers were basically left to fend for themselves, with the exception of the provision of food aid in times of drought.

Not only is there a difference in the settlement history of the three schemes, table 4.2. shows that the villages in each scheme have different dates of settlement as well. To take the example of Mupfurudzi, although the scheme and its villages were officially established in 1980, it is only in Zvomanyanga and Tongogara that most settlers actually arrived in 1980. In the other villages in Mupfurudzi, most settlers arrived a year later. In part, this had to do with the timing of the land allocation. If plots were allocated shortly before or after the start of the agricultural season, many settlers decided to settle only after the agricultural season to have ample time to prepare for the next agricultural season. In other cases, allocated plots remained vacant (families who were allocated never showed up to claim their plots) or were vacated again after a short period (when farmers realised they could not cope in the new areas). These plots were reallocated at a later date.

Table 4.2. Year that most household settled and started cultivation in the village.

Mupfurudzi	Year	Sengezi	Year	Mutanda	Year
Chitepo	1981	Mungo	1980	Village 27	1981
Mudzinge	1981	Goto	1980	Village 13	1980
Muringamombe	1981	Rundu	1980	Village 14	1980
Mutoramepho	1981	Mawiri East	1982	Village 10	1980
Pedzanahmo	1981	Mawiri West	1982	Village 11	1980
Zvataida	1981	Injina	1982	Village 8	1980
Tongogara	1980			Village 6	1980
Gwetera	1981				
Zvomanyanga	1980				

Source: ZRHD data

[71] We expect that the influx of squatters diminished or even reversed with the farm occupations and fast track resettlement that started in 2000. But this has not been confirmed.

4.3. Background of the settlers

The settlers had various backgrounds. The majority was farming when they applied for resettlement, either on their own account or with their fathers or brothers in a Tribal Trust Land, a protected village or an African Purchase Area, as is evident from table 4.3.[72] Albeit farmers, many had other working experiences as temporal labourers on the commercial farms or in town. Other settlers came from commercial farms where they worked as agricultural labourers or as drivers, welders or builders, while settlers from town previously worked as cooks, domestics, builders, miners, boiler makers, store keepers, clerks or teachers etc. Few settlers, only two percent, were not living in Zimbabwe prior to resettlement.

Table 4.3. Place of residence prior to resettlement

Residence	All areas	Mupfurudzi	Sengezi	Mutanda
Tribal Trust Lands	41 %	10 %	83 %	87 %
Protected village	37 %	63 %	1 %	4 %
African Purchase Area	3%	3 %	3 %	2 %
Commercial Farm	6 %	8 %	4 %	4 %
Town	11 %	13 %	9 %	4 %
Outside Zimbabwe	2 %	4 %	1 %	0 %

Difference between the schemes is statistically significant at 0.02 level.
Source: ZRHD data.

Mupfurudzi has the highest percentage of settlers from town and especially from protected villages, while the large majority of settlers in Sengezi and Mutanda comes from a village in the Tribal Trust Lands. This reflects the fact that compared to the other provinces, the fighting during the war of liberation was much more intense in Mashonaland Central and most people in this province were living in protected villages. This is also reflected in the number of settlers that was affected by the war. In Mupfurudzi, 50 percent of newly resettled households said their houses, crops or cattle were lost or damaged during the war, while in Sengezi and Mutanda this was respectively 39 and 32 percent.[73] A considerable proportion of former commercial farm workers is of non-Zimbabwean origin; predominantly from Mozambique or Malawi, but also from Zambia or Namibia. Data collected in 2000 show that some 5 percent of the households in the sample have a non-Zimbabwean background. With the exception of one, these households live in Mupfurudzi, where they form a tenth of the sample population.

4.3.1. Socio-economic characteristics of the settlers

At independence, households who choose for resettlement had similar characteristics compared to households who remained in the communal areas. Table 4.4. shows that

[72] Tribal Trust Lands or Reserves are the pre-independence names for the communal areas. Protected villages or “keeps” are enclosures where rural blacks were confined during the war of liberation. These keeps were aimed to keep the farmers and villagers free of guerrilla "intimidation" and deny the latter the food and solace which they could otherwise easily obtain. African Purchase Areas is the pre-independence name for the Small Scale Commercial Farming lands, those areas where black farmers were allowed to lease land from the state and engage in commercial production.
[73] Difference between areas is significant at a 0.02 level.

cattle ownership did not differ much between farmers who resettled and farmers who remained in the communal areas, but ranged significantly between resettled farmers from 2.15 livestock equivalent units in Mupfurudzi to 3.78 in Mutanda. 1980 land holdings of resettled farmers were significantly higher compared to the land holdings of communal households in the same year, while the percentage of households that was landless did not differ much. Differences in land holdings and landlessness between households in the three resettlement schemes were not statistically significant.

Table 4.4. Livestock and Land holdings in 1980[74]

	Resettlement Areas	Communal Areas	Mupfurudzi	Sengezi	Mutanda
Herd size * (livestock equivalent) [75]	2.7	2.2	2.15	2.31	3.78
Av. land holding (acres)**	7.0	5.4	6.7	7.6	6.7
Proportion of land less	0.07	0.10	0.9	0.5	0.2

* Significantly higher in Mutanda (0.04)
** Difference between communal and resettlement areas significant (0.01)
Source: ZRHD data

Table 4.5. shows that most resettled households had a male head of household. The majority of them were married and a fair proportion of the settlers was married to more than one wife. (A practice more widespread in Mupfurudzi and Mutanda compared to Sengezi). The majority of the unmarried household heads was widowed, the others were either divorced or single.[76] In 1984, only 16 (4 percent) of the newly settled households were headed by a woman and all of them were widowed. Considering the high labour inputs required (notably to establish the residential and arable plots but also in cultivation of 12 acres), widows with young children may have been reluctant to apply for resettlement. The majority of the widowed heads of household came together with their adult son(s), only two came with young children[77]. There were however more widows among the settlers, but they did not come as a head of household. They came with their adult sons and daughter in law or were widowed daughters that joined their parents in resettlement, widowed mothers

[74] The information in this table is based on a retrospective question asked to both resettled and communal households in 2000. Although the reliability of this information may be affected by the long recall period used, it is the only source of data on land and livestock holdings in 1980 that allows comparison between households that were resettled and households that remained in the communal areas.

[75] Based on the monetary value of animals in 1995, the following weights are used to construct a ox-equivalent value that allows comparison of cattle herds with a different composition: 1 for a trained oxen, 0.71 for a cow, 0.58 for a heifer, 0.59 for young oxen, 0.30 for a calf. This measure excludes small stock like goats, sheep etc as data on the ownership these animals in 1980 was not collected retrospectively in 2000.

[76] The single household heads were all living in Mupfurudzi, some of them alone, others with their parents, or their widowed mother. In these cases it is unclear who officially registered for the plot, the parent or the son. In case of a widow, it is likely that she applied and registered for the plot, and is the *de jure* head of household, while in fact an adult son is the *de facto* head of household.

[77] One head of household was registered as a widow while in fact she was married. Her husband had formal employment in town and they were not officially eligible for resettlement. By registering as a widow, she and her husband now had access to land that they could not apply for as a married couple, as the husband was not willing to give up his job.

that joined their daughter and son in law or the wives of deceased brothers that were inherited by the new plot holders, but not yet officially married to them.

Table 4.5. Selected household characteristics (1984).

	All areas	Mupfurudzi	Sengezi	Mutanda
Female head of household	4 %	4 %	6 %	2 %
Marital status household head				
Not married	7 %	8 %	7 %	4 %
Monogamous	73 %	67 %	84 %	74 %
*Polygamous**	21 %	26 %	9 %	22 %
Household size*	7.8	7.7	7.5	9.0

* difference statistically significant at 0.01 level
Source: ZRHD data.

In 1984, the average size of resettled households was around eight persons, slightly lower in Mupfurudzi and Sengezi, but significantly higher in Mutanda with nine members per household. Detailed information on the characteristics of the first eight (or less if the household is smaller than eight persons) persons that reside on the plot, not reported here, shows that the families consist predominantly of a husband with his wife (wives) and their children. Only seven percent of the settler population was an extended family member of the plot holder. The same information reveals that not all household members moved to the new villages at the same time. In total, eighteen percent of household members who were living in one of the resettled villages in 1984 arrived one or more years after the household established in the new community. Almost half (43 percent) of this is natural growth due to marriage (spouses and daughters in law) and childbirth. The rest is delayed migration (in case of children and spouses) or in-migration of parents and other relatives like nieces, nephews and cousins, grandparents and sisters in law who were inherited after a brother died. Although some of the spouses that joined the household later are likely to be new wives in a polygamous marriage, other spouses remained behind in their former place of residence with their children until their husbands established a homestead and fields. Still other children only joined their parents when a school was built within reasonable distance from the new homestead, as is illustrated by one of the statements of villagers from Mudzinge in box 4.1.

The above suggests that for some households resettlement was a process and not an abrupt movement from one place of residence to another. This is confirmed by the finding that despite the fact that they had to give up their right to land elsewhere in Zimbabwe when they settled, a considerable proportion of settlers was still cultivating land in their home area. In 1984, almost 40 percent of newly settled households still cultivated crops in their home area, on average on five acres, and half of them intended to continue doing this. It is unclear how this cultivation in the previous home area was achieved in terms of labour. Perhaps more household members remained behind in the communal areas, or members in the resettlement area went back temporarily to tend to crops. Alternatively, the new settlers asked family members who remained behind (brothers and fathers etc.) to do the bulk of the work, or hire labourers, while decision making remained the responsibility of the settlers. The fact

that a considerable number of households kept access to land in their old residence could be a reflection of the insecurities that the new settlers felt. As plot owners were not given title deeds to the land, but only a permit to settle and cultivate, they might initially have felt insecure about tenure. Additionally, settlers had to build up a new life and start from scratch, it is likely some thought it was safer to keep access to land in their former place of residence so they could move back in case they failed to succeed in the new area.[78] The difficulties normally associated with resettlement (notably establishing a new residence and farm in a socially and ecologically unfamiliar area) were reinforced by three consecutive years of below average rainfall in the harvest years 1982-1984.

Table 4.6. Information on households still cultivating land in their home area in 1984.

	All Areas	Mupfurudzi	Sengezi	Mutanda
Percentage of households cultivating in home area	38%	34%	47%	37%
Mean acreage under cultivation in home area*	5.1	6.7	3.0*	6.3
Percentage of households still cultivating in their home area and intend to continue doing so in the future	49%	57%	47%	42%

* Significantly lower in Sengezi (0.000)
Source: ZRHD data

Possibly for the same reason, not to burn one's bridges, settlers kept in touch with their relations in their home areas. In 1984, the majority of the farmers in each of the areas returned to their home area at least once since they settled (around 80 percent) or sent back one or more household members for shorter or longer time (56 percent). Mostly for social visits, including funerals, weddings and spiritual ceremonies, but also to borrow cattle, collect personal belongings (ranging from cattle to utensils and clothes) or to work in the fields. Many settlers also kept memberships in organisations in their home area, especially in Mutanda where a third of the settlers still belonged to such organisations. For Mupfurudzi this percentage was 28 percent and it is lowest in Sengezi, where 15 percent of the settler households was still member of an association in their home area.[79] The membership in the home area was predominantly political in nature (party membership) but also extended to farmers associations (training and credit), village or school committees and to a lesser extent to sport clubs and churches. Clearly, the existence of communal area memberships diminished over time: in 1997 only four percent of the resettled households still held membership in an organisation in their home area. These households lived in Mupfurudzi and Mutanda and predominantly attended churches in their former home area. Yet, in 1997 resettled households still returned to their previous home areas. Only twelve percent of the resettled households reported they did not went back anymore or less than once a year. The other settlers visited their home area on a regular basis, of which some

[78] We should however be careful not to overemphasise the stress of moving. As we will also see later in this chapter, it is not uncommon for Zimbabwean households or families to move, and some may even have a history of moving. From the late 1960s to the early 1980s many families for example moved to the (then new) cotton areas in Gokwe, a remote district in the Midslands Province (Gore *et al.*, 1992) or to the settlement schemes in the Zambezi Valley (Spierenburg, 1990, 2003).

[79] These differences are significant at a 0.02 level and suggest indeed that the relations of Sengezi households in their home areas may not have been good.

twenty percent at least on a monthly basis. The main aims of their return trips are social visits to relatives, friends and former neighbours, but they also attend funerals and other ceremonies or assist their relatives in case of family crises such as illness.

4.4. Social relations in the resettlement villages in the early years of resettlement

Despite the emphasis on the random recruitment for the allocation of plots in the new villages, most settlers came with other families from their home areas (see table 4.7). These acquaintances usually lived nearby and were a source of assistance on various occasions. [80] For example to borrow cattle or equipment (e.g. a plough or a scotch cart), to share labour in building houses, clearing fields and other agricultural operations, to obtain food and to provide monetary and emotional assistance in case of a death. Although the presence of families from the home area suggests that the random recruitment for the allocation of plots was not taken too seriously, this is not necessarily the case. When households who lived in the same area applied for resettlement, it is likely that their application forms were collected at the same time and hence were together on the pile of application forms. Then, if they met the criteria and were selected, it was not unlikely for them to be selected with other applicants from their home area. Most likely random should not be interpreted too literally in the sense that random picks from the whole list of applicants, but random from a certain part (or certain parts) of the list of applicants. This process was followed in the selection of settlers in Mupfurudzi and Sengezi and both schemes have a similar proportion of settlers that came with families from their home area. In Mutanda the proportion of households who came with families from their home area is significantly lower, which is surprising as one would expect squatters to move in groups rather than alone. Apparently, a considerable part of the squatters did undertake their adventure on their own (that is, with their own household, not as an individual), while 58 percent of the squatters came with families from their home area. The majority of these squatter families who came from the same home area are in fact still living together as they were allocated residential plots in the same village when their status was legalised.

Table 4.7. Households settling with another family from their home area.

	All areas	Mupfurudzi	Sengezi	Mutanda
Percentage of households that came with another family from their home area *	72%	73%	75%	58%
Percentage of households that has a family from their home area that lives nearby	97%	98%	96%	97%
Percentage of households that was assisted by the family that came from their home area	78%	81%	70%	84%

* Difference statistically significant at 0.04 level
Source: ZRHD data.

[80] Nearby is not defined. Considering the types of assistance that were mentioned and the fact that resettlement villages can be isolated, we interpret nearby as either in the same village or in a neighbouring village.

Kinship relations

From the data presented in table 4.7. it is not clear how the new settlers were related to the families from their home area and if they actually lived in the same village. If they come from the same communal village, it is likely that the families have a kinship or lineage relationship. As such relations are often considered crucial for risk sharing, it is important to get more insight in such structures in the resettlement areas. Information on the existence of kinship relations between different households in a resettlement village is provided in table 4.8. This table reports aggregate data for the three resettlement schemes, detailed village level data are presented in table A.4.1 in Annex 4.1. Columns two to four show the percentage of households that have at least one relative (blood or marriage relation) who lived on another plot in the same village, at different stages in the resettlement process. First, the percentage of households with relatives who settled at the same time, followed by the percentage of households with relatives who settled a few years later and finally the percentage of households with a relative in the same village in the mid-1980s. Note that the proportion in this column is not equal to the sum of the proportions in the previous two columns, as households could have settled at the same time as a relative and had another relative coming to live in the village some time after initial settlement. The fifth column shows the mean number of relatives that lived in the same village by the mid-1980s and the sixth column represents the proportion of relations in the mid-1980s that are marriage relations.

Table 4.8. Intra-village kinship relations in the resettlement schemes in the 1980s.

Area and Village	All Schemes	Mupfurudzi	Sengezi	Mutanda
Percentage of households with relatives who settled at the same time *	42%	44%	32%	48%
Percentage of households with relatives who settled one or more years later*	25%	31%	34%	10%
Percentage of households with a relative in the mid 1980s	58%	62%	56%	55%
Mean number of relatives in the village (mid 1980s)*	1.58	1.92	1.15	1.62
Proportion of marriage relations *	0.36	0.34	0.25	0.48

*Differences between areas significant at 0.00 level.
Source: kinship data

The table shows that by the mid-1980s and aggregated over the three resettlement schemes, just over half of the households in the newly settled villages had at least one relative that lived on a separate plot in the same village. Interestingly, the percentage of households that resettled together with at least one relative (both settled at the same time, but on a different plot) was lower, so some relatives arrived later. This may partly be explained by a delay in the actual establishment of the residential plot and fields for one of the relatives. But it is also likely that the relatives who settled later occupied vacant plots, as is illustrated in box 4.2. In some case sons or brothers of early settlers settled these vacant plots, as was the case in Zvomanyanga. In other cases relatives from outside the village were settling the vacant plot, like Mr. Dambaza's nephew. Alternatively, if two relatives both applied and were allocated a plot in two different villages, one of them could ask someone else in the village to change plots with the relative, so the relatives could live together. We have received accounts of these exchanges that were approved by the resettlement officer.

Assuming a preference to settle with relatives, it is surprising that we find a significant negative relation between the mean number of relations that households have with other households in the village in the first year of settlement and the mean number of relations that come to live in the village one or more years after the first year of settlement.[81] This suggests that households that settled with some relatives were less likely to invite other relatives to come and join them. To the extent that the later settlement process could be influenced by the resettled households, a few relatives were considered beneficial, but not a larger number.[82] It is important to realise that the high proportion of households who had relatives who settled in the same village later also indicates that the number of vacant plots was considerable. Many applicants must have decided they were not ready for the move, or the move and initial months/years discouraged them to such an extent that they returned to their home areas.

Box 4.2. Settlement histories of relatives

Sebastian, Charles and Robert Ngorima live in Zvomanyanga village. They are brothers and each had their own residential plot and fields. Sebastian and Charles are neighbours, while Robert lives three stands further down. When they settled in 1980, Robert shared a stand with Charles, and Sebastian had his own stand. In 1984, Robert settled on his own stand, a stand that had been pegged, but the original settler never came to occupy it.

Mr. Dambaza lives in Mungo village. He came as one of the first settlers in this village, in 1980. His brother's son came to live in the same village in 1981after Mr. Dambaza advised him that one of the stands in the village was still vacant because the person the stand was allocated to changed his mind about resettlement.

Mr. Ranga came to Mutanda in 1981 with his wife and four children and got an official plot in village 27 in 1982. After a few years, his eldest son settled on a vacant plot in the village. The original owner of the plot returned to the reserve (i.e. the communal areas), as he did not want to farm on such a scale. The buzz was that he was lazy.

Mrs. Karidza's husband died during the war of independence. When her brothers were moving to Mutanda resettlement scheme they invited her to come along to start a new life. Initially, they lived and worked together, but when they received an official plot each of them settled on their own plot. Mrs. Karidza lived there with her son and daughter and some children of her brothers. When she died in 1994, her son took over the plot. Another son also lives in Mutanda, as a squatter, he does not have an official plot yet.

The Mangwiza family settled in Mudzinge village in the early 1980s. The first to settle was the eldest son, Moses, who arrived in 1980 and first cultivated in 1981, the year in which his father and younger brother Jason also arrived. Both Moses and his father came from Bushu Tribal Trust Area, while Jason gave up his job as a mechanic in Harare to start his own farm. In 1985 the father died and his wife inherited his plot. When she died in 1998, her eldest son who had a job in Tafuna took over the plot. Although he resides in Tafuna during the week, he comes home in weekends to assist his wife and two sisters in farming activities.

Source: Social mapping exercise.

[81] Correlation coefficient:-0.12, p=0.002

[82] Although the correlation is rather low when all villages are considered, the relation can be pronounced in some villages. Table A1 in the annex shows for example that in Mudzinge village households initially had on average 0.78 relatives living on another stand, while in the first few years after resettlement on average another 1.17 relatives came to live in the village.

When we disaggregate the information on village kinship relations in table 4.8. to resettlement schemes we find considerable variation. The percentage of households that initially settled with relatives was highest in Mutanda but the number of households that have relatives that came to live in the village a few years later is relatively low. Only a third of the households in Sengezi started out with relatives, but a third of the households also had relatives that joined them later, bringing the percentage of households with a relative in the village in the mid-1980s to the same level as Mutanda. Mupfurudzi had both a considerable percentage of households with relatives who settled at the same time and a considerable percentage of households with relatives who settled a few years later. In the mid-1980s 62 percent of the settlers in Mupfurudzi had at least one relative that lived in the same village on a different plot and on average each household had 1.92 relatives in the village, which is considerably higher compared to Mutanda and Sengezi. With the exception of the percentage of households with a relative in the village in the mid-1980s, these observed differences between the three resettlement schemes are statistically significant.[83] The differences in the increase in the percentage of households with relatives in the village during the first years of resettlement are likely to be influenced by the settlement history of the schemes. As the villages in Mutanda were established from groups of squatters that more or less resettled themselves, it is not likely that assigned plots would be left vacant. In case a legalised squatter would have decided to go back, a squatter from the squatter camp (who of course could be related to someone in the village) would most likely occupy the vacant plot.

The last column of table 4.8. shows us the type of relation that households have to the relatives that live in the same village. We see that on aggregate 36 percent of the relations are so-called marriage relations. So the majority of the settlers with relatives have a blood relationship with another household in the village; fathers and sons, brothers, uncles and nephews, cousins or grandfathers and grandsons. Villages in Mutanda have a relatively high proportion of marriage relations in the mid 1980s. These are predominantly relations between fathers and daughters and brothers and sisters. Although these would be interpreted as blood relations in western kinship terminology, the Shona consider these relations to be marriage relations. Once a daughter or sister is married, she does not belong to the lineage of her father/brother anymore, but becomes part of the lineage of her husband, as are the children that will be born from the marriage (Bourdillon, 1976). We think that the relatively high proportion of marriage relatives in Mutanda is also related to the way the area was settled. As settlers were initially squatting, it is likely that those who did not come on their own deliberately came with a group of people that were interested in starting a new life. Daughters/sisters with their husbands could very well form part of this group. Because the daughter/sister usually lives in the home area of her husband, often at some distance from her natal family, she is less likely to be resettled together with her father/brother(s) in case of formal resettlement.

[83] The significance of these differences is tested by regressing the mean number of relatives (or a relative dummy that equals one when households have at least one relative in the village) on resettlement scheme dummies respectively. The F-tests of the regressions test the hypothesis that the coefficients on the resettlement scheme dummies are equal to zero. This hypothesis is rejected for all regressions (p=0.00) with the exception of the regression of the relative dummy on the resettlement scheme dummies in the-mid 1980s.

The increase in the number of relatives in the first years after resettlement (between 1980 and 1985) is mostly an increase in the average number of blood relatives (data not reported here) who settled on a vacant plot in the village. But there is also an increase in marriage relations in those first years after resettlement, especially in Mutanda and Mupfurudzi. Although some of these relations are existent marriage relations (i.e. the marriage took place before resettlement) that move to the village to settle on a vacant plot, there are also new marriage relations. In such cases, the daughter (or other female relative in case of an extended marriage relation) of a plot holder married a plot holder, or the son (or other male relative in case of an extended marriage relation) of another plot holder in the village.

Lineage or totem relations

Resettled households may also be related by totem. Like a blood relationship, a totem relationship is a (patrilinear) lineage relationship. However, unlike a blood relation that refers to a common descent that goes back two or three generations, in a totem relationship a genealogical connection may be more difficult to trace. A person's totem is determined by three elements: *mutopo*, *chidawo* and *dzinza*. *Mutopo* is the clan name and refers to a patrilineal descent group. The clan name is usually an animal, like an eland, monkey or lion and members of the clan are not allowed to eat or even disturb the animal concerned. *Chidawo* is the sub-clan name and is considered to be the "nick-name" or "praise-name" of the sub-clan; often it refers to something that happened in the past, *Nematombo* for example means "one who has eaten a vulture". In daily life this name is often used to address a person, as a way of showing respect. People with the same *mutopo* may have a different *chidawo*, but those with the same *chidawo*, will have the same *mutopo*. The *dzinza* refers to one's great great grandfather. In theory, this element is most easy to trace back since each generation should have a different *dzinza*. However, in practice it may be more difficult to trace as a new generation may decide to retain the *dzinza* of their fathers and hence refer to the fifth generation back rather than the fourth. It is not entirely clear what the sizes of these lineage groupings are. Obviously this depends on the number of (male) descendants and the history of the particular clan or sub-clan (that is how many *chidawo* branches there are). Stead (1946) estimated an influential man would have hundreds of descendants in two or three generations and these numbers would ran into thousands in six or seven generations.

Some authors suggest totem is a misnomer as it refers to a scattered group of people whose only identity as a group is a common clan name (see for example Bourdillon (1976). Yet, others refer to the importance of these lineage groupings, more specifically *chidawo*, in terms of group identity (Stead, 1946), political independence (Holleman, 1951) or hospitality and support (Spierenburg, 2003). Even today, people who never met before introduce themselves by reference to their totem and totem names are often used as a polite way to address a person. But it is more than just a praise name. Respondents indicate that in the absence of blood relatives, totem relations are important: members of the same totem may play a role in ceremonies related to illness and death, for mutual assistance and emotional support. Later in this dissertation, notably in chapter six and seven, we will document the role of lineage membership in creating access to resources in times of need.

Based on their *mutopo*, *chidawo* and *dzinza*, Barr (2004) found that household heads in our sample originated from over seventy chieftancies in Zimbabwe and several

other Southern African countries. To make this differentiation workable, Barr clustered them in thirteen lineage groups; twelve Zimbabwean groups whose geographical boundaries are defined with reference to custom and culture, and one group consisting of non-Zimbabweans. The information in table 4.9 is based on this definition of lineage group of the head of household and shows that there is considerable lineage diversity. The percentage of household heads and the mean number of household heads in the village that belong to the same lineage group as the head of the interviewed household varies significantly across resettlement areas and is highest in Mutanda and lowest in Mupfurudzi. The detailed village level data on lineage diversity that is presented in table A.4.2. in Annex 4.1 shows that villages also differ considerably with respect to their lineage composition. A village like Muringamombe has members of as much as eleven different lineage groups amongst its household heads, while for example Injina only has four.[84] Interestingly, none of the households in our sample lives in a village without a head of household from the same lineage (the percentage reported in the fourth column is not lower than fifteen percent).

Table 4.9. Lineage background of the household head in resettled villages (2000).[85]

	All areas	Mupfurudzi	Sengezi	Mutanda
Number of lineage groupings in the village	6.1	8.6	5.6	4.04
Percentage of household heads that belong to the largest lineage group in the village	29%	29%	39%	57%
Percentage of household heads in the village that belong to the same lineage group as the household head*	18%	18%	28%	45%
Mean number of household heads that belong to the same lineage group as the household head **	11.2	6.1	11.6	16.9

* Variation across resettlement schemes (F.stat 101, prob>F: 0.000)
** Variation across resettlement schemes (F.stat 74.9, prob>F: 0.000)
Source: lineage data Barr.

4.5. Development of new relations and comparison with communal villages.

The information presented in this chapter so far shows that many households did not come to the resettlement areas completely on their own. Many settled with at least one or a few households that they had known before, either because they previously lived

[84] In interpreting these figures we need to take into account that the figures are based on different samples. In Mupfurudzi a full sample of every village is available, while the sample in Sengezi and especially Mutanda is much smaller. Although having a random sample may solve any problem in relation to representativeness, the single ethnic group reported in village 10 in Mutanda, is likely not to reflect reality.

[85] As the data was collected in 2000, we have to be aware that it does not necessarily reflect the lineage relationships that existed in the early 1980s. Some of the original stand holders have died, and their stands inherited by their wife or son (who will have a different totem). In case the household disintegrated after the death, a new household may have settled.

in the same area and/or because they had a blood, marriage or totem relation. Many settlers also invested in new relations in their village as is illustrated in box 4.3. One way of doing this was by joining an association. In 1984, just over half of the newly settled respondents was member of an association in their new village, predominantly village committees/assemblies or party-based organisations, but also activity based or assistance based associations like a sewing club or a burial society. Settlers who did not join such an organisation, said that such farmer/settler organisations were not yet around in their village or still in the process of being set up. Alternatively, if they did exist, they had no interest in becoming a member or considered themselves too old or occupied with their own fields to join. Interestingly, it was far more common to have joined a group in Mutanda, where 85 percent of the new settlers held membership in an at least one association, compared to Mupfurudzi where 41 percent joined an association and in Sengezi (71 percent). The character of the organisation also varied between the regions, in Mupfurudzi associations were predominantly village associations/assemblies, while settlers in Mutanda and Sengezi were more often member of party-based associations and to a lesser extent activity based associations.

Box 4.3. Social relations between new neighbours

"Various churches were established in the village. This was important, as it was another way for the community to know each other well, in the churches. It changed their personalities, it improved their way of behaviour and taught them how to live together"
Muringamombe village

"In this village we do not have blood relatives. But we make new relatives by marrying our sons and daughters."
Mutoramepho village

Source: Village histories and social mapping exercises

In all three areas, the number of associations increased rapidly over time. In a study on civil social activity in the villages in our study, Barr (2004) compares the development of memberships in associations after resettlement with the civil social equilibrium now found in villages in communal areas.[86] Barr finds that resettled villages reached the level of civil social activity of present day communal villages already in the mid-1980s. By 2000, the mean number of group memberships in resettled villages was almost double that of the communal areas (5.43 and 2.84 respectively). Barr also shows that after twenty years of settlement, resettled households have reached a comparable civil social equilibrium with respect to membership of religious associations. Thus, the differences in present day's membership of associations are mainly related to differences in non-religious memberships.[87] Villages in communal villages have far less cultural, human development and women groups and membership in agricultural and sports groups is considerably lower in communal villages compared to resettled villages.

[86] For more information on this data and the method of data collection we refer to chapter three.
[87] In communal areas, the average number of non-religious groups that at least one household member belongs to is 1.52, compared to 4.09 in resettlement areas. The difference between the two areas is statistically significant at the 0.1 level (Barr, 2004).

Interestingly, the average number of memberships in non-religious associations in 2000 is highest in Mupfurudzi and lowest in Mutanda while this area scored initially high on the percentage of households that was member of an association. Although the percentage of households is a different measure than the average number of memberships per household, Barr explains that villages in Mutanda report a lower level of civil social activity, there are less cultural, human development or feminist groups.

Table 4.10. Average number of non-religious memberships(2000).

Mashonaland Central	Number	Mashonaland East	Number	Manicaland	Number
Resettlement Scheme					
Mupfurudzi	4.09	Sengezi	3.85	Mutanda	2.30
Chitepo	2.33	Mungo	5.81	Village 27	1.50
Mudzinge	5.42	Goto	3.73	Village 13	2.60
Muringamombe	5.18	Rundu	4.62	Village 14	1.77
Mutoramepho	1.00	Mawiri East	4.14	Village 10	2.29
Pedzanahmo	3.23	Mawiri West	2.58	Village 11	3.11
Zvataida	2.56	Injina	2.22	Village 8	2.50
Tongogara	6.54			Village 6	2.33
Gwetera	3.03				
Zvomanyanga	7.50				
Communal area					
Paswavaviri	1.56	Sengenda	0.78	Mupariri	2.17
Chichera	1.36	Chigwedere	3.14	Nyangani	0.25

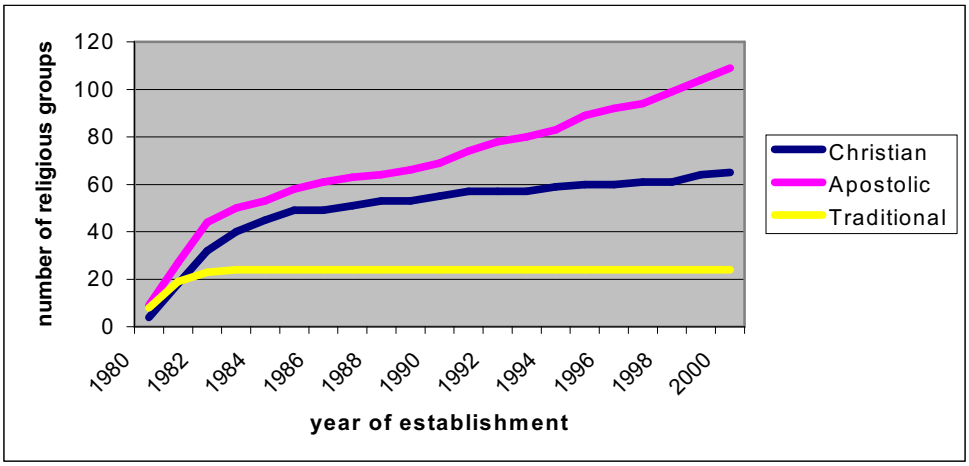
Source: Barr (2004).

The figures in table 4.10 show that non-religious membership also varies considerably across resettled villages. Barr suggests that it is likely that each village has developed its own culture vis-à-vis non-religious civil social activity and finds that village level membership is related to village size and the lineage, kinship and age composition of the village. Resettlement villages with a higher proportion of aged tend to be more civil social. And associations are more likely to be established and have a high membership in larger villages and in villages where some households have extended family relations and lineage diversity is high. Apparently, the presence of some extended family relations promotes the establishment of associations that are also open to non-related villagers. Although these characteristics can explain difference in non-religious memberships in the resettled villages, they do not explain the difference in civil social activity found between communal villages and villages in the resettlement areas. Besides measures that could not yet be included in the analysis (like income, external assistance or geographical characteristics of the villages) Barr suggests another possible explanation. In resettled villages, associations could be or a more suitable form of co-operation in a new community that is not based on traditional kinship organisation or a substitute for traditional forms of co-operation such as labour sharing arrangements (*nhimbe)* or intra-family burial societies.[88]

[88] As Barr's question elicited information on the more permanent social structures that existed in the villages, the information is potentially biased against temporary or dormant groups that latently exist

The analysis of Barr focused on non-religious membership only. As villagers praise religious institutions for their contribution to the development of the social environment in the village (see box 4.3.), we now look more closely to the development of these religious groups over time and disaggregate the membership to three different types of churches. First are the so-called Missionary or Christian Churches. Respondents reported membership in 10 such churches: the Anglican Church, Methodist Church, the Salvation Army, the United Methodist Church, the Church of Christ, Roman Catholic Church, SDA, Voice of God and Jehovah's witness. Second, the apostolic churches. Respondents reported a wide variety of apostolic churches; some are formed around a local pastor who branched from a main stream apostolic church (like the Apostolic Moyo Murefu or Apostolic Nazerene). While others have a national (Bethsaida, ZOAGA or Apostolic Faith Mission) or even international network of congregations (like Johana Masowe, Johana Marange or the Zionist Church). The third type, the traditionalists, represents five groups such as Dandanda and Zhana and Chinyahwo (Malawian).

Figure 4.2. Cumulative number of religious groups established in the three resettlement schemes



Source: association data Barr.

Already in the early days of resettlement, settlers established religious groups in their new villages. In 1980, twenty-one religious groups were established, followed by another forty-three in 1981, thirty-six in 1982, fifteen in 1983 and eight in 1984. Although the majority of religious groups had been established by the mid-1980s, new religious groups were being introduced up to 2000. Figure 4.1. shows that it is especially the number of apostolic groups that keep on increasing (most likely local branches that split of to form a new church focussed on a certain item) and to a lesser

and only organise in times of need. Such groups are likely to be based on kin or lineage membership and therefore more likely to exist in communal areas. Although such bias may explain part of the difference observed, we argue it will not fully explain the difference observed. Presuming no such latent organisations in the resettled communites, communal households would have to be member of at least two to three such groups. In practice such organisations do exist in the resettled communities and therefore the number of latent groups in the communal areas would even have to be higher to make up the difference.

extend the number of Christian groups. Since 1983, there has not been an increase in the number of traditional religion groups.

Table 4.11. presents information on the religious memberships in the resettlement areas in the early 1980s. The number of religious groups that were attended just after resettlement, presented in the second column, ranged between three and eight per village. Since a quarter of the resettled households was not (yet) affiliated to a religious group, the number of memberships was low: each household on average had less than one membership in a religious association. This figure also reflects that households generally held membership in only one religious group. Interestingly however, also twenty percent of the households reported membership in two or three different religious groups, which suggests that members from one household do not necessarily attend a church of the same denomination. In these cases, often some members adhered traditional religion, while others attended either a Christian or an apostolic church.[89]

Table 4.11. Religious memberships in resettlement areas in the early 1980s.

Area	All areas	Mupfurudzi	Sengezi	Mutanda
Number of religious groups reported	25	14	12	13
Average number of memberships per household	0.94	0.94	0.95	0.93
Percentage of households with at least one adult member in a Christian Church*	22	6	35	38
Percentage of households with at least one adult member in an apostolic church*	38	49	25	34
Percentage of household with at least one member in a Traditional religious group**	60	59	63	47

* Differences between resettlement areas significant at 0.00 level
** Differences between resettlement areas significant at 0.07 level
Source: Association data Barr.

This differentiated or spread membership is also apparent from the last three columns in the table that reflect the percentage of households with at least one adult member in the three different types of churches and together exceed hundred percent. The majority of the households adhered a traditional religion; almost forty percent attended an apostolic church, while slightly over twenty percent reported a Christian membership. Although traditional religion was strong in all three areas, there was a marked difference in the other memberships between the three resettlement schemes. Non-traditional religious membership was heavily concentrated in apostolic churches

[89] Here, a comparison is only made between Christian, Apostolic or Traditional denominations and the figure does not include households in which different household members attend different Apostolic or Christian churches.

in Mupfurudzi; in Christian Churches and to a lesser extent apostolic churches in Sengezi and more or less equally divided between Christian and apostolic churches in Mutanda. Despite considerable variation in religious memberships in the villages in each of the schemes (see also table A.4.3. in Annex 4.1), we expect that this pattern is partly related to the pattern of missionary and religious activities. As such activities, both before and after Independence, were often geographically targeted, a comparison with current religious memberships in the communal areas could help in understanding the observed pattern. We will discuss this issue in more detail after we have considered the development of religious memberships in the resettlement areas.

Table 4.12. shows the religious memberships in communal and resettlement villages in 2000. Of the 711 included in the associations survey, 686 reported membership in one of these three types of churches in 2000, one reported to be a Muslim and 24 household indicated that they were neither member of a Church nor adhered a traditional religion. We first consider the development of religious memberships in the resettlement areas. In line with figure 4.1, the second column of the table shows that the number of religious groups in the resettlement villages and areas have increased between the early 1980s and 2000. Likewise, the average number of religious memberships per household has increased as well from 0.94 to 1.4. Almost all households report membership of at least one religious group and more households report membership in more than one group; 30 percent reported membership in two groups and 4 percent in three to five groups. This again confirms that religious membership can be diversified within a household and therefore one should be careful to regard religion as a household characteristic or only consider the religion of the head of household.

The representation of religious denominations also changed considerably over time; aggregated over all three areas, the percentage of households with at least one member who adhered a traditional religion almost halved. At the same time the membership in apostolic churches increased sharply while membership in Christian churches increased only little. A comparison to religious memberships in the adjacent communal areas shows a similar adherence to traditional religion, while communal households more often attend at Christian Church and less often have an apostolic belief. The more diverse background of resettlement farmers may explain these observed differences between the resettlement villages and communal villages. Not all settlers came from the nearby rural areas, some came from rural areas further away, while others came from town, from a commercial farm or from outside Zimbabwe. In this way, new religious beliefs might have been introduced and churches established.

The shift in religious denomination at the aggregate level is also found in the three resettlement areas and in their respective villages (see table A.4.4. in Annex 4.1): the percentage of households with a member that adheres a traditional religion goes down. Yet, the difference in non-traditional religious orientation found in the mid-1980s still persists in 2000. In Mupfurudzi, most households report membership in apostolic churches while in Sengezi and Mutanda, membership of Christian and apostolic churches are most common. That these differences may have something to do with regional differences in missionary or religious activity is confirmed when we consider the pattern of denominations in communal areas. There is a high percentage of apostolic followers in the communal areas adjacent to Mupfurudzi, a distinctively

high membership in Christian Churches in the neighbouring areas in Sengezi and a large apostolic but also reasonable Christian representation in the areas close to Mutanda. This is however not to say there are no differences between the resettlement schemes and communal areas in the same province. In Mashonaland Central, communal households more often attend Christian Churches or adhere traditional religion compared to their resettled colleagues. In Mashonaland East a similar pattern is discerned, with a very low percentage of households in the communal areas that is member of an apostolic church. In Manicaland on the other hand, communal households show a stronger adherence to apostolic beliefs, while membership in Christian Churches and adherence to a traditional religion is considerably lower than in Mutanda. The differences in memberships of non-traditional religions between the communal and the resettlement areas in all three regions are statistically significant, with the exception of the percentage of households that has at least one household member in an apostolic church in Mutanda and its adjacent communal villages.

Table 4.12. Religious memberships in resettlement and communal areas in 2000

Area and Village	Number of religious groups attended by household members	Average number of member ships per household	Percentage of household with at least one member attending Christian Churches	Percentage of household with at least one member attending apostolic churches	Percentage of households with at least one member who adheres Traditional religion
All villages	**39**	**1.4**	**33**	**64**	**32**
Resettlement	34	1.4	30*	67*	32
Communal	23	1.4	45*	49*	34
Mashonaland Central	**22**	**1.4**	**11****	**81****	**37****
Mupfurudzi	21	1.1	8	82	36
Communal	11	1.5	24	69	41
Mashonaland East	**22**	**1.4**	**54****	**44****	**31****
Sengezi	22	1.4	49	52	30
Communal	7	1.3	80	4	38
Manicaland	**21**	**1.3**	**45****	**61****	**22****
Mutanda	14	1.3	52	54	21
Communal	14	1.3	33	70	25

* differences between communal and resettlement areas significant at 0.00
** differences between provinces significant at 0.02
Source: Association data Barr.

So far, we presented communal areas and resettlement areas in one region as separate entities, while geographically, they may be very close together. In fact, some villages in the resettlement areas, such as Tongogara in Mupfurudzi and Village 6 in Mutanda, actually border villages in the communal areas. Therefore, household members from

these villages may in fact attend the same church or non-religious association. Information on the location of both religious and non-religious associations shows that as much as a third of the associations that were listed are not based in the village itself, but rather in a neighbouring village, a nearby school or the local mining or business centre. Despite geographical proximity, these locations are usually in the same resettlement or communal areas, only occasionally do communal household mention membership in an association that is located in a resettlement scheme or do resettled households attend associations in the communal areas.

Kinship relations

Memberships in associations are not the only way in which settlers developed social relations in their village. Twenty years of resettlement also witnessed an increase in kinship relations. Comparison of the kinship networks in resettlement areas between the early 1980s (table 4.8.) and 2001 (table 4.13.) shows a clear development over time. The percentage of households with a blood or marriage relative in the village doubled from 58 to 76 percent and the average number of relatives in the village increased from 1.58 to 3.13. When we look more carefully to the nature of the relations, we find a slight decrease in blood relations and a considerable increase in marriage relations. This means kinship relations in the resettlement areas are now predominantly marriage relations rather than blood relations, the proportion of marriage relations increased from 0.36 to 0.72. To some extent these developments are related as blood relations (for example between two brothers) may have changed to marriage relations (between the wife and the brother of her deceased husband) after the death of a plot holder. But that only accounts for a small part of the increase in marriage relations. As we already discussed for the first years after resettlement, new relations in the village developed through the intermarriage of household members. Especially between sons and daughters of the original settlers, or between the daughters of the original settlers and the plot holders in the village (as second and third wives in polygamous marriages). Many more such marriage relations have developed since 1985.

It is unclear whether these marriages are a deliberate strategy to create new relations in a village where no or limited (blood) relations exist. Although many respondents insist that sons and daughters are free to choose their marriage partner, it is not uncommon that parents strongly suggest or even arrange a marriage for their children. The statement of inhabitants of Mutoramepho that is reported in box 4.3. suggests intra-village marriage may be strategic, while conversations on the choice of marriage partners for their children suggests that other parents are less enthusiastic about a marriage partner that comes from the same village. According to them, the families and the couple are more likely to be involved in conflicts when both families live in the same village, as the wife will not be independent from her own family. It is therefore not surprising that we do not find a negative relation between the number of (blood) relatives in the mid-1980s and the number of new marriages within the village. As a matter of fact, we find an opposite, albeit weak correlation; a household with (more) initial blood relatives in the village is more likely to be engaged in a marriage with a member from another household in the village.[90] This suggests that if marriages are strategic, families with more kinship relations in the village are considered to be an interesting match.

[90] Correlation coefficient of 0.18 (0.00)

Table 4.13. Intra-village kin relations in resettlement and communal villages (2000).

Area	Percentage of households with at least one relative in the village	Mean number of relatives in the village	Mean number of blood relations	Mean number of marriage relations	Proportion of growth attributed to marriage
Resettlement Villages	76 %	3.13	0.85	2.28	0.42
Communal Villages[91]	97 %	15.3	7.67	7.65	NA
Mupfurudzi	85 %	3.5	1.1	2.4	0.48
Communal Villages	97 %	12.9	7.3	5.6	NA
Sengezi	74 %	2.5	0.5	1.9	0.45
Communal villages	99 %	20.2	8.8	11.4	NA
Mutanda	67 %	3.4	0.9	2.5	0.28
Communal villages	96%	13.9	7.0	6.8	NA

NA: not possible to construct this variable for the communal villages.
Source: kinship data

Although the percentage of households with relatives in the same village and the average number of relatives per household have increased, the village kinship relations of resettlement farmers are still considerably and significantly different from households that live in communal areas. There, almost all households (97 percent) had relatives in the village and the average number of related households was more than fifteen. Besides, data not reported here shows that the percentage of households with a blood relation in the village is twice as high in communal areas compared to resettlement areas. Also, communal households generally live with close and extended blood relations in the same village, while households in resettled villages are more likely to live with either close or extended blood relations. Interestingly however, as much as 16 percent of communal area households do not have blood relatives in the same village. This means that relatives through marriage (such as the brother of the wife of one of the sons of a village elder) or so-called strangers can acquire land in an area that is otherwise inhabited by blood relatives. In Chichera, these strangers are for example farmers who found it difficult to acquire land elsewhere, a spirit medium invited by the chiefs to guard over their area, a commercial farm labourer from Malawi who wanted to have a communal home and the headmaster from a secondary school in the village who wanted to farm as well. It

[91] The number of relations in the communal areas adjacent to Mutanda and one of the communal villages adjacent to Mupfurudzi is underreported. For more details see chapter three.

is also possible that after a period of bride-service, a daughter and a son in law would be allocated fields in the village.[92]

Despite a significantly lower proportion of marriage relations, households in communal areas do have a significantly higher average number of marriage relations in their village compared to resettled villages. However, the nature of these relations is different from that in the resettled villages. In communal areas, marriage relations are most often former blood relations that have changed into marriage relations (relations between widowed household heads and the siblings of her deceased husband), while in the resettlement areas close marriage relations are more often new relations between households that were not previously related. Although the creation of such new marriage relations is also possible in communal areas, it occurs significantly less often. Customary law in Zimbabwe prohibits marriages between two persons from the same lineage. Since villages in resettlement areas generally have high lineage diversity, plot holders and their sons have a higher number of potential wives in the village compared to men that live in a village in a communal area. In communal areas women generally move away from their home area to marry someone from a different lineage.

Twenty years after resettlement, the percentage of households that has at least one relative in the village does not significantly vary between the three resettlement schemes. However, the mean number of relatives is lower in Sengezi compared to Mutanda and Mupfurudzi while the proportion of marriage relations is significantly higher in Sengezi. There is also a large variation in the present day kinship structure between the villages in the study, both in resettlement areas and communal areas (see also table A.4.5. in Annex 4.1). The observed differences between communal villages, especially the number of marriage relations, are to a large extent caused by different methodologies of data collection (see also chapter 3). Yet, even the three villages in which data were collected with the genealogy method show considerable variation. These differences indicate that like the resettled villages, one has to be careful in describing communal villages as a homogenous group. This is further illustrated by the information on lineage diversity in communal areas presented in table 4.14 and background information on the communal villages presented in box 4.4.

A first comparison with the information on the lineage diversity in resettlement area (table 4.9) shows a considerable difference. Villages in the communal areas have a lower diversity of lineage groups and a higher percentage of household heads that are members of the same lineage group. The same applies for a higher percentage of households that are member of the dominant lineage group and higher mean number of households that belong to the same lineage group.[93] This is as expected. However, the ethnic or lineage composition of the communal areas also varies significantly across villages. Nyangani has for example four lineage groups while there are seven

[92] Traditionally brideservice was an alternative to bride wealth payments. When the prospective husband of a daughter did not have the means to pay (an initial installment of) cattle for their bride, the father of the bride would invite the husband to come live with his in laws and compensate for the daughter through labour. Such periods of service labour could extent up to ten years. After such a period, the husband may have socially settled in the village of his wife and opted to obtain a plot in his wife's village, rather than return to the area of his father, a practice that Spierenburg (2003) describes in Dande, Northern Zimbabwe.

[93] Note however that these differences are not statistically significant when we correct for sample weights.

lineage groups in Paswavaviri. The latter is in line with the finding of a relatively low mean number of relatives in the village that we found in table 4.11. Despite the fact that Sengenda has members of five lineage groups in the village, one of these groups is numerically dominant, with as much as 70 percent of the household heads belonging to this group. On the other hand Paswavaviri, Chichera and Mupariri do not have a lineage group that represents more than half of the household heads.

Table 4.14. Lineage diversity in Communal Villages in 2000

Village	Number of lineage groups in village	Percentage of household heads that are member of the largest lineage group*	Percentage of household heads that are member of the same lineage group as household head*	Mean number of household heads that belong to the same lineage group as household head
Paswavaviri	6	46 %	28%	13.5
Chichera	7	44%	30%	21.5
Chigwedere	5	55%	52%	14.5
Sengenda	5	70%	37%	25.5
Mupariri	5	32%	26%	16.2
Nyangani	4	52%	38%	13.4

* Variation across villages significant at 0.000.
Source: lineage data Barr.

Box 4.4. Settlement histories of two villages in the communal areas

Nyangani was established in the early 1950s when Penhalonga, the area where many current inhabitants originally resided was designated a commercial farming area. They were forcefully removed and relocated to Nyangani village but some of them stayed behind to work on the farm as a commercial farm labourer. There were cases where only one member of the family moved, while the others remained behind. The villagers claim it was like the first phase of resettlement because no one had been living in the area where they were relocated to, it was bush and the residential plots and fields had to be cleared.

Most of the residents in Sengenda village stem from Sengenda and his younger sister. The descent of Sengenda is largest, with offspring belonging to the second, third, fourth and fifth generation. The group of Sengenda's younger sister is smaller and comprises second generation descent and relatives of her husband. Additionally, the late husband of one of the residents was approved as a “squatter” and he brought a small group of households with him. In 1934 Sengenda was subject to the villagisation policy of the colonial government and the formerly dispersed misha were centred on the western bank of the Save River.

Source: Social mapping exercise

Although the lineage diversity in communal areas can often be traced back to the settlement history of the area, the fact that widows remain living in the area of their husbands family when he dies and often become the head of household, also contributes to the observed diversity. Of course this potentially also affects the observed lineage diversity in the resettlement areas. However it is less likely to have a

major influence, as we will see in the next section that the number of female-headed household is lower in resettlement areas compared to communal areas.

4.6. Characteristics of resettled and communal households in 2000

The resettled communities did not only develop with respect to their social structure. Almost twenty years of residence and hard work in the resettlement areas also shaped household characteristics, such as household type and household size, but also those related to agriculture. First, we would like to consider in more detail the difference in access to land and ownership of cattle, both between and within resettled and communal areas. Table 4.15 shows, as expected, that resettled households indeed have access to more land and also cultivate significantly more land than households in communal areas. Interestingly, resettled household on average have access to more land than was allocated to them in the early 1980s (12 acres). This confirms that fields are (illegally) extended, new fields are cleared or land is rented/borrowed, as we already suggested in chapter 3, and these practices are more common in Mupfurudzi compared to Mutanda and Sengezi. Households in Sengezi use a significantly lower acreage of their land compared to households in Mutanda and Mupfurudzi and they cultivate a similar acreage as the farmers in the communal areas adjacent to their resettlement scheme. It is not immediately clear why this is the case, but it might be related to the lower livestock possessions in Sengezi, which is likely to be influenced by the more restricted area for grazing in Sengezi compared to Mutanda and Mupfurudzi.

Table 4.15. Land and cattle ownership in resettlement and communal areas (2000).

	Mean acres of land available for cultivation		Mean acres of land used for cultivation		Mean livestock equivalent value of all animals owned[94]	
	RA	Adj. CA	RA	Adj. CA	RA	Adj. CA
Mupfurudzi	13.2*	5.9	10.0	4.12	7.7	4.3
Sengezi	12.2	5.8	5.4*	3.9**	5.4*	3.1
Mutanda	12.1	7.3	9.1	5.3	7.4	4.1
All areas	12.5	6.3	8.2	4.5	7.0	3.8

* these values are significantly (0.01) different from the other values in the column
Differences between resettled and communal areas (aggregated and disaggregated) are statistically significant (p=0.00), except **.
Source: ZRHD data.

Table 4.16 gives more information on particular characteristics of the households in resettlement and communal areas. The figures in the second column of the table show that in 2000, 26 percent of the households in the resettlement villages had a female head of household. This is a significantly lower percentage compared to the communal areas, where as much as 42 percent is female headed. The type of female-headed household differed as well; 82 percent in the resettled villages were widowed and only 8 percent had husbands whom were working and living away. In communal

[94] Unlike the measure reported in table four, this measure also includes small stock. For the weights we refer to chapter three.

areas as much as 30 percent of female-headed households had husbands whom were working and living elsewhere, while 68 percent was widowed. If we look at the three different resettlement schemes, we see that the percentage of female-headed households is highest in Sengezi, almost similar to the communal areas, while the percentage in Mutanda is low. In the latter area they are predominantly widows, while in Mupfurudzi and Sengezi the women are married with their husbands living and working away from home. In Mupfurudzi there is an odd case where the woman is married and her husband lives with her, but both he and she consider her to be the head of household, and this is acknowledged in the community that they live in.

Table 4.16. Selected household characteristics (2000).

Area	Percentage of female headed households*	Percentage of households with a polygamous marriage	Average number of wives now present in a polygamous marriage[95]
Mupfurudzi	24 %	34 %	2.0
Sengezi	39 %	15 %**	1.4**
Mutanda	17 %	22 %	2.1
Resettlement Areas	**26 %**	**24 %**	**1.9**
Communal Areas	**42 %**	**21 %**	**1.8**

* Differences between the three resettlement schemes and between resettled and communal areas (aggregated) are significant at 0.00 level.
** Sengezi significantly lower than the other areas (at resp. 0.07 and 0.001 level), no statistically significant difference between resettlement and communal areas.
Source: ZRHD Data.

Almost one fourth of households in the resettlement areas are polygamous and this percentage is slightly, but not significantly lower in the communal areas. There are however significant differences in the incidence of polygamy across the regions; in Mupfurudzi as much as one third of the marriages is polygamous, while in Sengezi only 15 percent of the households represent a polygamous union. This difference is likely to be related to a difference in religious denomination. Most apostolic churches, which have a high adherence in Mupfurudzi, allow polygamous marriages, while this is strongly disapproved in Christian Churches, that have a high membership in Sengezi. Not only is the incidence of polygamy lower in Sengezi, the number of women in a polygamous marriage is significantly lower as well compared to Mupfurudzi and Mutanda, where a polygamous household on average has 2.1 wives. Obviously, the number of wives in a household affects the size of the households. In polygamous households, the number of children (and ultimately grandchildren) that live on the plot is usually larger compared to monogamous households. In table 4.17 we see that the size of a household is significantly lower in Sengezi compared to

[95] Note that this should not necessarily equal two or more as here we refer to the number of wives that are now present in the household. A marriage can by polygamous with only one wife on the stand at present (f.e. because the other wife of wives have died, are separated or have moved away. We consider this to be polygamous as well, as it says something about the potential household size (if previously married to another woman, children and grandchildren may join the household).

Mutanda and Mupfurudzi. Regression analysis shows that this is indeed related to the lower number of wives that live on the plot.[96]

Table 4.17. Mean household size in resettlement and communal areas (2000).

	Resettlement Areas	Adjacent Communal Area
All areas	9.2	6.1
Mupfurudzi	10.9	6.5
Sengezi	7.2	5.2
Mutanda	9.6	6.7

All differences statistically significant (0.000)
Source: ZRHD data.

Also striking is the difference in household size between resettled and communal areas, which is most pronounced in Mupfurudzi where households on average have 1.7 times the size of the households that live in the adjacent communal areas. Such differences in household size between resettlement and communal households are more widely found in Zimbabwe (Harts-Broekhuis and Huisman, 2001). To get a better insight into the reasons behind these differences, we want to compare several elements of the composition of the households in the two areas. The age of the household head (57.6 in the resettled areas and 55.1 in the communal areas) and the average age of household members (23.0 years in resettled areas and 24.8 years in the communal areas) do not differ much between resettlement and communal areas. Therefore, it is not likely that the differences in household size are related to differences in stages in the life cycle.[97]

Table 4.18. Composition of households in resettled and communal areas (2000).

Household head is living with	Resettled Households	Communal Households	Significant difference in means*
Children	92 %	81 %	0.04
Daughter/son in law	31 %	2 %	0.00
Grandchildren	59%	37%	0.00
Parents	8 %	6 %	0.32
Grandparents	1 %	0 %	0.57
Siblings	9 %	4 %	0.06
Children siblings	15 %	8 %	0.00
Extended family	4 %	2 %	0.16
Unrelated persons	4 %	4 %	0.96
More than one wife	23 %	21 %	0.56

* Pearson chi2 with weighted means.
Source: ZRHD data.

Table 4.18 shows more detailed information on the relation between household members and household head and compares the incidence in resettlement and communal areas. The most outstanding differences are that households in resettlement

[96] When we include the number of wives in the household in a regression of household size on a dummy for Sengezi, the coefficient on the latter variable is not significantly different from zero anymore, while it was in the estimation without the number of wives in the household.
[97] The difference in mean age of household head is not statistically significant (p=0.279), nor is the difference in mean age of household members (p=0.134).

areas more often live with a daughter in law (and occasionally a son in law), and (hence) grandchildren[98] and with some children of their siblings. Interestingly, the difference for residence with siblings is only marginally significant, suggesting that nieces and nephews are more often fostered in than living together with their parents on the plot of their uncle and aunt. (Box 4.5 provides more information on child fostering). There is also no significant difference between the resettlement areas and communal areas with respect to the percentage of household heads living with parents or grandparents, extended family members (uncles, aunts, etc) or non- related family members (tenants, workers etc.) Nor is there a significant difference in the incidence of polygamy that could explain the difference.

Box 4.5 Child Fostering in Zimbabwe.

Child fostering is, and always has been a common practice in Sub Sahara Africa (Serra and Kinsey, 2000) and Zimbabwe is no exception to that (Bourdillon, 1976). It can be born out of necessity (e.g. when the parents have died) or out of choice. In chosen cases it is temporal and reversible and the two parties can decide on the length and features of the fostering arrangements. As such fostering can respond to reciprocal needs for assistance, exchange over time and economic support. Serra and Kinsey refer to several studies that have shown that fostering is related to the need of the mother to work, to the parent's inability to cope with large family sizes at some point in the life cycle and to foster parent's willingness to keep an active link with other family members in view of future support. Mr. Kambeu tells us that these reasons also play a role in fostering in Zimbabwe:

"I recognise that as relatives we should help each other. We were seven in our family, and now we are three. Three of us are left the others have died. And when I die, someone will have to look after my children, just as I am doing with my brothers' children (the five children of his older and younger brothers that are staying on his homestead). The very fact that I have the burden of looking after my brother's children now shows me the possibility that I may also die. Then, my cousins who are in Bindura will have to take over the duty of looking after my children. Because of that, it is best for me to help my relatives now."
Mr. Kambeu, resettlement farmer

The nieces and nephews reported in table 4.18 are predominantly school going children and may therefore be too large a burden for their own parents (in terms of paying school fees). Although we could argue that resettled households generally have more resources compared to communal households and might therefore more easily cater for the education needs of their siblings' children, it is unclear if this fostering in is solely a gesture of assistance towards one's siblings. In their study of fostering behaviour in the areas in our research areas, Serra and Kinsey find that resettlement households not only foster more children in compared to communal areas, but also foster more children out. The potential reasons for this peculiar pattern of fostering are still to be unravelled by the authors.

We use the information on the relationship between household members and the household head to define different household types. We distinguish single person

[98] There is a high correlation between the presence of a daughter or son in law and the presence of grandchildren: 0.56. However the fact that this correlation is not closer to 1 also suggests that there are a substantial number of grandchildren living with their grandparents while their own parents are not present on the stand. Grandchildren area fostered in while the parents stay and work in town or another rural areas, or when the parents have died (which is increasingly common due to HIV/AIDS).

households, nuclear households (husband and/or wife, wives and children), vertically extended households (comprising three or more generations; living with both parent(s) and children, or grandchildren, or grandparents), horizontally extended households (living with siblings, sibling's children or extended family members) and households that live with non-related household members. The relative frequency of these household types is presented in table 4.19. This table suggests that the average household in a resettlement area is larger because the incidence of nuclear monogamous households is lower and vertically extended, or both vertically and horizontally extended households are more common in these areas.

Table 4.19. Household types in resettlement areas and communal areas

Household type	Resettled Households	Communal Households
Person living alone	1 %	2 %
Nuclear hh, monogamous	16 %	39 %
Nuclear hh, polygamous	7 %	8%
Vertically extended hh	50 %	35%
Horizontally extended hh	7%	8%
Vert & horizontally extended hh	13 %	4%
Non-related household members	5 %	4%

Differences in the table are statistically significant at the 0.00 level
Source: ZRHD Data.

To single out the effect of vertical or horizontal extension, we test to what extent the presence of a daughter in law, grandchildren, siblings and sibling's children explains the observed differences in household size between resettlement and communal areas. We do this by comparing different regression models, in which the dependent variable household size is regressed on a communal area dummy and a series of relationship dummies that reflect the presence of particular type of household member. The communal area dummy equals one if a household lives in a communal area and is zero if the household lives in a resettlement area. The relationship dummies equal one if a particular type of household member, such as the daughter in law or grandchild of the household head resides on the plot, and zero otherwise. We can find the major determinant of the differences in household size between communal and resettlement areas by considering the effect of the one by one inclusion of these relationship to household head dummies on the significance of the communal area dummy. The variable that renders the communal areas dummy insignificant predominantly explains the observed differences in household size. As the presence of more than one wife increases household size considerably, we control for these differences in marital status by including the total number of wives the head is married to, or co-wives in case the head of household is a widow.[99] Table 4.20 presents the results of six different regressions. The first column lists the possible independent variables in the analysis and the subsequent columns present their estimated coefficients, with the level of significance in brackets. The results in this table show that it is predominantly the presence of a daughter in law and to a lesser extent the presence of grandchildren that explain the larger size of resettled households. When we control for either of

[99] We deliberately use the total number of wives and not the number of wives who currently reside on the plot. Even when a wife has died or has left the plot, her children (and in case she was old her grandchildren) are likely to remain on the plot, unless they are still very young.

these variables, the differences between communal and resettlement households (the communal area dummy) are not significant anymore. The presence of a daughter in law increases the household size on average by 4.54 members. This number is likely to refer to her husband (the son of the head of household), and their children (the grandchildren to the head of household). The coefficient on the presence of a grandchild dummy is lower, 3.85 and therefore suggest that some grandchildren are fostered at their grandparents or living with one parent at their grandparents place, rather than with both their parents. These findings suggests that it is predominantly the vertical extension of the resettled household that explains the observed differences in household size between resettled and communal areas, rather than the presence of other relatives that was suggested by Deininger *et al.* (2002).

Now consider in more detail the character of the vertical extension of the household and the reasons behind it. In resettlement areas, 75 percent of the daughters in law are living together with their husbands on the plot of the parent(s) of the husband while in communal areas this is the case for 55 percent of the daughters in law. On the other hand, 35 percent of daughters in law in the communal areas live with their in laws while their husband is away, working someplace else, and 10 percent is widowed or not yet officially married. For the resettled areas, these figures are respectively 22 and 3 percent. The fact that in resettlement areas, more sons stay on their parents plot when they are married has to do with the land tenure rules in the resettlement areas. Although each resettled household has more land available compared to communal households, the land (both the arable land and the residential plot) may not be subdivided among sons, nor are sons, or others for that matter, allowed to clear land for cultivation and set up their own residential plot. In communal areas, at least one of these options is generally available to married sons who want to establish their own households, although the acreage of land that is available for these purposes is often rather small. This finding seems to be at odds with table 4.18 that reported that communal households can also have a vertically extended character. We interpret this as a transition phase that is occupied until the son is ready (i.e. has sufficient means) to set up his own homestead.

Table 4.20. Regression models to explain differences in household size (2000).

	1	2	3	4	5	6
Communal Area	6.12	-1.10	**-0.45**	**-0.98**	-0.99	-0.99
	(0.000)	(0.021)	**(0.386)**	**(0.088)**	(0.024)	(0.03)
Number of wives		5.85	**4.88**	**4.6**	5.65	5.52
		(0.000)	**(0.000)**	**(0.000)**	(0.000)	(0.000)
Daughter in law			**4.54**			
			(0.000)			
Grandchild				**3.85**		
				(0.000)		
Sibling					3.34	
					(0.000)	
Sibling's children						3.54
						(0.000)
R-squared	0.070	0.7726	0.8208	0.8205	0.7814	0.7781

Weighted regression without constant
Source: ZRHD data.

In practice, many parents in resettlement areas do allow their son(s) to use a portion of their land. This is *de facto* subdivision, as the son(s) and his wife (or wives) will cultivate the portion of land by themselves and have full responsibility for investment in inputs, and full ownership of the harvest they obtain. The crops are stored separately from the crops of the parents and they have their own kitchen to prepare and consume food.[100] Alternatively, the son and his wife assist the parents in cultivation and share part of the harvest to be able to meet their food consumption needs.[101]

Box 4.6. Where sons of resettlement farmers find land.

In 1995 the daughter of Mr. Makombe married the son of Mr. Chimedza. Initially they resided at the stand of Mr.Chimedza in Mupfurudzi where they cultivated together with Mr. and Mrs. Chimedza. In 1998 they moved to Rushinga Communal Area, north east of Mount Darwin close to the Mozambican border. The pressure on the land became too large as three married sons resided on his plot and wanted to use a portion of his land. In Rushinga there was still enough virgin land, as compared to Bushu Communal Area where they came from.

The son of Mr. Dambaza married the daughter of Mr. Soko in 1999. The young couple resided with Mr. Dambaza and they were farming together. As the couple did not feel happy with this arrangement, they decided to build their own stand in the nearby commercial farms that were invaded in early 2001.

Mr. Musandu settled together with his older brother in 1980. He was still young and his brother sent him to school as their parents both died. In 1991, he married the daughter of another plot holder in the village and after a few years of joint cultivation, the young couple was able to acquire a plot in Principe, a nearby resettlement scheme that was established in 1994.

In 1996, John, the son of Mr. Berejena married a girl from the village. Initially the young couple settled on the stand of John's father. But after a few months John was able to find his own stand in Madziwa Communal Area, where both his parents and his parents in law were living before they were resettled. The plot was located in chief Mushowani's area, where his father's relatives were living.

Farai lived with his parents in Mutanda and stayed with them after he married his first wife and had two children. However, when he married his second wife in 1998, his father suggested to him that it was time to start his own farm. Subsequently, Farai and his two wives and the children from the first wife moved out and squatted in the village where his father lived. They built a homestead in the bush and cleared to fields to start cultivation.

Source: Social mapping exercise and in-depth interviews

Many married sons who remain with their parents expect or hope to inherit the plot when the parents die. In many cases this might be in the far future. Apparently, such

[100] The ZRHD data shows that 20 percent of all resettled households had separate food stores on their residential stands.

[101] Elsewhere, it is reported that married sons of resettled households illegally occupy land in the resettlement areas (Harts-Broekhuis and Huisman, 2001), while squatting is more generally reported as a result from land scarcity (Moyo, 1998). In our research areas squatting is largely restricted to Mutanda, although we have received an occasional report of married sons who have settled in the "bush" in Mupfurudzi and Sengezi as well.

endured vertical extension is still a better option than trying to find land in the communal areas or to find a job in town, the option many communal area sons pursue. It might be more difficult for sons of the resettled households to find land in a communal area as their father has moved away. Yet, we did receive reports of sons of resettlement farmers that found land in the home area of their father, or that found land in communal areas where they were considered “strangers”. In box 4.6. we give a more elaborate account the opportunities to find land at marriage. More recently the resettlement areas witnessed a large outflow of *de jure* landless adults who tried to obtain their own plots in the fast track resettlement schemes that were implemented during and after the occupations of commercial farms since 2000. As yet it remains unclear how this affected household size and residence patterns in our study areas, and how permanent these changes are.

4.7. Conclusion

In this chapter we considered the evolution of household characteristics and social structure in the resettled communities between the early 1980s and 2000 and compared the current situation in the resettlement areas with that in the communal villages in our study. This highlighted several issues that form the context for the analysis in the subsequent chapters of this dissertation.

First, the resettlement schemes and their residents differ considerably, both in the early days of resettlement (the initial conditions) and now. These differences are related to their physical and social environment and their settlement history that remain until today: Mupfurudzi and Sengezi are planned resettlement schemes, while Mutanda resulted from illegal squatting. Settlers in Mupfurudzi had very diverse backgrounds, while those in Mutanda and Sengezi were predominantly communal farmers. Settler households in Mutanda were larger and had more cattle. In all three schemes, households usually settled as a nuclear family unit, with more polygamous unions in Mupfurudzi and Mutanda.

Secondly, we saw that resettlement is a process. Not all households and their members settled at the same time. Initially, settlers could be farming in two areas at the same time, kept memberships in their home areas and frequently went back. On the other hand, and this happened especially in Mupfurudzi and Sengezi, related households were called in to fill plots that remained vacant or became vacant again.

Additionally, we found that hardly any settler household came as a "stranger", that is, with no relationships to his or her fellow villagers. Many settlers had a kinship or a lineage relation with or were otherwise acquainted to another household in their new village. Yet, lineage diversity in resettlement villages is high compared to communal areas, more so in Mupfurudzi and less in Mutanda, and kinship relations are relatively scarce compared to communal areas. By the mid-1980s, households in Mupfurudzi most often lived with kin in the same village, while the average number of intra-village kin relations was equally high in Mutanda.

Over time, resettled household invested considerably in social relations in their communities. We reported a rapid and continuing increase in non-religious and religious associations and kin relations. In Sengezi and Mupfurudzi, the increase in

kin relations was quite remarkable and was predominantly caused by the establishment of new marriage relations. While in Mutanda the increase in kin relations was somewhat lower and dominated by a growth in the number of blood relatives who live in the same village. With respect to religious denomination, we saw that the number of people adhering a traditional religion decreased since the early days of resettlement. Now, Mupfurudzi is a strong apostolic area, Sengezi has a many memberships in Christian Churches, while Mutanda has both Christian and apostolic churches, with a somewhat higher membership in the latter.

Despite these developments, the social structure of communal and resettled villages was still considerably different. Although they have similar patterns in religious memberships, resettled communities are still scarce in kin relations but very strong in non-religious memberships, relative to communal villages. Although we largely presented aggregated information on the resettlement schemes and their adjacent communal areas, more detailed village level information showed there is considerable variation within the schemes and communal areas, especially with respect to kin relations and memberships in associations. Therefore it is likely that the village, with its specific social structure and possibly related culture, is an important point of reference for the resettled households.

Finally, we considered the current situation of resettled and communal household. Apart from the expected differences in access to land and asset holdings we found a lower percentage of female-headed households and larger household sizes in resettlement areas. We showed that the residence of a daughter in law is the main factor behind these observed differences. Although this vertical extension of households also exists in communal areas, it is more prevalent in the resettlement areas because it is more difficult there for sons to obtain land to start their own farm.

Annex 4.1.

Table A.4.1. Intra-village kinship relations in Resettlement Villages in the 1980s

Area/Village	Percentage of households with relatives that settled at the same time	Percentage of households with relatives that settled one or more years later	Percentage of households with a relative in the mid 1980s[102]	Mean number of relatives in the mid 1980s	Proportion of marriage relations in the mid 1980s
Mupfurudzi	**44 %**	**31%**	**62 %**	**1.92**	**0.34**
Chitepo	33 %	57 %	77 %	2.2	0.52
Mudzinge	27 %	9 %	30 %	0.6	0.40
Muringamombe	25%	43 %	43 %	1.96	0.38
Mutoramepho	50 %	0 %	50 %	1.57	0.46
Pedzanahmo	31 %	0 %	31 %	0.46	0.33
Zvataida	41 %	52 %	82 %	1.29	0.47
Tongogara	58%	40 %	80 %	4.04	0.31
Gwetera	52 %	40%	70 %	1.51	0.14
Zvomanyanga	58 %	10%	63 %	1.47	0.20
Sengezi	**32 %**	**34 %**	**56 %**	**1.15**	**0.25**
Mungo	31 %	53 %	69 %	1.46	0.19
Goto	11 %	33 %	44 %	0.51	0.20
Rundu	56 %	66 %	90 %	2.34	0.37
Mawiri East	47 %	17 %	64 %	1.25	0.12
Mawiri West	24 %	14 %	27 %	0.75	0.35
Injina	35%	0 %	35 %	0.34	0.25
Mutanda	**48 %**	**10 %**	**55 %**	**1.62**	**0.48**
Village 27	33 %	33 %	55%	1.18	0.31
Village 13	65 %	0 %	65 %	2.52	0.43
Village 14	39 %	10 %	46 %	0.56	0.50
Village 10	42 %	7 %	46 %	2.35	0.75
Village 11	33 %	15 %	48 %	0.93	0.64
Village 8	87 %	0 %	87 %	2.19	0.44
Village 6	55 %	0 %	55 %	1.64	0.20

Variation across villages significant (0.000)
Source: kinship data.

[102] Note that the proportion in this column is not equal to the sum of the proportions in the previous two columns, as households could have settled at the same time as a relative and had another relative coming to live in the village some time after initial settlement.

Table A.4.2. Lineage background household head in resettlement villages (2000).

Area / Village	Number of lineage groupings in the village	Percentage of household heads that belong to the largest lineage group in the village	Percentage of household heads in the village that belong to the same lineage group as the household head*	Mean number of household heads that belong to the same lineage group as the household head **
Mupfurudzi	**8.6**	**29 %**	**18 %**	**6.1**
Chitepo	9	38 %	21 %	6.2
Mudzinge	9	25 %	16 %	5.2
Muringamombe	11	19 %	15 %	4.1
Mutoramepho	6	29 %	20 %	2.9
Pedzanahmo	6	31 %	21 %	2.7
Zvataida	8	37 %	22 %	6.0
Tongogara	10	26 %	16 %	8.0
Gwetera	7	27 %	18 %	6.0
Zvomanyanga	8	38 %	21 %	8.4
Sengezi	**5.6**	**39 %**	**28 %**	**11.6**
Mungo	6	37 %	29 %	14.2
Goto	6	23 %	17 %	9.5
Rundu	6	52 %	34 %	13.9
Mawiri East	6	50 %	31 %	11.0
Mawiri West	4	39 %	30 %	11.2
Injina	4	38 %	31 %	7.2
Mutanda	**4.04**	**57 %**	**45 %**	**16.9**
Village 27	5	65 %	47 %	15.6
Village 13	6	40 %	24 %	5.5
Village 14	5	39 %	25 %	10.4
Village 10	1	100 %	100 %	57
Village 11	2	56 %	51 %	16.7
Village 8	3	50 %	42 %	13.0
Village 6	3	44 %	41 %	12.6

* Variation across villages (F. stat 19.7, prob>F: 0.000)
** Variation across villages (F. stat 34.5, prob>F: 0.000)
Source: Lineage data Barr

Table A.4.3. Religious memberships in resettled villages in the early 1980s.

Area / Village	Number of religious groups reported	Average number of member ships	Percentage of households with at least one adult member in a Christian Church*	Percentage of households with at least one adult member in an apostolic church*	Percentage of household with at least one member in a Traditional religious group**
Mupfurudzi	**14**	**0.94**	**6**	**49**	**59**
Chitepo	4	0.86	0	45	72
Mudzinge	6	1.03	6	44	66
Muringamombe	6	0.82	7	32	75
Mutoramepho	6	1	21	50	43
Pedzanahmo	3	1.07	0	54	54
Zvataida	7	1.03	18	56	44
Tongogara	5	0.92	0	50	70
Gwetera	5	0.94	12	55	51
Zvomanyanga	5	0.92	3	58	45
Sengezi	**12**	**0.95**	**35**	**25**	**63**
Mungo	7	1.10	44	24	54
Goto	8	0.76	22	14	72
Rundu	7	0.83	29	20	71
Mawiri East	5	0.71	34	29	49
Mawiri West	7	1.05	40	40	49
Injina	6	1.52	48	30	87
Mutanda[103]	**13**	**0.93**	**38**	**34**	**47**
Village 27	5	0.9	20	40	60
Village 13	4	0.7	50	20	30
Village 14	6	0.85	31	31	54
Village 10	4	0.86	14	43	71
Village 11	4	0.89	22	44	56
Village 8	3	1	70	0	50
Village 6	6	1.3	56	67	11

* Variation across villages significant (0.00)
Source: Association data Barr

[103] The figures for Mutanda are based on a random sample of the village population while the figures for Sengezi and Mupfurudzi are based on a near census of the village population.

Table A.4.4. Religious membership in Resettlement and Communal Villages (2000).

Area and Village	Number of religious groups attended by household members	Average number of memberships per household	Percentage of household with at least one member who attend Christian Churches*	Percentage of household with at least one member who attend apostolic churches*	Percentage of households with at least one member who adheres Traditional religion**
Mashonaland cent.	**22**	**1.4**	**11**	**81**	**37**
Mupfurudzi	**21**	**1.1**	**8**	**82**	**36**
Chitepo	6	1.4	7	83	28
Mudzinge	10	1.5	9	75	50
Muringamombe	11	1.6	11	79	43
Mutoramepho	7	1.3	21	79	29
Pedzanahmo	6	1.5	0	85	38
Zvataida*	9	1.3	15	74	26
Tongogara	6	1.4	0	92	46
Gwetera	7	1.4	18	88	21
Zvomanyanga	6	1.2	3	83	35
Communal villages	**11**	**1.5**	**24**	**69**	**41**
Paswavaviri	6	1.2	8	71	33
Chichera	10	1.8	40	68	48
Mashonaland East	**22**	**1.4**	**54**	**44**	**31**
Sengezi	**22**	**1.4**	**49**	**52**	**30**
Mungo	12	1.3	63	42	22
Goto	15	1.3	40	58	28
Rundu	8	1.4	34	61	34
Mawiri East	8	1.5	66	40	31
Mawiri West	10	1.4	51	57	23
Injina	10	1.6	43	55	48
Communal Villages	**7**	**1.3**	**80**	**4**	**38**
Sengenda	5	1.5	87	4	48
Chigwedere	4	1.0	73	5	27
Manicaland	**21**	**1.3**	**45**	**61**	**22**
Mutanda	**14**	**1.3**	**52**	**54**	**21**
Village 27	7	1.2	20	70	30
Village 13	6	1.0	60	30	0
Village 14	7	1.5	54	62	23
Village 10	5	1.3	14	86	29
Village 11	5	1.3	44	67	22
Village 8	4	1.4	100	10	30
Village 6	6	1.3	56	67	11
Communal Villages	**14**	**1.3**	**33**	**70**	**25**
Mupariri	10	1.1	24	80	8
Nyangani	5	1.5	42	58	42

* Variation across villages significant (0.000)
** Variation across villages significant (0.04)
Source: Association data Barr

Table A.4.5. Intra-village kin relations in resettlement and communal villages (2000).

Area/Village [104]	Percentage of households with at least one relative in the village*	Mean number of relatives in the village **	Mean number of blood relations**	Mean number of marriage relations**	Proportion of growth attributed to marriage**
Mupfurudzi	**85 %**	**3.5**	**1.1**	**2.4**	**0.48**
Chitepo	93 %	5.3	1.0	4.3	0.37
Mudzinge	55 %	1.8	0.4	1.5	0.65
Muringamombe	68 %	1.9	0.6	1.3	0.47
Mutoramepho	93 %	3.7	1.6	2.1	0.62
Pedzanahmo	85 %	3.5	0.1	3.4	0.72
Zvataida	100 %	2.3	0.6	1.6	0.53
Tongogara	98 %	5.1	2.2	2.9	0.19
Gwetera	85 %	2.0	1.2	0.8	0.76
Zvomanyanga	93 %	4.8	1.1	3.7	0.48
CA: Paswavaviri	96 %	6.3	3.4	2.9	NA
CA: Chichera	97 %	16.9	9.7	7.1	NA
Sengezi	**74 %**	**2.5**	**0.5**	**1.9**	**0.45**
Mungo	82 %	2.7	0.6	2.1	0.25
Goto	65 %	1.5	0.2	1.3	0.66
Rundu	98 %	4.5	1.2	3.3	0.24
Mawiri East	83 %	3.4	0.7	2.6	0.42
Mawiri West	60 %	1.4	0.2	1.1	0.73
Injina	48 %	0.7	0.2	0.5	0.75
CA: Sengenda	98 %	24.8	12.3	12.4	NA
CA: Chigwedere	100 %	14.4	4.3	10.1	NA
Mutanda	**67 %**	**3.4**	**0.9**	**2.5**	**0.28**
Village 27	54 %	2.2	0.7	1.5	0.12
Village 13	96 %	7.6	1.3	6.3	0.40
Village 14	71 %	1.6	0.3	1.3	0.76
Village 10	58 %	5	1.3	3.7	0.14
Village 11	52 %	1.0	0.2	0.8	0.16
Village 8	94 %	3.6	1.7	1.9	0.04
Village 6	58 %	3.1	0.7	2.4	-0.01
CA: Mupariri	93 %	15.5	9.0	6.5	NA
CA: Nyangani	100 %	10.8	3.2	7.4	NA

* Variation across resettled villages significant (0.000)
** Variation across all villages significant (0.000)
NA : not possible to construct this variable for communal villages.
Source: kinship data.

[104] Data for Paswavaviri, Mupariri and Nyangani are underreported. For more details see chapter three.

5. Support networks and shocks[105]

5.1. Introduction

Livelihood and risk studies present a range of strategies that households use in response to risk. Ranging from buffer stock strategies, the use of savings and credit to the development of alternative income sources and risk sharing arrangements (Alderman and Paxon, 1992; Reitsma *et al.*, 1992; Dercon, 2000; Ellis, 2000). As is argued in the livelihood and social risk management frameworks, the choice of household responses largely depends on the resources, or capitals, available in or accessible by the household (Siegel and Alwang, 1999; Ellis, 2000).

Previous work on Zimbabwe has also presented a variety of coping strategies (Zinyama *et al.*, 1991; Scoones *et al.*, 1996; Mararike, 1999) and demonstrated the importance of both self-insurance and mutual insurance. Kinsey *et al.* (1998) illustrated the important role of cattle as a buffer stock for the resettled households in the ZRHD data set. They show that income from cattle sales was the dominant source of cash during drought years and was also used to meet non-food expenditures in non-drought years, such as school and health fees. This buffer stock function of cattle is equally important in communal areas (Scoones *et al.*, 1996; Wolmer *et al.*, 2002). Other work has stressed the possibilities of protection against idiosyncratic risks through risk sharing arrangements. Hoogeveen (2001) for example reports partial income pooling in both resettlement and communal villages in the ZRHD data set, while Scoones *et al.* (1996) and Wolmer *et al.* (2002) stress the importance of labour and cattle sharing arrangements to deal with labour shortages and lack of cattle to plough.

Much of the literature on risk sharing and mutual assistance suggests that it often takes place within kinship networks (Rosenzweig, 1988; Dietz *et al.*, 1992; Ambec, 2000; Goldstein, 2000; Platteau, 2000). That Zimbabwe is no exception is illustrated by the work of Dzingirai (2001), Mararike (1999), Scoones *et al*. (1996) and Wolmer *et al.* (2002). This suggests that the relocation away from kinship networks to new communities that are relatively scarce in intra-village kinship relations, as documented in the previous chapter, may affect household coping behaviour and the type of relations used to obtain support in times of need. Other authors have highlighted the potential change in social support networks when households are relocated, either to an urban area or to another rural area (Colson, 1971; Bourdillon, 1997; WLSA, 1997). Colson, studying the Gwembe-Tonga who were forced to resettle in the early 1960s when the Kariba dam was constructed in Northern Zimbabwe, found that the Gwembe-Tonga expressed a renewed emphasis on kinship

[105] An earlier version of this chapter is published as Dekker (2004) Sustainability and Resourcefulness: support networks in periods of stress, World Development, (forthcoming Winter).

ties in the early stages of resettlement to deal with increased insecurity and to create a sense of continuity. She also reported that after some five years, the Gwembe-Tonga felt more secure in their new environment and became more open to new forms of social organisation.

In the case of voluntary resettlement for land reform and migration to town, the change in support networks can be attributed to the fact that households move away from their kinship networks and because there may be different social norms and values in their new place of residence. As plots in resettlement areas were randomly allocated and resettled households had a variety of backgrounds it is likely that social life in resettlement villages is different from that in the communal areas. This is vividly illustrated by the life history of the Matsika's that we referred to in our introduction and the findings of the Women and Law in Southern Africa Project:

"*One of the greatest laments of the resettlement area families was their dislocation from their natal families and the lack of regular interaction with them. This tended to heighten the nuclear family focus and promoted the bonding with neighbours to provide a substitute support network."*
(WLSA, 1997, p.102).

Although we saw in the previous chapter that most households were not completely cut-off from their kinship relations when they relocated to the resettlement areas, we also found that after twenty years, resettlement households still had considerably less kinship relations to other households in their village compared to communal households. On average, households in the communal areas have almost five times as many relatives in the village compared to households in resettlement areas. Given the importance of kin relations, this different social set-up potentially affects the way households cope with risks. There is however an important alternative to this hypothesis. As it has been demonstrated that resettlement households on average possess more cattle compared to communal area households[106], they may be in a better position to cope with shocks themselves, through a buffer stock strategy. In this chapter we consider if households in Resettlement Areas respond differently to shocks compared to households in Communal Areas and if observed differences in coping behaviour can be explained by differences in the social environment resulting from the relocation away from kin relations or the higher cattle wealth attained by resettled households. The role of substitute support networks, as suggested by WLSA, is further elaborated in chapter 6.

The remainder of this chapter is organised as follows. Section two describes a specific module of the 2000 ZRHD survey that was used to elicit the data on which we base our analysis in this chapter. Section three reviews the risk coping and risk sharing practices of smallholder farmers in Zimbabwe and describes the differences in coping

[106] Using ZRHD data, Hoogeveen (2001) calculated a livestock equivalent value of household cattle herds and found a significant difference in herd possessions in the two areas. Measured in 1995 prices, the value of the herd in resettlement areas on average was Z$ 13753, while the herd of communal area households was worth Z$7660. To put these figures in perspective: the average sales prices for cattle in 1995 were Z$ 1.279 for a cow and Z$ 1899 for a trained oxen. Translated to actual ownership of animals, resettled household owned the equivalent of 6.9 trained oxen and communal households the equivalent of 4.2 trained oxen.

behaviour between resettlement households and communal households. Section four assesses the determinants of household coping behaviour and section five concludes.

5.2. Data

The empirical analysis in this chapter combines survey data from the ZRHD project and kinship data collected by the author.

5.2.1. Household coping behaviour

In 2000, we constructed a module in the ZRHD survey that elicited information on the prevalence of a specific range of risks and coping behaviour that households used when confronted with such shock. Based on previous in-depth interviews on crises situations and the villagers' perceptions on determinants of growth[107] we defined six situations that occurred unexpectedly and could possibly have a large impact on the household's livelihood, in terms of their material situation (harvest, income, buffer stocks):[108]

1. A household could not plough because cattle died, were ill, lost or stolen.
2. Some of the household's property was lost, stolen or burnt, for example equipment or a house.
3. The household experienced an unexpected lack of labour because a family member was seriously ill or passed away.
4. The household had an unexpected, not drought related, low harvest while their neighbours were able to harvest well.
5. The household faced unexpected and high medical expenses for a family member who was ill.
6. The household needed a large sum of money and goods for the funeral of a deceased household member.

With the exception of the fourth situation, these are not income risks in the strictest sense of the word. The first three of these situations may affect the opportunities to produce food and to generate income, while the last two situations refer to a sudden need of cash to solve an imminent problem. We realise that the situations are not mutually exclusive. For example, illness of a family member can both affect the availability of labour and can incur medical expenses. The same is true for a funeral that may cause a problem both in terms of costs and the loss of labour power. Along the same lines a lack of cattle to plough or lack of labour can eventually lead to an idiosyncratic bad harvest.[109]

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[107] During wealth ranking exercises in the villages under study, Owens (2004) found that villagers consider illness, bereavement and a lack of cattle to be major determinants for a failure to improve their lives, or to slip back into poverty when growth had previously been realised. Additionally, they mention a lack of fertilizer and other inputs as a constraint to growth.

[108] We also included the drought of 1992 and 1995 in the question, but exclude these crises from the analysis in this chapter since it is a covariate rather than an idiosyncratic risk. Box three in chapter five provides more information on the use of social networks in these situations.

[109] Considering their interdependence, treating the shocks as distinct categories may seem artificial compared to the real life situation where households are faced will all the consequences of a certain situation and the (lack of) response and consequences of one crisis situation may lead to another. Treating them separately however allows for a statistical analysis of household responses and

For each situation we asked respondents whether they, or another household member, had experienced these situations since the 1992 drought. If they did, we asked them to list the year(s) in which it occurred and how they dealt with the situation. The latter question specifically referred to the so-called individual response that households can develop when they face a crisis situation; income-generating activities, use of savings or buffer stocks etc. Additionally, we asked if they were (also) assisted by other households to deal with the situation (a network response).[110] When this was the case, we asked their relationship to and the residential location of the provider, the type of assistance that was provided (cash or kind) and the arrangement under which assistance was given (a gift or a loan).

We used the 1992 drought as a reference year in our question because it is a clear point in time in people's memory. Most farmers were not able to produce any maize that season and many lost a substantial number of cattle due to dried up grazing areas and sources of drinking water. This drought is referred to as the worst drought in living memory and was more systematic in impact compared to for example the one in 1995 (see also chapter 7). In the analysis in this chapter, we only use the information on shocks that occurred after 1996 because the independent variables for communal households are only available from 1997 onwards.

Although the pre-defined shocks were based on field observations, we were aware that they might not cover all shocks faced by households. To prevent such bias, we asked respondents to list up to two crises situations they had experienced but were not yet discussed. A total of 240 situations were given, broadly in three categories. Firstly, situations as defined in the question. Since the pre-itemised shocks only allowed for two cases per shock, additional occurrences of these situations were listed in the category of other situations. These were mostly related to ploughing, labour and funeral expenses and are included in the analysis presented here. Secondly, respondents mentioned situations that were closely related to the formulated shocks, but did not have the same cause or (material) impact as defined in the question. For example an experienced labour shortage was not related to illness or death in the family, but to the peak in labour demand for weeding or harvesting. Or a loss of cattle or illness in the family did not affect the cattle/labour endowment of the household to the extent that it affected their capacity to plough or work in the fields, but caused emotional stress. These cases are excluded from the analysis in this chapter. Finally, respondents listed situations that we did not define as shocks, for example a lack of transport, a lack of cash for daily expenses like groceries and the grinding mill and a lack of cash for inputs and school fees. Although we acknowledge that these situations can pose considerable problems, they are not shocks in the strictest sense, as they are not unexpected events. Generally these are expenses that can be planned for; each year you know that you have to pay school fees, buy inputs, transport your crops etc. Therefore, they are excluded from the analysis that is presented here.

Unfortunately, we do not have any information that measures the severity or impact of the shocks, neither in terms of income loss or reduction in consumption, nor in terms

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considering the fact that two shocks may be related but usually have some time between them, we feel it is acceptable to do so.

[110] In case of a funeral, we deliberately probed on assistance other than the customary *chema* payments that we described in the introduction to this thesis.

of emotional or experiential impact. This makes it impossible to evaluate the impact of the reported shock on the household's livelihood and the efficacy of the coping behaviour demonstrated by the household. Obviously, the severity of the shock depends on the specific characteristics of the situation. For example on what type of property is stolen/destroyed, the length of illness, the height of the medical expenses, the relationship of the household to the deceased and the extent of the food shortage experienced. Moreover, the impact of a shock also depends on the amount of resources that households have to deal with that situation. Detailed information from the 2000 ZRHD module, additional information from the ZRHD survey and case studies from the villages provides some insight in the possible effects of the shocks and are reported in section three.

5.2.2. Kinship relations

We will use information on intra-village kinship relations to assess the potential role of the social environment in coping behaviour. Given the relatively recent set-up of the resettlement villages and the relative scarcity of kinship relations, we were able to reconstruct the kinship networks of resettlement farmers at the time of resettlement in the early 1980s as well as the current kinship relations between households in the resettlement villages. For the opposite reason, the relatively long settlement history and complex kin relations, we could only elicit the current kinship relations in the communal area villages in our study and not those prevailing in the 1980s. (For more details on the kinship data we refer to chapter four).

To disentangle the effect of intra-village kinship relations on household coping behaviour, one ideally has information on kin relations that existed before the shocks occurred and the coping behaviour was displayed. But we saw that this is not available for both resettlement and communal households. Reference to kinship relations that exist after the shocks occurred may introduce a reversed causality problem as relations may have formed after/because households have shared risk rather than relations being present and allowing risk sharing). We believe this potential bias is especially relevant for resettled communities where the number of relations has developed considerably since the mid-1980s, notably through intra-village marriages. In villages in the communal areas that are predominantly organised along patrilinear descent lines, kinship relations are likely to be more stable. Many of the current kinship relations measured in 2000 will have actually existed before 1999. Possibly the nature of the relationship has changed, for example from a blood to a marriage relation in case a male head of household died, but that does not affect our measure, the number of kin relations to other households in the village. Changes in the number of kin relations in communal villages may occur when adult sons from the household establish their own plot or when a new marriage relation to the non-clan related households in the village is established. We believe such events will be too rare to significantly affect our kinship measurement and the direction of causality for which it is used. To minimise the potential endogeneity bias in the whole sample, we use information on intra-village kinship relations in the mid-1980s for resettled households and the 2000 kinship relations for communal households. [111]

[111] Intra-village kinship relations in resettlement areas varied considerably between the mid-1980s when each households was related to on average 1.88 other households in the same village, and 2000, when an average of 3.45 kinship relations were mentioned to other households in the villages. These

5.2.3. Household size

In chapter three we have discussed possible differences in our units of observation in resettlement areas and communal areas. The composition of a resettled household is far more heterogeneous than the composition of the household in communal areas. This is amongst others illustrated by the number of kitchens on a residential plot. In the communal areas 85 percent of the households have one kitchen on the plot, which is indicative of a nuclear household set-up. In resettlement areas, this percentage is significantly lower at 54 percent. This means that almost half of the resettled households have more than one kitchen, a sign of an extended family composition. Obviously, the composition of the household may influence the livelihood of the household members and more specifically the way households deal with a shock. In line with information and enforcement requirements, one would expect that an extended household, existing of more than one consumption (and possibly production) units, finds it easier to share risks with other units on the same stand, rather than with households on other stands. As a matter of fact, the increased possibilities of risk sharing may actually be a reason for forming such a residential union, especially in new communities where kinship ties are less dense. We will control for these differences in household composition by including the number of kitchens on the stand in our analysis.

5.3. Shocks: how do households respond?

5.3.1. Shocks

The ZRHD data show that the formulated shocks are indeed experienced by rural households in Zimbabwe. Both in resettlement areas and communal areas, only one fifth of all households reported not to have experienced one of the situations between 1992 and 2000. The figures in table 5.1 show that sudden needs for cash to pay for medical bills or a funeral are most commonly experienced. Almost half of the interviewed households reported a need for cash to pay medical expenses, while slightly over a third of the households needed a large amount of cash to pay for a funeral of a deceased family member. Thirty two percent of the households reported idiosyncratic food shortages. Fourth in frequency is difficulties with ploughing, followed by a lack of labour due to family illness and property that was stolen, lost or burnt. The third and fourth column of table one shows slight differences between resettlement and communal areas in the occurrence of these risks. Generally, households in resettlement areas experience shocks at the same frequency as households in communal areas.[112] There is however one exception: resettled households more often reported a need for cash for a funeral of a deceased family member. This is an interesting result, as blood relatives are supposed to play a dominant role in funerals. It is however unclear if the higher frequency of the need for

differences are also reflected in the villages averages ranging from 0.34-4.04 in the mid-1980s to 0.74 and 7.56 in 2000.

[112] The same frequency of occurrence of shocks does not necessarily mean that the households experience the shocks in the same way. The depth or the impact of the crisis could very well be different for households in resettlement areas and households in communal areas. As noted before, we do not have the information to include that dimension in the analysis of coping behaviour as well.

cash or kind to meet funeral expenses is related to the scarcity of blood relatives in the resettlement areas or simply to the significant higher frequency of deaths and funerals that are reported in resettlement areas.[113]

Table 5.1. Percentage of households reporting a shock between 1992-2000.

Shock[114]	Percentage in population	Percentage in Resettlement Areas	Percentage in Communal Areas
Ploughing	30	29	32
Property	26	26	25
Lack of Labour	25	25	23
Low Harvest	32	30	36
Medical Expenses	47	47	45
Funeral Costs*	36	38	29

* Difference between resettlement and communal areas is statistically significant (p=0.04).
Source: ZRHD data.

Although the majority of respondents indicated to have experienced at least one or more of these situations, the same shock may also occur more than once. Three percent of the households reporting a low harvest reported it twice. Difficulties with stolen property and ploughing were slightly more frequent in the same households (five and seven percent of households respectively). A lack of labour due to family illness (eleven percent), and a sudden need for cash to pay for a funeral (twelve percent) or medical expenses (sixteen percent) affected the same household more often.[115]

5.3.2. Coping behaviour

One of the central questions in this chapter is how the farmers cope when they experience these shocks. Basically, the household has two options. One is to solve the problem with the resources (cash, labour or assets) that are owned by the household, a so-called individual response. Note that individual in this respect does not relate to an individual as such, but to an individual household. An individual response refers to the cash spent, or the activities undertaken/assets sold to generate cash (or kind) to solve the problem at hand. This can be either to pay a medical bill, to pay the fees for hiring a ploughing pair or to buy food that is needed for consumption. Secondly, a household may (approach someone to) be assisted, a so-called network response.

[113] In 1999 nine percent of communal households reported to have organised a funeral compared to 14 percent of resettlement households, the proportion of households that reported a death in the family corresponds to seven and thirteen percent respectively. Correlation shows that the higher frequency of deaths in the resettlement areas is not related to the larger household size reported in those areas (correlation coefficient of 0.0031 with a significance of 0.97.

[114] Note that the frequency of these shocks is likely to be affected by the timing of the interview. Respondents were interviewed during the rainy season, which means they may have reported problems with ploughing for that particular year, but not the situation of a bad harvest, or possibly labour shortages, since the crops were still in the fields and peak labour demand for harvesting was still to come.

[115] These results may be affected by the long recall period used. Although respondents were probed to report the frequency of the occurrence of shocks, they may have only referred to the most recent or the most severe occurrence of the framed situation.

Network responses refer to responses that involve cash, assets or services that are received from non-household members or non-resident household members. The answers given by respondents indicate that there is a wide variety of individual and network responses they employ when faced with a shock. Based on a more detailed analysis of the shocks referred to, additional information from the ZRHD data and household case studies, boxes 5.1 to 5.6 describe the way in which households may be affected by the shocks and the responses that they reported.

Box 5.1. Labour shortage

Mr. and Mrs. Chapinduka live in Rundu village. Ever since they resettled in the early 1980s they were able to cultivate four to five acres of maize and an acre of groundnuts, nyimo (beans) or sunflower. This was sufficient to have food for the family for the whole year around and even provided them with some cash to pay for school fees, groceries etc. Since 1997, Mrs. Chapinduka is suffering from chest pains and she finds it increasingly difficult to perform the heavy work in the fields. In 1999, they only cultivated one acre of maize and harvested 637 kgs. This was by far not enough to feed their family, which now consists of three grown up children, a daughter in law and four grandchildren. To be able to buy food, Mr. Chapinduka earns some money with building and Mrs. Chapinduka and her daughter in law sell the vegetables they grow in their garden. Fortunately, three of their adult children work in town and occasionally assist them with cash, food and groceries, clothing and building materials. In 1999 they also received some food from the government.

Agricultural production requires high labour investments, especially in the resettlement areas where households have 12 acres of land. When there are only two adults in the household, which is the case in most nuclear families especially when their children are still in school, it is not easy to fully use this acreage. After a lack of cash to buy inputs, respondents mention a lack of labour as a reason to leave part of their land fallow.

Given the high demand for labour in crop production, it is common for resettled households to use non -household labour in their crop production activities. Usually these are adult members of the large households that live in their village, for example adult sons who have no or only a limited plot of land for cultivation. Just over sixty percent of resettled households reported to have used non-household labour in the 1996, predominantly in harvesting, weeding, marketing and transport. Spraying, fertilising, planting and to a lesser extent ploughing are done with household labour only. The majority (96 percent of the respondents that used non-household labour) reported to have hired labour to do the work, while 4 percent organised labour sharing groups, sometimes in combination with hiring labour. Although these findings possibly reflect a more permanent shortage of labour in the household, it indicates the high demand for labour in agricultural production (especially in resettlement areas) and hence the possible consequences of a sudden loss of labour power due to illness or death.

Of the 148 households that reported a shortage of labour related to death or illness in the family between 1992 and 2000, 54 percent had access to non-household labour from their network (predominantly free services) and 5 percent responded individually by hiring non-family labour or increasing the use of household labour. Some 10 percent combined an individual response with a network response while as much as thirty percent did or could not respond actively to the labour shortage, which means that labour input in production was reduced.

Source: ZRHD data

Box 5.2. Medical expenses.

Mrs. Mudenge lives in Sengenda village in the communal area that borders Sengezi Resettlement Scheme. She occupies a small homestead and lives together with her co-wife Mrs. Musanhu (they were both married to her deceased husband) and one of their young granddaughters. As Mrs. Mudenge is suffering from high blood pressure and problems with her heart, she is not able to work in the field, and Mrs. Musanhu is only able to cultivate one acre of maize and half an acre of groundnuts. Usually, they are able to make ends meet by this subsistence production and some monetary assistance from a grandson who works as a miner in the area and who also ploughs their fields. But in 1999 they had a problem when Mrs. Mudenge's situation deteriorated and she was admitted to the hospital for several days and had to buy expensive medicines. Fortunately, their grandson was able to increase his assistance. He gave them Z$ 5.800 to cover the medical expenses (Z$ 2.000), to hire labour and to buy food and groceries.

Medical expenses are usually unexpected as an illness is usually, although certainly not always, unexpected. Although most households have relatively easy access to free medical care in rural clinics for minor illnesses, many of them do report medical expenses. For example when the experienced illness is severe or unusual and patients are referred to a hospital or take their resort to a private doctor or *n'anga* (traditional healer). The costs of transport for the patient and accompanist, plus the fee for the consultation and expenses for medicines can add up considerably. In 1999, almost half of the respondents in the survey indicated they spent money on treatment and medicines. Most of the consultations and drugs were "modern" and an average of Z$ 465 was spent, ranging from Z$3 to Z$12.500.
Some also reported cash payments to traditional healers (on average Z$677, ranging from Z$ 80-4000) but most payments to traditional healers are done in kind, and therefore not reported under this category.

In almost fifty percent of the cases that occurred between 1992 and 2000 (N=236), the money to pay for medical expenses came through the network of the household of the patient, most often as a gift, but sometimes as a loan. In 21 percent of the cases, the household developed an individual response to cover the costs (for example by selling vegetables, sewing, withdrawing money from the bank, by working in a commercial farm or by selling cattle, a goat or maize grain). Slightly less than thirty percent combined an individual response with a network response, and only 5 households (2 percent) neither reported an individual or a network response. It is highly unlikely that the latter actually takes place, so this may be a measurement error. Alternatively, households did not pay their medical bills and are indebted to the health institutions, or the patient did not go for treatment while they would have if enough resources could be obtained.

Source: ZRHD Data

Box 5.3. Low Harvest

Mr. and Mrs. Chifamba live in Chichera village, in the communal area just south of Mupfurudzi Resettlement Scheme. Provided there is enough rainfall, they are able to produce enough maize to feed their family from the two acres they cultivate with maize, and the groundnuts and other crops on their additional field that generate some income and diversifies their diet. Excessive rains in 1998 caused water logging in Chifamba's maize fields and they saw their harvest reduced from 2000 kg in 1997 to 500 kgs in 1998. As this was not enough to feed the family, Mr. and Mrs. Chifamba started goldpanning in the nearby river, to earn money to buy food. They also received two buckets of maize grain from a relative who lived in a nearby village in the same communal area.

Respondents reported various causes for the low harvests that they experienced while their neighbours were doing well. Some were more affected by weather conditions than others (both excessive and lack of rainfall), while others experienced problems with the fertility of the soil. Some stressed the lack of money to buy inputs while others said to have problems with managing the fields and crops (late ploughing, use of wrong inputs, too much manure etc.). Responses were mixed as well; A quarter of the respondents who experienced an idiosyncratic low harvest did not actively respond to the situation and were not assisted by others either. They may have temporarily reduced the number of meals they consume a day or changed the composition of their diet by including wild fruits and vegetables or replacing maize grain with other grains that are suitable to make sadza. Also, they may have occasionally had a meal at another household. Slightly more respondents, 28 percent, obtained food themselves, either as a barter or with cash they had at hand, or generated specifically for that purpose (through the sale of cattle or undertaking income generating activities like gold panning). Another 22 percent received food from others, while also 22 percent had a combined individual and network response.

Source: ZRHD data.

Box 5.4. Property

Mr. Kambeu is a tobacco farmer in Chitepo village. He started growing tobacco in 1997 and invested Z$ 5000 and his own labour in building a barn to cure the tobacco. In may 1998, strong winds blew away the roof of his barn. As the crop was not yet ready to be sold, the potential damage of an unprotected barn was large. Mr. Kambeu swiftly bought new roofing sheets and reconstructed the roof, assisted by his neighbours who provided the necessary equipment to mend the roof.

The Dambaza family lives in village eleven in Mutanda resettlement scheme. In the winter of 1997, three of their cows and one ox went missing when they were grazing in the fields. The sons of the Dambaza family spent several days looking for them and Mr. Dambaza reported the loss to both the village chairman and the police, but to no avail. Although the Dambaza's were rather upset by the loss of their animals, they did not feel the need to replace the lost animals as they still had five oxen left to plough their fields and three cows to provide the family with milk.

The events that are listed in this category of shocks are very diverse and included reports of kitchens or houses destroyed by fire or strong winds, cattle, goats or chicken that had wandered off or property that was stolen. The latter ranged from cattle and agricultural equipment (a plough or a scotch cart or parts thereof) to clothes or some bags of maize that were stolen from the household's granary or a tonne of maize that was stolen by "traders".

Even more than the other shocks mentioned, it is difficult to have insight in the impact of such events. Obviously, the urge to rebuild a structure is higher when the roof blows of a barn that stores a valuable crop compared to a burnt down hut that was scarcely used anymore. And a few bags stolen from a poor man's granary can affect household food security to a much larger extent than a tonne that was stolen from a successful farmer by "traders". When the loss/theft of cattle affected the household's ability to plough, it was reported under ploughing which means that the cases reported under this category had less impact in terms of productive capacity, but did affect for example households' buffer stock position.

It is noteworthy that many respondents who reported a loss of property (almost 60 percent) indicated that they reported the case to the police, or looked for the lost property, sometimes with assistance from their neighbours. Yet, they did not do anything to replace the stolen/lost/destroyed items. This may tell us something about the (limited) severity of the situation and the (low) impact of the shock on

the households involved. Only in a few instances did households report to have replaced the lost/destroyed or stolen items by themselves (four percent). 27 percent received assistance through their network while nine percent combined an individual and a network response.

Source: ZRHD data

Box 5.5. Lack of draught animals

When Mr. Wagoneka and his family came to live in Mudzinge village in the early 1980s they had no cattle. After a few years of good production they were able to buy a pair of oxen and a cow and through reproduction their herd grew to six head: two oxen and four cows. These beasts were very important to them because they enabled them to plough their fields and gave them milk. The 1992 drought brought bad luck to the Wagoneka's. None of the cattle survived the dry conditions and ever since, they were not able to acquire new beasts. In the first years after the drought, Mr. Wagoneka asked other farmers in the village to plough his fields and in return worked in their fields. But he disliked this situation as it meant he could not pay enough attention to his own fields, especially during weeding when his labour was demanded in return for ploughing. Fortunately, a few years ago he was approached to take care of a schoolteacher's cattle. He herds the cattle all year round and in exchange he can use them to prepare his land.

The important role that Mr. Wagoneka attributes to cattle is confirmed by Hoogeveen (2001, p.120), who showed that smallholder farmers with at least one pair of draught animals cultivate more land and are able to attain higher yields, compared to households that do not have a pair to plough. Fifteen percent of the households who left part of their land fallow indicated that this was due to a lack of draught power. Other reasons given were lack of labour, cash to buy inputs or to leave the land to rest.

Fortunately, farmers who do not own sufficient cattle for ploughing, have several ways to create access to draught animals. When they do not have sufficient cattle to pull the plough, they could combine their own cattle with those of another farmer and plough both their fields with the ploughing pair (a cattle-sharing arrangement). When the household does not have any cattle at all, they could approach other farmers to do the ploughing for them, in exchange for instant or delayed cash, kind or labour payments. Or agree to look after someone else's cattle for a certain defined period (herding) and use them for ploughing at the same time.

In the 2000 ZRHD survey[116], almost one fifth of the households in the sample indicated to have used someone else's cattle to prepare their own fields. Sometimes this was done in combination with their own beasts, but more often all ploughing was done with cattle not owned by the household). Most households used non-households cattle because they did not have sufficient cattle themselves, but also because their own beasts were not (well) trained or in bad shape. Although hiring or sharing provides a solution to a lack of cattle to plough, it may also pose problems in terms of the timing of ploughing and the possibility to monitor the quality of ploughing. Of the households that used cattle from other farmers, a fourth ploughed late, which potentially reduces the yield per acre, and more than two fifth were not able to plough their fields themselves. Half of the households that hired or shared cattle paid for the services they received from other households. Sometimes this was done in cash (immediately after ploughing or some time after) but instant or delayed payments in kind were also reported. Ploughing services were provided in exchange for a bag of maize seed or fertiliser, part of the harvest, a piece of land or services like herding cattle, work in the owner's field etc.

Source: ZRHD data.

[116] This information on ploughing specifically refers to the 1999 ploughing season and comes from a special module on ploughing practises in the 2000 ZRHD survey, and not from the module on coping strategies.

Box 5. 6. Funeral

Mr. and Mrs. Dube live in Zvomanyanga village since the early days of resettlement. They were able to improve their standard of living, are living in a reasonably furnished house and have accumulated a considerable number of assets, including a bicycle, a scotch cart and 23 head of cattle. In 1999, Mr. Dube got ill with TB and despite considerable expenditures on medicines (financed by selling a cow) he died early 2000. Since Mr. Dube was a respected member of the community and carefully maintained the relations with his blood and marriage relatives in his home area after he moved to Zvomanyanga village, many people came to pay their respect when he was buried. Mrs. Dube and her married son, who also lives on the stand, had to take three bags of maize from their store to prepare sadza for the visitors (worth approximately Z$ 300-400) and spent an estimated Z$ 550 on meat (beef and chicken), tea and milk and Z$ 670 on cloth and a coffin. Sugar, cooking oil, vegetables and fish were donated by their neighbours. As Mr. Dube himself had always been generous when other members of his family or community died, Mrs. Dube and her son received considerable monetary contributions from the attendants at the funeral. The contributions added up to Z$ 1.500 which more or less equals the expenses they made.

As we already indicated in the introduction to this thesis, funerals are truly a social ceremony. Many people will come and pay respect to the deceased and the bereaved; villagers, people from neighbouring villages, fellow church or club members and many relatives, both from nearby and far away. The ceremony generally takes between two or three days and customarily involves washing and dressing the body of the deceased, digging the grave, a ceremony to comfort those who come to mourn the deceased and to call home the spirit of the deceased, singing and dancing and the actual burial. The bereaved family is expected to provide food to all attendants and lodging to visitors from further away. This means that apart from the emotional stress from the loss of a family member, a household that is confronted with a death also needs to organise a major event and faces considerable expense. In the 1999 ZRHD survey, 92 households reported they organised a funeral in the previous year. On average they spent Z$ 3327 on transport of the body and food and drinks for the attendants while the gross household income in that same year was Z$ 18.652 for resettled households and Z$ 8.592 for communal households.

Expenditures in cash and kind for funerals for resettled and communal households in 1999.

	Average	Minimum	Maximum
Cash spent on food, groceries, meat and beer	Z$ 910	Z$ 0	Z$ 6.000
Cash spent on transport of the body	Z$ 318	Z$ 0	Z$ 4.000
Cattle slaughtered	0.43	0	2
Goats slaughtered	0.83	0	6
Chicken slaughtered	2.2	0	25
Own grain for food	94 kg	0 kg	350 kg
Own grain for beer	22 kg	0 kg	90 kg
Monetary value of cash and kind	Z$ 3.327	Z$ 110	Z$ 14.922

As we can see above, the expenditures related to a funeral vary considerably, which may depend on the situation of the household (for example their wealth status) and may also have a differential impact on the household. The material effect does not only depend on the amount of money and assets (grain and animals) a household spends, but also on the assistance that is provided by others. Mourners contribute to the expenses in cash and kind. We saw that many pay *chema*, amounting to Z$ 5-10 and a plate of maize meal or bundle of vegetables for unrelated neighbours, while relatives are expected to give a higher contribution, the height generally increases with the closeness of the relation but also depends on the resources of the relative in question.

Network responses are dominant in the case of a need for cash or kind to pay for a funeral. Less than 10 percent of the respondents who needed money for a funeral (N=193) did not receive assistance from others. Six percent could not or did not want to access a considerable amount of resources through their network or through an individual response and had to do with what was available at the time, while 3 percent found an individual response in using their own resources. Almost 30 percent depended on a response from their network, for maize grain, a coffin, transport or a beast. But the majority (61 percent) combined a network response with an individual response (use of savings, slaughtering an animal(s) to have meat or to generate income, sell a beast or food that was stored).

Source: ZRHD data

5.3.3. A Typology of coping behaviour

Considering the individual and network responses or lack thereof as presented in the boxes, we can distinguish four ways in which a household can respond to a shock. They may have an individual response, a network response, a combined response (both an individual and a network response) or neither an individual nor a network response. We elaborate briefly on the latter category. Neither an individual nor a network response to a shock means that the household does not want or can not use household's cash, labour or assets to generate income to solve the problem, and they do not receive any assistance through their network. It does not necessarily mean that they do not respond, as sometimes the non-existence of an individual or network approach automatically leads to an alternative livelihood path (Ellis, 2000). For example in the case of problems with ploughing it means households did not have an alternative cattle ploughing arrangement. They needed to resort to zero tillage, hoe cultivation and/or may have reduced the acreage under cultivation. In other cases, for example when property is stolen/lost or destroyed, households may decide not to replace the items. In case of high medical expenses households may become indebted to a medical institution or decide not to use medical care. When households have a lack of labour they either increase their own household's labour input or produce with the reduced labour force that is available. In case of a funeral the ceremony will be adjusted and food and drinks more scarcely provided. And finally, when the household have an idiosyncratic low harvest they reduce consumption or occasionally eat with other households.

Table 5.2 gives details on the typology of household coping behaviour for all households in the survey and separate for resettlement and communal households. For the total sample, the table shows that assistance from other households is the most frequently reported way to deal with a shock, possibly in combination with an individual response, while a limited proportion of households deals with a shock by developing an individual response only. However, there is still a considerable number of households that did/could not respond to a shock themselves and were not assisted either. Possibly, part of these households experienced a shock that did not affect them to the extent that they needed to develop a response in the first place, but we cannot control for that. Yet, we do assume that at least part of these households actually could not develop a response themselves because they did not have the resources to do so and on top of that could not have access to assistance from their support network either.

Table 5.2. Typology of household coping behaviour

Response to a shock	Percentage of total population	Percentage in Resettlement Areas	Percentage in Communal Areas
No individual or network response	19	21	15
Individual response	14	15	10
Network response	42	40	52
Individual and network response	25	25	23

Differences between resettlement and communal areas are statistically significant at 0.02 level.
Source: ZRHD data.

When we disaggregate our main findings to resettlement areas and communal areas respectively, there are some distinct differences in coping behaviour between households. Although households in both areas most often reported a network response, households from communal areas do this more frequently compared to resettlement households, while the latter are more likely to have coped by themselves. However, when the latter are not willing or able to develop an individual response, they are more often deprived of help compared to households in communal areas.

Table 5.3. Percentage of households reporting intra-village assistance.

Type of shock	Total sample	Resettlement Areas	Communal Areas
Ploughing*	78%	75%	85%
Property	76%	74%	78%
Lack of Labour*	55%	45%	79%
Bad Harvest	53%	50%	56%
Medical Expenses	38%	38%	37%
Funeral Costs *	45%	40%	60%
All situations*	54%	49%	64%

* Differences between resettlement and communal areas are significant. Pearson's Chi2 for ploughing is 8.5 (0.08), for lack of labour 10.5 (0.03), for funeral costs 9.20 (0.05) and for the aggregate 16.9 (0.00)
Source: ZRHD data.

Now that we have established a difference in the use of support networks between households in the communal areas and the resettlement areas, it is interesting to look at some of the features of the support networks that were referred to by the respondents. Risk sharing theory tells us risk sharing is most likely to take place with another household that is close, either in kinship terms or in geographical terms, as this would reduce problems associated with information and enforcement. Table 5.3 shows that households are indeed most likely to receive assistance from fellow villagers, people that live close-by. This is certainly the case for communal area households. In resettlement areas the picture is slightly different. The majority of households that were assisted when they faced difficulties with ploughing or when their property was stolen or burnt reported assistance from within the village. In the other events, at least half of the households reported assistance from outside the village. The difference with communal households is especially pronounced in case of a lack of labour and a funeral of a deceased family member. Interestingly, the assistance to communal area households does not exclusively come from within the

village; it is likely that migrated family members might play an important role in this respect.

In terms of the type of relation that was reported as the source of assistance, we distinguish two categories; relatives (either through blood or marriage) or non-relatives (neighbours, friend, fellow church members, etc.). Table 5.4 shows that the majority of households is assisted by relatives, both in resettlement and communal areas. The proportion of resettlement households that received support from their relatives is however significantly lower than for communal households. When we consider the type of relations disaggregated to events, an interesting picture emerges. For resettlement household kinship is dominant in case money is needed to pay for medical expenses or a funeral of a deceased family member. In all other cases, assistance is most often received from non-relatives. This could be understood from the perspective that illness and bereavement are generally considered to be family affairs[117], affairs that relate to the ancestral spirits and therefore need the presence of a blood-relative, which is then also likely to provide assistance. In the other cases, households are likely to be indifferent as to who provides assistance to them. The difference with communal area households is most pronounced in case of a lack of cattle for ploughing and a lack of labour to work in the field. This may be attributed to a strong norm on sharing within the lineage in communal areas, as opposed to the suggested tendency towards a nuclear family in the resettlement areas. Interestingly however, a considerable proportion of households in the communal areas also receive support from non-relatives; especially in case of a lack of food and the funeral of a deceased family member. The latter contrasts to the expectation based on the spiritual importance of relatives at funerals.

Table 5.4. Receiving assistance from blood, marriage or non-kin relations.

	Percentage in population			Percentage in Resettlement Areas			Percentage in Communal Areas		
	Blood	Marriage	Non-kin	Blood	Marriage	Non-kin	Blood	Marriage	Non-kin
Ploughing *	34	21	45	31	17	52	40	32	28*
Property	32	12	56	23	10	68	47	16	37
Lack of Labour	33	19	48	30	17	53	40	23	37
Bad Harvest	36	10	54	29	10	61	45	9	45
Medical Expenses	45	23	33	43	22	35	52	24	24
Funeral Costs	38	15	47	39	15	46	36	17	48
All situations *	39	18	43	36	17	47	43	21	36*

* Differences between resettlement and communal areas significant. Pearson Chi2 for ploughing 20.4 (0.002) and for aggregate19.0 (0.09).
Source: ZRHD data.

Most of the assistance provided by relations from a support network is provided as a free gift or service (75 percent). A smaller proportion is provided as a loan in cash or kind (21 percent) or as a gift or a service that needed to be reciprocated (4 percent).

[117] Culturally, relatives are considered to be the key players in case of a funeral, they are expected to attend and help with cash and labour and to ensure that the spirit of the deceased can go in peace. In case of serious illness, the family members are informed and should come together to consult each other on the way forward. They can decide to consult a traditional or prophetic healer on the causes and remedies of the illness, share the tasks of looking after the ill person etc.

5.4. Determinants of household coping behaviour

So far, our main findings with respect to household coping behaviour show that a network response, sometimes in combination with an individual response, is a common way to deal with shocks. We also saw that there is a distinct difference in coping behaviour between resettled households and households in communal areas. Although the proportion of households from both areas reporting a combined individual and network response is equal, a higher proportion of resettled households coped by themselves, while households from the communal areas more often received support from their network when they face a problem. However, compared to communal area farmers, resettlement farmers are also more frequently deprived of assistance when they did not develop an individual response to deal with the shock they faced. When we assessed the characteristics of the support networks, we saw that resettled households less often reported to have received assistance from someone in the same village and from a blood or marriage relative compared to households in the communal areas. This suggests that the different kinship structures in resettlement areas may indeed affect household coping behaviour in the sense that differences in kinship structures may explain the observed difference in obtaining assistance from non-household members or non-resident household members. Alternatively, as was suggested before, resettled household may have more resources and opportunities to cope with a shock by themselves and therefore less often need assistance from their network.

We use a multinomial logistic regression analysis to evaluate the impact of these differences in kinship networks and cattle wealth on household coping behaviour. The unit of analysis in this regression is the experienced shock as reported by the households in the survey. The purpose of this analysis is to explain why in response to shocks households belong to one of four categories. They developed an individual response to deal with a shock, they had a network response, they used both an individual and a network response (hereafter called a combined response) or they had neither an individual nor a network response (also called no response).[118] We use several variables to explain the differences between these categories of coping behaviour. First, our description of the source of assistance (both geographically and in kinship terms) showed that the type of shock experienced mattered. In case of cash needs for medical expenses and /or a funeral it is for example customary for blood relatives to assist. Therefore, we include a set of dummy variables for the different shocks. These variables have a value of one when a household experienced that particular type of shock and a value of zero when such shock was not experienced. Secondly, to measure the effect of the social environment households live in we constructed two kinship variables.[119] The first variable is the number of blood and marriage relations that a household has to other households in the same village. We expect that a household with more kinship relations in the village will more often use a network response compared to an individual response or no response. Another kinship variable measures the mean number of kinship relations in a village. This

[118] Although the term no response may incorrectly represent the group of households in this response category, as we argued before that households might have adapted their livelihood strategies to cope with the situation. Still the short term no response is used to represent the category "neither and individual nor a network strategy" for convenience.

[119] Note that these kinship variables are derived from the kinship database. They are independent from the questions asked in the ZRHD module on household coping behaviour.

variable is included because Barr (2004) found evidence for the presence of village specific cultures of co-operation. In relation to coping behaviour, we think it is not just the number of relatives a particular household has in the same village that matters, but also the kin relations between other households in the village. A village consisting of many households that are related might provide a stronger support network, because many relations may create a culture of support and a higher level of trust. To reduce potential endogeneity between kinship relations and coping behaviour, as referred to in section two, these kinship variables reflect the kinship structures in resettlement villages in 1985 and the 2000 kinship relations in communal villages.

Thirdly, to control for a difference in resources that might affect coping behaviour between the households in the two areas, we include a variable on cattle wealth: the livestock equivalent value of the household's herd.[120] As our cattle measure is to reflect the resources that are available to a household to deal with a shock themselves, we carefully construct a weighted index of the beasts that are owned by the household and kept in the kraal for each year under consideration. We deliberately exclude the animals that are cared for (and thus in the kraal) but not owned as the latter can not be used in a buffer stock strategy. Considering the important role of cattle as a buffer stock, and the fact that cattle rich households generally have higher incomes and savings as well (Hoogeveen, 2001). We expect households with a larger herd to cope by themselves more often.

To control for the difference in household size and composition that was reported in section two, we include a variable that measures the extendedness of the household, reflected in the number of kitchens on a plot. The value of this variable, taken from the 2000 ZRHD survey, ranges from one to six and is significantly higher in resettlement areas compared to communal areas. We expect extended households to be less involved in network responses as they may have more opportunities to share risks within the household. Finally, we use a communal area dummy to assess if the observed differences in household coping behaviour still persist after controlling for differences in household size and composition, cattle wealth and the social environment. This variable equals one when a household lives in a communal area and zero otherwise.

The results of the analysis are reported in table 5.5. The analysis is based on 711 shocks experienced by the households in the ZRHD survey between 1997 and 2000. The group of households that reported coping through assistance (a network response) is taken as a base category in the analysis because it is most frequently reported. This means that the results for the other groups that are reported in table 5.5 should always be interpreted relative to this group. The coefficients reported in the table are odds ratios, or relatives risk ratios. They indicate the change in odds of belonging to the specific response group compared to the base category with a unit change of the independent variable, other things being equal. An odds ratio of one indicates there is no change in probability with a change in the independent variable, while an odds ratio smaller than one represents a lower probability (a negative sign in an OLS regression) and an odds ratio larger than one indicates a higher probability (a positive sign in an OLS regression) with a unit increase in the independent variable. The 0.88

[120] The weights used in the calculation of the herd value are presented in chapter three.

odds ratio of the average number of relatives in the village for the category individual response means that households who live in a village with a higher mean of kinship relations are less likely to develop an individual response when they face a shock and thus more likely to have a network response.

Table 5.5. Multinomial logistic regression coping behaviour

Network response only is the omitted category, p-values of the odds ratios in brackets.

	Individual response	**Individual and network response**	**No individual or network response**
Type of shock dummies*			
Plough	*0.136 (0.00)*	*0.152 (0.00)*	*0.012 (0.00)*
Labour	*0.923(0.00)*	*0.142 (0.00)*	*0.260 (0.00)*
Medical expenses	*0.659 (0.21)*	*0.759 (0.35)*	*0.032 (0.00)*
Funeral	*0.316 (0.05)*	*2.982 (0.00)*	*0.088 (0.00)*
Low Harvest	*1.868 (0.06)*	*1.263 (0.50)*	*0.785 (0.50)*
Household size	*0.800 (0.41)*	*0.824 (0.12)*	***1.644 (0.00)***
Cattle possessions	***1.035 (0.05)***	*1.029 (0.09)*	*1.002 (0.90)*
Mean village kinship relations	***0.883 (0.00)***	*0.964 (0.28)*	*0.942 (0.20)*
Location (CA)	*2.201 (0.186)*	*1.097 (0.86)*	*1.200 (0.81)*
Number of observations	*711*		
F (27, 682)	*8.95*		
Prob> F	*0.0000*		

Regression using sample weights
* Lost/stolen or destroyed property is the omitted shock
Source: ZRHD and kinship data.

We first have a look at the effect of the different shocks. Households that reported lost/stolen or destroyed property are omitted from the analysis and the results on the other types of shocks should therefore be interpreted relative to this category. This means that the low odds ratio on the medical expenses dummy for the category of households who neither developed an individual nor a network response in table 5.5 indicates that relative to households who reported lost/stolen or destroyed property, a household that needed cash to pay a medical bill is more likely to develop a network response compared to no response. Considering the insignificant but low odds ratios on the medical expenses dummy for the other categories, households are more likely to have a network response for a medical bill compared to problems with lost/stolen or destroyed property. With respect to the other shocks, households will typically have a network response when they have problems with ploughing or have a lack of labour to work in the fields, while funerals are commonly dealt with through a combined response. On the other hand, given the relatively high but only marginally significant odds ratio, we find weak evidence that households with an idiosyncratic low harvest are more likely to develop their own response to deal with the food shortages they experience.

There are two somewhat opposing explanations for the limited possibility for risk sharing in case of an idiosyncratic low harvest. Both explanations are related to the opportunity to monitor the situation of the households involved. On the one hand, many villages have one or more farmers who are known to be "lazy" and/or spend much of their time and money in the local beer hall. It is common knowledge that a bad harvest of these households can be attributed to their lack of effort or frivolous spending. Participants in the risk sharing ranking exercise explained that the community generally tries to tell these farmers how to do better and are willing to assist them initially, to “teach” them. However, if the situation remains unchanged, people may not be willing to provide assistance anymore and the households will have to fend for themselves. Yet, if an idiosyncratic low harvest is not caused by drunkenness or laziness it may be difficult to know what actually caused the bad harvest. How to ascertain if fields were really waterlogged, invaded by baboons, or subject to limited fertility? Since the fields are scattered around the village territory, at a walking distance of possibly more than one hour away from the residential area, this is not common knowledge and therefore makes it more difficult to insure. Unlike for example a lack of cattle to plough (visible in the kraals that borders the residential area of the village) or a lack of labour due to illness.

When we consider the results of the other independent variables in table5.5, cattle possessions, the village mean kin relations and household size, we see they all explain part of the observed coping behaviour. Large households are more likely to neither develop an individual nor a network response rather than a network response. The odds ratios on cattle possessions and village mean kinship relations explain why households are more likely to display an individual response rather than a network response. The direction of the relations is as expected: more cattle increase the probability of an individual response, while a higher mean number of relatives increases the probability of a network response. Together, the three variables also explain the observed differences in coping behaviour between resettlement areas and communal areas, the communal area dummy is not significant in either of the three panels.

To know which variable is central in explaining the observed differences in coping behaviour between resettlement and communal areas and to get a better feel of the processes observed, we consider in more detail the effect of each of these variables in the model, we run a series of regressions. The estimation results of these models are reported in table A.5.1 in Annex 5.1. When only controlling for the different shocks on household coping behaviour (model 1) we find effects similar to those reported in table 5.5. Although they are interesting in terms of informing us about the responsiveness of particular household strategies to particular shocks, they do not explain the differences between coping behaviour between resettled and communal households. The odds ratio on the communal area dummy is still significant for the households in all response categories, while we need to find a variable that, when included in the model, causes the coefficient on the communal area dummy to become insignificant.

In the second model we control for differences in household composition only and find the same result as reported above and the odds ratios on the communal area dummies remain significant in all three response groups. So differences in household size, although they do exist between resettled and communal area, do not explain the

observed differences in coping behaviour between these two areas. A consideration of household cattle possessions in model three does not have the expected effect. It does not explain why resettled households more often cope by themselves compared to communal households and only marginally explains why households with higher cattle possessions are slightly more likely to report neither a network nor an individual response rather than a network response.[121] The communal area dummy in that response group is still significant after inclusion of the cattle possession variable, as it is in the other response groups.

The performance of the kinship variables is more in line with our expectations (see model four and six). Inclusion of the number of intra-village relationships of the household provides somewhat contradicting results. On the one hand, a higher number of relations explain why households are more likely to have a network response only rather than a combined individual and network response. This result confirms the importance of kin in risk sharing, not only as a relationship to use in sharing risk, but also providing assistance to such an extend that individual action is not required to supplement the support received. It is in fact this difference in intra-village kinship relations of households that partly explains the difference in observed coping behaviour between resettled and communal households in that category. Differences in households' intra-village kinship relations do however not explain why resettled households more often reported neither an individual nor a network response, a finding that is supported by the weak evidence that households with more relations more often report no individual or network response. Interestingly, the significant effect of the household level kinship variable on the no response group disappears when we control for differences in household size and find that larger households are more likely to undertake no action rather than use a network response (see model five). So, the fact that resettled households are larger and have fewer kin relations in their village explains why they have different coping behaviour compared to communal households.

A different result is obtained when we use the mean number of kinship relations in a village: the differences between communal areas and resettlement areas also disappear if we only include this variable (see model six). Yet, the significance of the coefficients is different. The village mean of households' intra-village kinship relations, potentially an indicator for village culture, in this context risk sharing culture, significantly explains why households coped by themselves rather than received support from their network. But it does not tell us anything about the probabilities of using neither an individual nor a network response, nor a combined response rather than a network response only. When we use both kinship variables together, in model seven, the patterns remain the same. However, we have to be careful in interpreting these results as the two kinship variables have a correlation coefficient of 0.75 (0.000), and this collinearity will influence the regression results. As the village mean of intra-village kinship relations is more important in explaining the differences in observed coping behaviour, we decided to use only this variable in our final model.

To sum up, the results presented in table 5.5 show that household coping behaviour is influenced by the type of shock experienced, households size or composition, cattle

[121] This may indicate that other households are more reluctant to assist households with many cattle, while the households involved are reluctant to use their resources for an individual strategy.

wealth and the social environment provided by the village. While the costs of funerals are generally met through a combined response and idiosyncratic food shortages with individual responses, difficulties with ploughing, labour shortages and to a limited extent cash needs for medical bills are generally solved through a network response.[122] We saw that large households were more likely to neither develop an individual nor a network response, while cattle rich households more often showed an individual response and households from villages with a higher mean number of intra-village kinship relations more often resorted to a network response.

Additionally, we found some evidence for the influence of household intra-village kin relations on household coping behaviour. These differences in household kin relations were able to explain the observed differences in household coping behaviour in combination with differences in household size or composition. The same applied to differences in household size or composition and differences in cattle possession. Controlling for the village mean in kinship relations provided more conclusive evidence for the observed difference between resettlement and communal households and underlined that households living in villages with more kinship relations are less likely to cope with a shock by themselves and are more likely to receive assistance through their support network. The results suggest that in villages with higher mean number of kin relations, it is not only the households with kin relations who share risk, but also unrelated households. In line with Barr's argument on village specific cultures of co-operation in forming civil associations, our results suggests that villages also develop a particular culture of risk sharing that becomes more conducive when the mean number of intra-village kinship relations increases. The fact that this variable singularly explains the observed difference in coping behaviour between resettled and communal households also suggests that the alternative social structures that have emerged in the resettled communities, as reported in chapter four, may not offer the same opportunities for risk sharing as the kinship structures that are generally prevalent in communal areas. This is also vividly illustrated by the attitudes displayed by resettled farmers when they were asked to review their own resettlement experience in the 2001 ZRHD survey. Although "the neighbours in this new village have become like kin to them" (as reported by 95 percent of the respondents), still some "do not feel the same responsibility towards them as they did towards the people where they previously lived" (reported by 16 percent). The potential of alternative support networks is further elaborated in the next chapter.

We want to make two qualifications to these results. First, a reduced level of risk sharing should not necessarily be interpreted as a negative result of resettlement away from kin relations. As much as 79 percent of the respondents in the 2001 ZRHD module on resettlement experience indicated "resettlement freed us from all sorts of social obligations". As social obligations often mean that others, notably relatives, have a claim on household resources, such reduced social obligations may actually have contributed to the development of income and assets levels that have been reported for the household in the resettlement areas (Gunning *et al.*, 2000; Hoogeveen and Kinsey, 2001). Secondly, we do not know exactly why households did not have an individual or a network response when they experienced a shock. A household may not have found it necessary to respond when a shock was not so severe. Perhaps this happened to resettled household more often than to communal households. Since we

[122] This result that confirms the importance of cattle and labour sharing institutions discussed by Scoones *et al.* (1996) and Wolmer *et al.* (2002).

do not have information on the severity or the impact of the shock, we cannot rule out this possibility.[123] However, presuming that at least some households did not have an individual or network response because no resources were channelled to them through their network and not because the shock they experienced was not severe enough to undertake action, also draws attention to the negative consequences of reduced risk sharing. It is precisely the households that cannot develop an individual response that need assistance from their network. Failure to get assistance may put them in a very vulnerable position and potentially has serious effects on their livelihood.

5.5. Conclusion

This chapter addressed two questions. First, if resettlement affected the type of responses used by households to cope with shocks. This question was answered with data from a module on coping behaviour in the 2000 ZRHD survey that elicited information on the occurrence of a range of idiosyncratic (income) risks and they way households dealt with problems emanating from these events. Our description in section three distinguished four response groups: households who reacted to a shock by an individual response (self-insurance), by a network response (mutual insurance), by a combined response or through neither an individual nor a network response. We showed that although households from both resettlement areas and communal areas most frequently dealt with a shock through assistance from their support network, there are some distinct differences in coping behaviour between households from these respective areas. Households from communal areas are more likely to have a network response, while resettled households are more likely to develop an individual response when they experience a shock. However, if they are not willing or able to develop such a response, they are more often deprived of help compared to households in communal areas.

The second question in this chapter asks how these differences in coping behaviour between resettled and communal households can be explained. As an analysis of the support relations referred to by the respondents revealed an emphasis on intra-village and inter-kin assistance relationships, the differences in coping behaviour may well be explained by the relative scarcity of kinship relations in resettlement areas. There is however an alternative hypothesis, namely that resettled households display different coping behaviour compared to communal households because they have more resources to deal with shocks by themselves. We tested these two alternative hypotheses in a multinomial logistic regression analysis on the four response groups and found that the village mean of kinship relations was the only variable that singularly explained the observed difference in households coping behaviour between communal and resettlement households. This variable was especially relevant in understanding differences in the use of individual or network responses. Households from villages with a higher mean number of kinship relations were less likely to resort to an individual response when dealing with a shock and more likely to have a

[123] An alternative statistical analysis not reported here suggests this is not likely to be the case. When we exclude the type of crisis situation that households most often did not respond to (theft/loss/destruction of household property) from the analysis we obtain results similar to those reported in table five and the mean number of kin relations in the village is again the only variable that singularly explains the observed differences in household coping behaviour between resettled and communal areas.

network response. The analysis also showed that the type of shock experienced, household size or composition and cattle possessions influenced household coping behaviour, although not to the extent that it explained observed differences in coping behaviour between resettled and communal households. We found that large households are more likely to use neither a network nor an individual response while cattle rich households are more likely to respond to a shock themselves. This result is in line with the buffer stock function of cattle.

We also found some evidence for the influence of the intra-village kin relations of households on their coping behaviour. These differences explained the observed differences in household coping behaviour, but only in combination with differences in household size or composition. Controlling for the village mean in kinship relations provided more conclusive evidence for the observed difference between resettlement and communal households. The results suggest that in villages with higher mean number of kin relations, it is not only the households with kin relations who share risk, but also unrelated households. In line with Barr's argument on village specific cultures of co-operation, our results suggest that villages also develop a particular culture of risk sharing that becomes more conducive when the mean number of intra-village kinship relations increases. Our results also suggest that alternative social structures that have emerged in the resettled communities, as reported in chapter 4, may not offer the same opportunities for risk sharing as the kinship structures that are generally prevalent in communal areas. This issue is further explored in the next chapter.

Annex 5. 1. Different models used for the analysis

Table A.5.1. Multinomial logistic regressions on household coping behaviour.

Response	Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Individual Response	Plough	*0.097 (0.00)*	*0.123 (0.00)*	*0.090 (0.00)*	*0.101 (0.00)*	*0.124 (0.00)*	*0.118 (0.00)*	*0.118 (0.00)*
	Labour	*0.098 (0.00)*	*0.096 (0.00)*	*0.085 (0.00)*	*0.104 (0.00)*	*0.098 (0.00)*	*0.123 (0.00)*	*0.123 (0.00)*
	Medical expenses	*0.505 (0.01)*	*0.668 (0.22)*	*0.432 (0.00)*	*0.544 (0.01)*	*0.687 (0.25)*	*0.624 (0.06)*	*0.627 (0.06)*
	Funeral	*0.219 (0.01)*	*0.305 (0.05)*	*0.100 (0.00)*	*0.240 (0.01)*	*0.318 (0.06)*	*0.280 (0.02)*	*0.281 (0.02)*
	Low Harvest	*1.333 (0.31)*	*1.686 (0.12)*	*1.218 (0.49)*	*1.432 (0.20)*	*1.740 (0.01)*	*1.659 (0.08)*	*1.655 (0.08)*
	Cattle Wealth			*1.020 (0.30)*				
	Household size		*0.850 (0.21)*			*0.864 (0.26)*		
	Intra-village kinship relations				*0.962 (0.15)*	*0.972 (0.29)*		*0.990 (0.97)*
	Village mean kinship relations						*0.861 (0.01)*	*0.862 (0.01)*
	Location (CA dummy)	***0.420 (0.00)***	***0.430 (0.01)***	***0.437 (0.01)***	***0.639 (0.27)***	***0.600 (0.25)***	***2.630 (0.08)***	***2.653 (0.08)***
Combined Individual and Network Response	Plough	*0.123 (0.00)*	*0.148 (0.00)*	*0.116 (0.00)*	*0.130 (0.00)*	*0.151 (0.00)*	*0.132 (0.00)*	*0.132 (0.00)*
	Labour	*0.151 (0.00)*	*0.157 (0.00)*	*0.133 (0.00)*	*0.163 (0.00)*	*0.164 (0.00)*	*0.164 (0.00)*	*0.168 (0.00)*
	Medical expenses	*0.699 (0.09)*	*0.821 (0.51)*	*0.614 (0.04)*	*0.775 (0.24)*	*0.865 (0.63)*	*0.754 (0.19)*	*0.790 (0.28)*
	Funeral	*2.430 (0.00)*	*3.127 (0.00)*	*2.150 (0.01)*	*2.759 (0.00)*	*3.37 (0.00)*	*2.671 (0.00)*	*2.827 (0.00)*
	Low Harvest	*1.254 (0.51)*	*0.254 (0.51)*	*0.946 (0.85)*	*1.126 (0.68)*	*1.330 (0.41)*	*1.111 (0.71)*	*1.150 (0.63)*
	Cattle Wealth			*1.02 (0.31)*				
	Household size		*0.875 (0.27)*			*0.895 (0.36)*		
	Intra-village kinship relations				*0.946 (0.01)*	*0.952 (0.02)*		*0.951 (0.02)*
	Village mean kinship relations						*0.946 (0.10)*	*0.979 (0.52)*
	Location (CA dummy)	***0.600 (0.02)***	***0.622 (0.04)***	***0.625 (0.04)***	***1.086 (0.71)***	***1.086 (0.78)***	***1.290 (0.61)***	***1.388 (0.52)***
Neither individual nor network response	Plough	*0.025 (0.00)*	*0.011 (0.00)*	*0.022 (0.00)*	*0.024 (0.00)*	*0.011 (0.00)*	*0.025 (0.00)*	*0.025 (0.00)*
	Labour	*0.595 (0.04)*	*0.254 (0.00)*	*0.443 (0.01)*	*0.535 (0.01)*	*0.254 (0.00)*	*0.584 (0.04)*	*0.562 (0.03)*
	Medical expenses	*0.083 (0.00)*	*0.032 (0.00)*	*0.060 (0.00)*	*0.073 (0.00)*	*0.033 (0.00)*	*0.081 (0.00)*	*0.077 (0.00)*
	Funeral	*0.265 (0.06)*	*0.009 (0.00)*	*0.201 (0.00)*	*0.230 (0.00)*	*0.090 (0.00)*	*0.260 (0.01)*	*0.242 (0.00)*
	Low Harvest	*1.637 (0.08)*	*0.757 (0.43)*	*1.371 (0.30)*	*1.44 (0.20)*	*0.753 (0.43)*	*1.609 (0.11)*	*1.518 (0.16)*
	Cattle Wealth			*1.036 (0.07)*				
	Household size		*1.601 (0.00)*			*1.570 (0.00)*		
	Intra-village kinship relations				*1.050 (0.06)*	*1.020 (0.54)*		*1.070 (0.05)*
	Village mean kinship relations						*1.016 (0.75)*	*0.950 (0.42)*
	Location (CA dummy)	***0.487 (0.01)***	***0.503 (0.02)***	***0.518 (0.03)***	***0.220 (0.01)***	***0.404 (0.08)***	***0.375 (0.26)***	***0.380 (0.28)***

Regressions weighted for sample size. Network response is base category and property is omitted category. Results should be interpreted relative to these outcomes.
Source: estimations based on ZRHD and kinship data.

6. On nodes and ties: Social network analysis and risk sharing[124]

6.1. Introduction

In the previous chapter we observed a difference in coping behaviour between households in resettlement and communal areas. Households from communal areas are more likely to have a network response, while resettled households are more likely to develop an individual response when they experience a shock. However, if they are not willing or able to develop such a response, they are more often deprived of help compared to households in communal areas. These differences were largely explained by a lower mean of intra-village kinship relations in resettlement villages compared to communal village. This seems to suggest that the alternative social structures that have developed in the resettled villages provide fewer opportunities for risk sharing compared to the kin-based structures in the communal areas. In this chapter we explore this issue in more detail by considering a question on risk sharing partners: who shares risk with whom in the village.

This question is directly related to the definition of an insurance group, an issue that is currently explored in the risk sharing literature (see also chapter two). In this literature it is argued that households, to overcome information and enforcement constraints, are more likely to share risk in endogenously defined groups, such as kin, ethnic or church groups, compared to exogenously defined groups like a village.[125] Although some authors suggest these endogenous groups may cross village boundaries, see for example Grimard (1997) who finds a higher level of insurance among members of an ethnic group who are geographically spread than in a village. More recent work has emphasised the possibility of risk sharing in sub-groups in the village. See also De Weerdt (2002), Murgai *et al* (2002) and Fafchamps and Lund (2003).

A conventional estimation approach to study the existence of risk sharing in subgroups would test the influence of specific social relationships on insurance outcomes in households (Grimard, 1997; Carter and Maluccio, 2003). In such studies

[124] This chapter could not have been written without the assistance of Gerhard van de Bunt, Marijtje van Duijn and Bonne Zijlstra who taught me much about Social Network Analysis, assisted me with the analysis of my data and provided useful comments on earlier drafts of this chapter.

[125] Kin, ethnic or church groups are considered to be endogenously formed insurance groups because the common identity, norms and values that come with "membership" in such groups may be instrumental in for risk sharing.
Defining a kin group as a risk sharing group automatically implies a common identity etc, while in an exogenously defined insurance group, such as the village, heterogeneity with respect to identity, norms and values can be expected.

it can for example be found that households with more kinship relations in the village are more likely to receive assistance. As with many other social capital studies, this outcome should be considered with caution, as an omitted variable may explain the relationship found. With these methods it is not possible to establish if risk sharing actually took place between the households connected by a kinship relation. This problem can be solved by considering the relationships between households, rather than households, as the unit of analysis, as is common in many studies in the field of the social network analysis. [126]

Although this specific character of the data allows us to gain more insight on the influence of social structure on risk sharing, it also poses a methodological challenge. As the observations in our analysis are relations in a village, they are not independent and thus violate one of the prime assumptions of normal estimation techniques (Walker *et al.*, 1993). Therefore, we will use a social network model, the p_2 model, which was explicitly designed to analyse the determinants of relations in a network, while taking the dependence of observations into account.

We are not the first to consider relationships between households to study risk-sharing relations. Earlier, De Weerdt (2002) analysed the relationships between households to find the determinants of sub-group formation in risk sharing in rural Tanzania, while Murgai *et al*. (2002) studied the relationships between households that shared water in an irrigation scheme in Pakistan. However, these authors did not or only partially acknowledged the specific character of relational data. Since they used conventional estimation techniques their results may be biased. In our analysis we will test the importance of certain household characteristics and relationships in the establishment of informal insurance relationships between households that live in the same village. Rather than potential informal insurance relations (De Weerdt, 2002), we analyse observed informal insurance relations in Mudzinge, Muringamombe, Mutoramepho and Zvataida, four villages from the ZRHD project in Mupfurudzi Resettlement Scheme. We consider the importance of kinship relations, religious membership, lineage membership, geographical area of descent, neighbourliness and membership in associations in the establishment of such relations. We do not study the formation of subgroups as such, but try to disentangle the social relationships that are used in informal insurance, while controlling for previous insurance relations between the households concerned. This does not necessarily tell us that informal insurance takes place in subgroups that are formed by exclusive membership. A village may rather exist of a network of bilateral relations.

The remainder of this chapter is organised as follows. In part two we review the conditions for informal insurance in resettlement villages and results of other studies on informal insurance in our research areas. In part three we introduce the basics of social network analysis, describe the interdependence in a social network and briefly explain the *p2*-model that we use in our analysis. In part four we describe in more detail the data that we use in our analysis and we present the results of our analysis in part five. Part six discusses the implications of the findings while part seven concludes.

[126] For a recent review on economic networks the reader is referred to Zuckerman (2003).

6.2. Conditions for risk sharing in resettlement villages

As we described in chapter four on the social environment in the resettlement areas, the settlement pattern and composition of villages in resettlement areas is different from that generally found in communal areas in Zimbabwe. This may affect the opportunities for informal insurance in at least four, sometimes opposing ways. Box 6.1 presents statements of resettlement farmers that illustrate these differences.

Box 6.1. Receiving assistance: comparison of resettled and communal villages

"Here, we live close together, so it is easy to get assistance and your neighbour will not leave you alone when there is a problem. Unlike in the communal areas, where you have to cover some distance before you can find someone to help."
Mr. Moyo, Mungo village

"When I lived in the small scale farming area, I did not know a lot of people, except my own family and the other people whom I just met when we started living there. We lived far apart, and most of them I would only meet in church. Now, we live close together and are very much related."
Mrs. Garanewako, Goto village

"In the communal areas, your relatives will always consider you. But the relatives in the resettlement areas are too scattered. They will be too far away to tell them the problem."
Mr. Chipoyera, Injina village

"If you live among your blood relatives, you will find it easy to get help and get it quickly. They will try by all means to cover the gap. But here in the resettlement areas, we are strangers, and people will have to study your case before they decide to assist you."
Mrs. Chenjera, Mungo village

"It is much easier to get monetary assistance in the resettlement areas, because people here work hard and earn much more money, while in the communal areas, people are poor."
Mrs. Nzou, Injina village

"People are more likely to assist because they have different projects that they do. They grow tobacco, paprika and butternuts, and nut just maize as farmers in the communal areas do."
Mr. Karuru, Goto village

Source: Ranking exercise social relationships

First, both the small size and the centralised settlement pattern of the communities improve the opportunities to monitor each other's behaviour and information is more likely to be available in these communities compared to the larger and dispersed settlements in the communal areas. Especially since cattle is gathered in the kraal every night and at the end of the agricultural season the harvest is temporarily stored on platforms on the homestead. This may improve the opportunities for informal insurance in the resettled villages. Secondly, and working in the opposite direction, the small size of the resettled villages reduces the number of households in the "risk pool" and therefore reduces the opportunities to pool risks. Thirdly, and related to the relative scarcity of kinship relations in the village, the relatively recent development

of the communities may influence the level of trust and the presence of shared values and norms that facilitate contract enforcement. This may constrain the functioning of informal insurance arrangements in resettled villages. (For more details on levels of trust, see Box 6.2.). The fourth way in which the resettlement communities may differ from the communal areas is the level of resources. Other studies in the same communities have documented the higher wealth status of resettled households (Gunning *et al.*, 2000; Hoogeveen, 2001; Hoogeveen and Kinsey, 2001). This higher level of resources may increase the opportunities for informal insurance arrangements.

Box 6.2. Trust in resettlement and communal areas

Barr conducted an economic experiment on trust in the villages in the ZRHD survey. In such an experiment, participants will play a "game" with real stakes that is designed to capture information on certain types of decisions participants take in every day life. The results of these experiments show that the levels of trust were on average lower in resettled villages compared to the communal villages (Barr, 2003b). Initial analysis of the determinants of levels of trust suggests there may be a link between the development of new relations through memberships in associations and trust in resettled villages. That is, the level of trust is higher in villages with higher membership in associations (Barr, 2004).

Although it is not possible to determine the importance and impact of each of these factors on the possibilities of risk sharing, two earlier studies on risk sharing in these communities provide some indications that a net effect in either direction is marginal. Hoogeveen (2001) formally tested the full insurance hypothesis in the twenty-eight villages in the ZRHD survey. He developed an insurance test that included the possibility of savings and compared the results in resettlement and communal villages. Hoogeveen had to reject the hypothesis that idiosyncratic risks were fully insured within the village; changes in household consumption and savings were found to depend both on a village level variable and on changes in household income. Moreover, he did not find any evidence for a different level of insurance in resettled villages compared to communal villages.

Barr conducted a risk pooling experiment in the same communities to gain more insight in risk sharing behaviour. Although revealing with respect to the effect of asymmetric information and sanction based limited commitment[127], she found limited differences in risk sharing behaviour between the two areas. Communal households did not more frequently join an insurance group compared to resettled households. Interestingly however, if they decided to share risks in the experiment, communal households formed groups that were significantly smaller compared to the groups that were formed by resettled households.

[127] Barr finds that participants more often share risk when limited commitment is lower while more information does not lead to more risk sharing. The first finding is in line with expectations and assumptions in risk sharing models, while the latter is not. Therefore, information problems should not be assumed away in small communities such as we are studying. Barr argues this result is driven by the fact that having sufficient information is not the crux, but acting according to the information that is available may be. In some situations it may be better to give participants the benefit of the doubt, or to turn a blind eye on compromising information.

Hoogeveen's insurance test measured a level of insurance at the village level that was comparable to the level of insurance at the level of the resettlement area. As such this is surprising as one would expect information and enforcement problems to be less constraining in a village, compared to a resettlement scheme. This suggests that the village (or any administrative unit for that matter) may not be the correct level of aggregation. Considering the fact that many households still have links with their relatives who remained in the communal areas when they resettled, Hoogeveen argues that a more suitable level of an insurance group would include the village plus relatives living elsewhere. Considering the empirical evidence on extra-village assistance relations presented in the previous chapter, it will be correct to assume that some insurance networks would extend beyond the village. This finding does not necessarily dismiss the possibility of insurance in subgroups in the village. To understand this, we need to realise that the premise of insurance in subgroups only explains partial insurance at the village level when not every household in a village is member of a subgroup or subgroups do not overlap.[128] Consider for example a village with three insurance groups where every household in the village belongs to one of the groups and there is some overlap between the different groups. If these subgroups provide full insurance, we will also find full insurance at village level, as all households are members of a group that fully insures their idiosyncratic risks. Only when some villagers are excluded from sub-groups that provide full insurance or in case the groups do not overlap, can the existence of insurance in sub-groups explain partial insurance at the village level (Dercon and De Weerdt, 2002; Goldstein *et al.*, 2002; Murgai *et al.*, 2002).[129] In such situations it could even be possible that the extra-village insurance relations observed in a community, belong to those households in the village that are excluded from the insurance groups that exist in the village.

The possibility of formation of sub-groups in the village and the exclusion of some households from these groups is also in line with results from Barr's risk sharing experiment. She finds that subjects in the experiment are more likely to share risks when they are sure the insurance contract is going to be enforced (in this situation by the game manager). In a situation of full enforcement one would expect all players to join a risk-sharing group. But this is not what happened: some subjects did not join a group. Barr argues that exclusion on the basis of their previous real-life behaviour is a possible explanation for this unexpected behaviour. Barr also finds that in a situation where no formation of groups is expected, i.e. when both information and possibilities for enforcement are extremely limited, some subjects still form groups. Therefore, she concludes that trust and trustworthiness may also play a role in informal insurance arrangements. She stresses that the boundaries of trust may be distinct from those of the village, which is in line with the hypothesis that insurance is more likely to take place in a subgroup in the village compared to a group that covers the whole village. This does not necessarily mean that the sub-group is confined to the village. Trust may also be given to some members that belong to the "group" but live outside the village, for example in a neighbouring village, in the resettlement scheme or the geographical area where they settlers came from (Barr, 2003a).

[128] On the other hand, a higher level of disaggregation (that is the smaller the size of the subgroup) makes full insurance less likely. The possibilities of finding someone to share risk with or to obtain a transfer from someone with a good outcome also decrease with the size of the insurance group.

[129] Alternatively, all households in a village are members of a sub-insurance group, but these sub groups do not provide full insurance either.

This chapter will explore the question along which social lines these boundaries of trust exist. Our research setting is especially interesting as previous work has shown that kinship relations are important instruments for informal insurance, see for example De Weerdt (2002) and Platteau (2000) who argues that:

"… multilateral reputation mechanisms work best in kinship groups, as these are usually stable relations that have the required continuity, trust in other person's behaviour, and common identities…".

In the villages in our study, kinship relations are relatively scarce. As was illustrated in Box 6.1 some settlers clearly feel they are worse off without their relatives. We should however be careful in presuming that among blood relatives, risks are always shared. Although it is the norm in Shona society that relatives assist one another (Holleman, 1952; Bourdillon, 1976; Andersson, 2002), the mixture of opinions presented in box 6.3 suggests that this is certainly not always the case. Blood relatives may in fact be hesitant to assist each other in certain situations.

Box 6.3. Mixed opinions: blood relatives and assistance

"In the communal areas, your relatives will always help, no matter what your status is. But in the resettlement areas, people will first look at your situation and assess whether it is necessary to assist."
Mrs. Gumbo, Goto village

"Here in the resettlement area, the assistance can come quick as people quickly understand you, unlike your relatives, who will dig into the past before they help."
Mr. Phiri, Goto village

"Among relatives, there is a lot of jealousy. For example in my case, I would not like my younger sister to have a good job, lots of money and buying a lot of property. We can hurt each other, but I cannot do that to a non-related person."
Mrs. Dandajena, Injina village

"The relatives, they will be hurt when you are prosperous, so they are not so willing to give you assistance, even when you are in trouble. But here in the resettlement village, people will not look at these details, you will be assisted anyway, even if that would make you more prosperous than others."
Mrs. Mukoka, Mungo village

"Even if you have relatives or other such relations here in the resettlement area, if you are not getting on with them very well, it is difficult to find assistance. It all depends on how you live with other people. If you live good with them, them you are likely to receive assistance, regardless of where you are and how you are related to the persons."
Mr. Kambeu, Mungo village

Source: Ranking exercise social relationships

To further explore this issue we review the results of a ranking exercise of social relationships in the village and informal insurance. [130] In this exercise we asked respondents to tick all types of relationships that they had with members of other households in the village and then rank these relationships in terms of their importance in providing assistance to the respondent in times of need. The results of this ranking exercise are reported in table 6.1. The first column in this table list the potential relations respondents can have in their village, the second column presents the percentage of respondents who reported such relationship, while the third column shows the average weight assigned to the relationship. The weight is calculated as follows: The respondent had ten beans to rank the relations in order of importance: assigning more beans to a particular relation indicated this relation was valued more important when it comes to receiving assistance in times of need. An average of 4.2 on parents thus means that if a respondent had a parent living in the same village (but on a different plot), they valued this relation on average with 4.2 beans. The ranking results show that respondents value the relatively scarce close blood relations (like parents and children, brothers and sisters), their son or brother in law or their church mates most when it comes to informal insurance relations.

Table 6.1. Valuation of social relations in ranking exercise.

Relationship	Percentage of respondents that reported relation in the village (N=63)	Average weight if present
Parents	8	4.2
Brother/Sister	16	3.6
Son in law/brother in law	16	2.5
Attend same religious group	73	2.1
Parents in law	5	1.7
Other close blood relatives	46	1.66
Daughter in law/sister in law	6	1.5
Totem relations	88	1.46
Uncles and aunts	16	1.4
Son	6	1.25
Sahwira (special friend)	57	1.25
Other relatives of your spouse	57	1.14
Friends	92	1.03
Neighbours	91	1.02
Distant blood relatives	46	0.79
Lived in same area before settled	71	0.78
Same club/association	60	0.71

Source: Ranking exercise social relationships

[130] This exercise was meant to take place in the villages that are central in this chapter. However, the political situation in the run up to the 2002 presidential elections did not allow us to do so and the exercise was rescheduled to three communities in Sengezi resettlement scheme. Therefore, the results of this exercise cannot be readily compared with the other results in this chapter.

Interestingly, in the subsequent discussion on the meaning and importance of the ranked relations, many respondents defined their relationship to non-blood relationships in their village, in terms of being relatives, see also box 6.4. If they considered the non-blood relative important, they would invariably state " these are like relatives to me". Apparently, assisting and receiving assistance from your relatives is still the norm, at least the socially desirable way of informal insurance. In a social environment where blood relatives are scarce, respondents try to establish links with "surrogate" relatives. One way of doing this is by referring to a shared history or shared past experiences.[131] In that sense, households that lived in the same geographical area before they resettled or share the same (sub)-clan name are to some extent similar to blood relatives. The shared history creates an understanding and generates knowledge about each other's life, which facilitates informal insurance.

Box 6.4. Having a shared past

"I take the people that lived in the same area as me before we settled here as my relatives. They know where I came from, they know most of my history, and even my life. So if I come across a crisis, I can rely on them."
Mrs. Marakazi, Injina village

"They understand me better because we came from the same area. Therefore, they cannot leave me if I am in trouble."
Mr. Makore, Goto village

"My totem relations, we are of the same kind. So we help each other in problems, I cannot deny them."
Mr. Ngwarati, Goto village

"My totem relations help me in such a way, that I do not feel as if I do not have any blood relatives here."
Mr. Ngwerume, Mungo village

Source: Ranking exercise social relationships

We saw in chapter four that resettled households actively invested in new relations in their villages; they started to attend churches and established a variety of non-religious associations. The importance people attach to these new relations for informal insurance varies. Members of associations are not often referred to as partners in informal insurance, only occasionally and then most often in reference to the function on the club, for example receiving money in a money society or savings club. On the other hand, church mates could very well be partners in an informal insurance arrangement, as some churches teach their members to assist one another, see also Box 6.5. But they are less important compared to relatives and again, as with

[131] In this respect it is also interesting to consider the conversation that two persons have when they first meet. They will always try to establish how they might be related to one another. If this is not straightforwardly established by reference to their own lineage, or clan membership, the presence of a very distant marriage relationship between two clans may be sufficient for them to exclaim, "so we are related". Obviously, many people will be related in such ways, and the importance of such relationship will depend on the way people will get along and the presence or absence of other, more closely related persons (see also Andersson (2002).

other types of relationships, assisting each other is not a fixed given, it depends on the circumstances.

Box 6.5. Risk sharing and the church

"At church it is a law which has been passed that if anyone faces a problem, the others have to go and assist. This is what we agreed upon among each other, so that people will not suffer in silence. If we come together to worship, we discuss what has befallen us and we should be united to help each other."
Mrs. Nyadombo, Mungo village

"Since we go to church together, we are used to each other and we are the same fellows, so we help each other."
Mrs. Jasi, Goto village

"The church is the backbone of society. If we worship God in his spirit, we carry each other's burden. As we are Christians, we are now related as brothers. That is why we value each other. We should be able to comfort or give any assistance to those in problems; sharing what we have."
Mr. Muhove, Injina village

What I find in my church, people are not united in cases of helping each other and sharing, so I find it difficult to be close to other church members.
Mr. Chitemerere, Goto village

Unlike your relatives, in case of church members, you will only get assistance after you have given your petition to the congregation. There is nothing you are going to get unless you tell them.
Mrs. Muchini, Injina village.

Source: Ranking exercise social relations

The ranking exercise on social relationships and informal insurance show there is a range of non-kin relationships that play a role in informal insurance. In this chapter we will distinguish two types of relationships. First, relationships that existed in the early days of resettlement and secondly, the relationships that have developed in the new communities after resettlement. Examples of the first are blood and marriage relations that pre-date resettlement, households that have the same (sub)-clan name, households that used to live in the same geographical area before resettlement and households that became neighbours in the newly established villages.[132] As most stands were randomly allocated and the resettlement agent determined who was settled where, these relationships can be considered to be exogenously determined initial social condition. Interestingly, households from the same lineage or geographic

[132] At the time of resettlement, the stands on the village territory were randomly allocated to applicants that were selected. Sometimes this was done in phases; first one group and after clearance of more territory, a next group was selected. But applicants were generally not in a position to choose their neighbours, nor were they allowed to build in any other place than the plot that was allocated to them. After some years, a few households were allowed to relocate their stand to another place in the village, on average this happened to one or two households in the village. Usually, this was because the plot was too small to accommodate all household members or the terrain of the stand was not suitable to live, for example because it easily flooded during rains. Occasionally a household moved because they were quarrelling with their neighbours all the time.

background often did not know each other when they first arrived, but soon realised they were "connected" when they settled in the village and acquainted one another. Relationships that have developed after resettlement are for example new marriage relations, shared membership in religious groups or membership in non-religious associations. These relations are typically the result of purposeful action. Although this can be debated for marriage relations between sons and daughters of the resettled households, it is certainly the case for memberships of religious groups and memberships of associations. Platteau (2000) argues that such memberships, especially in case of the church, ensures that members abide by the same codes of behaviour, share the same rituals and use the same language with the result that they acquire a common identity. This encourages co-operation (honesty) and the possibility to identify members that are suitable for an informal insurance arrangement.

Although membership in religious groups and associations is more or less stable, it is certainly not fixed. Over time, existing religious groups and associations cease to exists for a variety of reasons and new ones are established. Moreover, household members may leave one religious group or association and join others when these are perceived to be more in line with spiritual or other needs. Information from Barr's survey on civil society indicates that 17% of the memberships in associations that were initiated after resettlement did not exist anymore in 2000. Her record of associations that existed in 2000 shows that just over half of these groups (57 percent) was established in the early years of resettlement (between 1980 and 1985). Another 23 percent were initiated between 1986 and 1995 and as much as 20 percent of the currently existing associations was founded only after 1995.

Moreover, memberships can vary within the household. Different members of the household can hold memberships in different (non-) religious associations. When we consider for example religious memberships in the year 2000, we see that almost a third of the households have memberships in two or more religious groups. Households that reported more than one religious membership, most often combine membership in a traditional religious group with a membership in either an apostolic church or a Christian church. But memberships can also be divided among two or three apostolic churches, two traditional religious groups or more than one Christian religion.

In the social relations ranking exercise, the evaluation of social relationships by respondents was based on a potential informal insurance relation, an ex-ante evaluation that is expected to be indicative of what happens in real life. In the remainder of this chapter, we will focus on observed insurance relations and take a more analytical approach to the determinants of the insurance relations. To do so, we will model the bilateral insurance relations between households as a social network of insurance relations in a village. The implications of this approach are discussed in the next section.

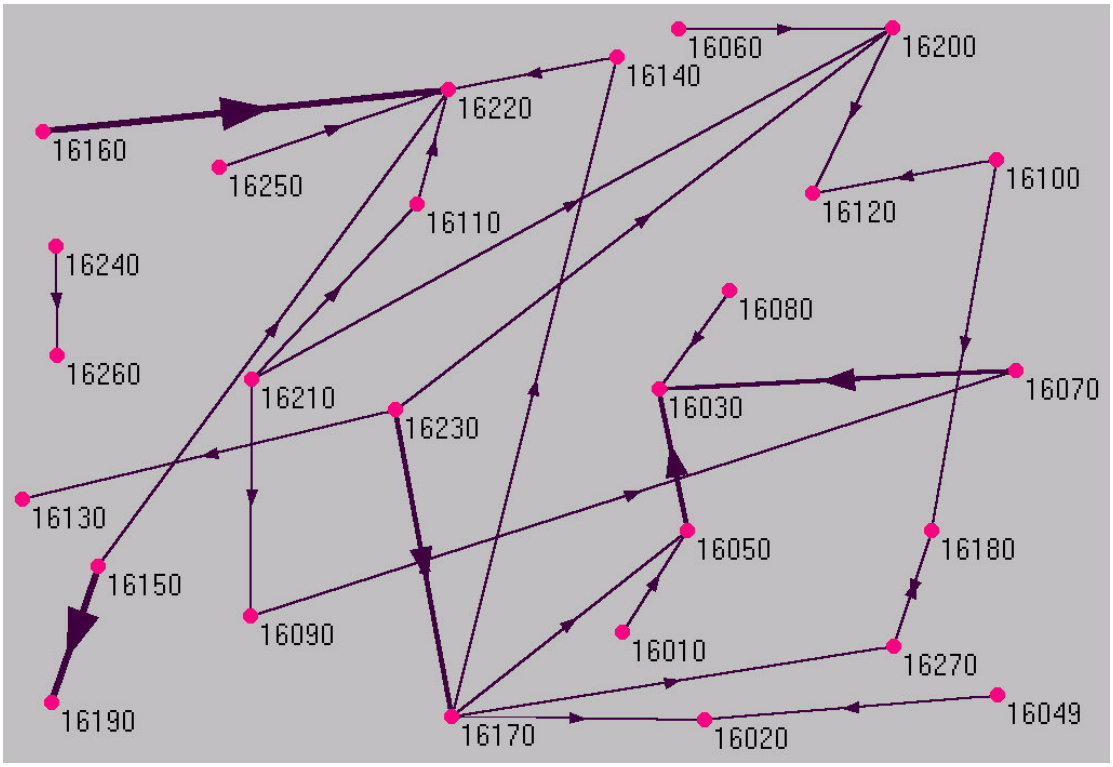
6.3. Social networks, dependence and the p_2 model

6.3.1. Social networks

A network is generally defined as a set of relations linking a defined set of persons, objects or events. These persons, objects or events are actors or nodes in the network and they are connected by a set of patterned relations. Analysis of such networks can be done in two ways. A full network approach covers all actors in a network and collects information on all these actors and the relationship between them, while an ego-centric approach starts from one actor and collects information on his/her network partners and transactions (Scott, 1991).

We propose a full network approach that considers the village as a social network; a collection of households that are connected (or not) by observed informal insurance relations. Figure 6.1 shows a graphical representation of an informal insurance network in Zvataida village where the nodes are households in the village (labelled with five digit numbers) and the arrows are directed relations of the type "gave assistance to". The width of the arrow line is determined by the number of times assistance is provided.

Figure 6.1. Graph of informal insurance relations in Zvataida village (1992-2000).



Source: network data created by the author from the 2000 ZRHD survey

To facilitate the analysis of social networks, it is useful to think of the network as a set of dyads. A dyad is a set of directed relations between two actors. In a directed relationship, for example providing assistance, one actor in a dyad can provide assistance without the other reciprocating it. Therefore, each dyad (consisting of two actors, say A and B) can contain zero ties (neither A nor B assisted the other), one tie

(if A assisted B, or B assisted A, but not both) or two ties (if A and B assisted each other) (Walker *et al.*, 1993).[133]

A social network can also be represented by a square matrix (adjacency matrix) where each cell stands for a connection between two actors. In general, the *ij*th element of such a matrix tells us whether household *i* and *j* are linked by a relationship of the particular kind in question. If the cell equals one, there is a relation and if the cell equals 0 there is no relation (Everett, 2001). Since we consider directed relations of the kind "provided assistance to" we have an asymmetric adjacency matrix. Figure 6.2 represent the adjacency matrix for the assistance relationships in Zvataida village. The numbers in the cells correspond to the frequency of assistance that is provided by household *i* to household *j*. In this case, household 16050 provided assistance to household 16030 twice in the period 1992-2000 and household 16010 did not provide assistance to household 16170 in the same period.

Figure 6.2. Adjacency matrix insurance relations in Zvataida village (1992-2000)

	16010	16020	16030	16049	16050	16060	16070	16080	16090	16100	16110	16120	16130	16140	16150	16160	16170	16180	16190	16200	16210	16220	16230	16240	16250	16260	16270
16010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16020	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16030	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16049	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16050	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16060	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16070	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16080	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16090	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16100	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
16110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
16120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
16150	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
16160	0	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
16170	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1		
16180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
16190	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16200	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16210	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
16220	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16230	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0
16240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
16250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
16260	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16270	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0

Although directed relations generally generate an asymmetric adjacency matrix, some of the "providing assistance to relations" are symmetric. That is: household *i* once

[133] Here, ties denote the existence of a relationship, irrespective of the value of the relation, the tie-value.

provided assistance to household *j* and household j also once provided assistance to household *i* in the same period, for example in case of household 16180 and 16270.

6.3.2. Dependence

Both the graphical presentation and the adjacency matrix nicely illustrate the argument that the assumption of independent observations can be problematic in network analysis. Household 16170 for example has many out going relations, while household 16220 has many relations coming in. On the other hand, household 16260 did not provide assistance to any other household and household 16060 did not receive any assistance from another household in the village. To see how this illustrates non-independence, we consider two forms of dependence that are often referred to in network analysis literature, dependence between dyads and dependence within dyads, and ask what it would mean if an observation in a network is independent and why this is not likely to be the case in our network of informal insurance relations.

Independence between dyads would mean that a relationship between two actors should not influence the existence of other relationships in the network. In terms of informal insurance this means that an insurance relation between two households should not affect the possibility of there being an insurance relation between other households in the village, even when the provider or receiver in the other relations is the same as in the first relation. Note that in a village with 27 households, like Zvataida, in all possible dyads, each household is 26 times a sender and 26 times a receiver.[134] The choices of these households in their sender (or receiver) role can not be assumed to be independent of each other. After all we expect some households to be more likely to give (for example because they are wealthy), while other households will be more likely to receive (for example because they experience a lot of shocks).

Secondly, independence of observations within a dyad means that the existence of a relation between A and B is not affected by the existence of a relation between B and A, or vice versa. Informal insurance is often described as a form of balanced (albeit delayed) reciprocity, see for example Platteau (1997). This means that if A has provided assistance to B, B is more likely to provide assistance to A compared to a situation where A did not provide assistance to B. Therefore, it is not likely that independence of observations in a dyad is a valid assumption in a network of informal insurance relations.

When using network data for descriptive purposes, for example to describe the structure of a network or the position of an actor in the network, this dependence between and within dyads is not problematic. However, if we want to use network data for analytical purposes and use estimation techniques, we have to realise that the structure of the data violates a prime assumption of statistics: the independence of observations. If one assumes independence of observations, while in fact they are not, conventional estimation methods will produce biased results. As the observations are not independent, the error terms in the analyses will not be independent. In such

[134] Note that being a sender does not necessarily mean the household actually sends. A household gets a sender value 0 in a dyad when it did not provide assistance to the other household in the dyad, and it gets a sender value 1 in a dyad when it did provide assistance to that particular household.

cases, normal statistical testing (OLS) is likely to provide incorrect standard errors and over optimistic p-values for coefficients (Krackhardt, 1988). Along the same lines, chi-squared-based statistics for model testing will be artificially inflated, making model selection tests overly liberal (Walker *et al.*, 1993).

Murgai *et al.* (2002) do not seem to be aware of this dependency of observations in their analysis of risk sharing networks in an irrigation scheme in Pakistan. De Weerdt (2002) on the other hand acknowledges the possibility of between dyad dependence and proposes to deal with this problem by including two fixed effects for each dyad, one for the sending and one for the receiving household. We argue that this solution is not fully satisfactory. First, it increases the number of parameters to be estimated considerably, potentially resulting in an over-fitted model (Lazega and van Duijn, 1997).[135] Secondly, such household fixed effects only capture the dependence between actors in the network and not the dependence between relations in the network. Although adding additional fixed effects could solve this problem (for example interaction effects), this would even further increase the number of parameters.

6.3.3. The p_2 model[136]

To overcome these problems, we use a model from social network analysis, the p_2 model that explicitly handles dependence between observations and is aimed to test the effect of actor and dyadic attributes on the ties observed in a directed network.[137] We use the model to test the effect of household characteristics and existing social relations on observed insurance relations. Here, we give a short description of the model that is sufficient to interpret the empirical results presented in section five. A more elaborate and technical description of the model is attached in Annex 6.1.

The unit of observation in the model is the dyad, the possible relations between two actors in the network. Each dyad has four possible outcomes; a null dyad (0,0) two asymmetric dyads (1,0) or (0,1) or a reciprocated dyad (1,1). The probability for the relationships in a dyad is expressed as a non-linear function of four network effects: a sender, a receiver, a density and a reciprocity effect. These effects specify the propensity of actors to give assistance, the propensity to receive assistance, the mean tendency to assist one another and to reciprocate assistance given. In the model, these four effects are estimated and the sender and receiver effect are explained by household characteristics, while the density and reciprocity effect are determined by characteristics of the dyad, the existing social relations the households in the dyad are involved in. For the purpose of this chapter, we are mainly interested in the parameter

[135] Too many explanatory variables in a model (over-fitted model) may cause a higher variance in the parameter estimates of the other explanatory variables and hence result in less reliable parameters. (Verbeek, 2000, p.51)

[136] The p_2-model is one of the statistical models available in StOCNET, an open software system for the advanced statistical analysis of social networks (Boer *et al.,* 2001; Zijlstra and Duijn, 2002)

[137] The *p2* model is an extension of the *p1* model that was developed by Holland and Leinhardt (1981). They named their model *p1* because it was based on the first and simplest probability function for directed relations in a dyad that expressed two elementary social tendencies: reciprocation and differential attraction. The model used in this chapter is called *p2*, because Duijn *et al.* (2003) regard it as a successor of the p_1 model. The p_2 model also models reciprocation and differential attraction and links these concepts to actor and dyad attributes.

estimates of the actor attributes and the dyad attributes. Therefore, the tables in section five only report these estimates. The complete estimation results, including the estimation of the sender, receiver, density and reciprocity effect are reported in Annex 6.2.

6.4. Data

6.4.1. A network of insurance relations: the dependent variable

A core issue in the proposed analysis is the determination of actual informal insurance relations in a village. The questions in the module on coping behaviour in the 2000 ZRHD questionnaire also described and used in chapter 5, allowed us to construct such a network. We deliberately included a question that identified intra-village risk sharing relations. When households indicated to have provided assistance to another household in the same village or to have received assistance from another household in the same village, the enumerators were able to identify this household from a list of households that resided in the same village. With this information we can construct two matrices of actual informal insurance relations in a village. One in which cell *ij* equals one when household *i* provided assistance to household *j* between 1992 and 2000, the providing matrix, and one in which cell *ij* equals one when household *i* received assistance from household *j*, the receiving matrix.

Two important qualifications should be made here. Taking the actual experience of shocks and the emanating reported assistance as the source of information to construct a risk sharing network influences the character of the information. The network constructed in this indirect way is likely to be less dense compared to a network constructed from a question that directly inquires about the assistance relationships between two households in a particular village, such as: "In the past ten years, have you provided/received assistance from household A, B, C…..", etc. However, the latter approach is likely to yield a large variety of assistance provided or received that may differ considerably in size and importance. Taking a negative shock as the reference, as we did, means the identified risk sharing relations embody substantial assistance. Although assistance in these situations and relations also varies considerably from for example from a bucket of maize to three days of ploughing with a full span or a substantial informal loan to meet medical expenses, the assistance goes beyond the proverbial cup of sugar. In the previous chapter we saw that the majority of assistance provided in the full sample was provided as a "free" gift or service. A mere 20 percent was an informal loan and 4 percents were gifts and services provided on the explicit assumption that they would be reciprocated at some future date. All three types of transfers are included in our risk-sharing network.

Theoretically, the number of providing and receiving relations that were reported should be the same and the matrix of households that provided assistance to other households should match the transposed matrix of the households that received assistance from other households. In practice however, this is not the case. Although the providing and receiving matrix are generally positively correlated,[138] the number

[138] This correlation is calculated in UCINET. QAP-correlation tests the association between two networks. The algorithm proceeds in two steps. In the first step, it computes Pearson's correlation coefficient (as well as simple matching coefficient) between corresponding cells of the two data

of reported providing relations is larger than the number of receiving relations. For two reasons, this is not surprising. First, the experience of shocks may be subject to underreporting, especially when the shock was not experienced as a severe crisis. This could be the case for example when a household had a large herd and could easily sell one beast to raise enough cash to solve the problem or when they can easily access assistance from neighbours or friends. Secondly, when a shock is reported, households might be reluctant to tell they received assistance from others, out of shame. On the other hand, households may tend to exaggerate their assistance to other households to boast of their position vis-à-vis the enumerator, thereby inflating the number of relations in the network. There are no a-priori reasons to assume dominance of one of these effects.

The p_2 model, like any other estimation procedure, is sensitive to the variation in the dependent variable, in our case the relative density of the network. [139] A very low or very high density means a lower level of information for the estimation and will make it more difficult to measure effects of the independent variables. For this reason we decided to work with the networks with the higher density; the "providing" network. The dependent variable in our analysis is a matrix of providing assistance relationships between households living in the same village. The cells in this matrix represent actual transfers from household *i* to household *j*. As the p_2 model only allows for dichotomised dependent variables, the value of the relation is either one or zero. The value of the cell *ij* is 1 if household *i* provided assistance to household j at least once and zero if this is not the case. This means we will only be able to test the influence of dyad and actor attributes on the existence of an informal insurance relationship between two households and not on the frequency or the values of such relationships.[140] Additionally, the matrix is not symmetric as household *j* may not have reciprocated household *i*'s assistance or the transfer of household *i* is not necessarily a reciprocation of transfers received from household *j*.

The analysis proposed in this chapter is best performed with full network data, i.e. with information on all households in the village.[141] Unfortunately, this was only the case for the two smallest villages in the survey, comprising respectively 13 and 14 households. And in one of these villages, the observed assistance network was not suitable for analysis in the p_2-model; the density of observed assistance relations was too low. To be able to balance and extend our analysis, we decided to collect the same

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matrices. In the second step, it randomly permutes rows and columns (synchronously) of one matrix (the observed matrix, if the distinction is relevant) and recomputes the correlation. The second step is carried out thousands of times in order to compute the proportion of times that a correlation is larger than or equal to the observed correlation calculated in step 1. A low proportion (< 0.05) suggests a relationship between the matrices that is unlikely to have occurred by chance. In three of the five villages under consideration, the correlation between the two networks is positive and significant at the 0.001, 0.08 and 0.04 level respectively. For the small village, the correlation is not significant.

[139] The density of a binary network is the total number of ties divided by the total number of possible ties.

[140] In practice, most cells have a frequency one, indicating that household I provided assistance to household j only once in the period 1992-2000. Of the 702 possible relations in Zvataida for example, 25 have a tie-strength of 1, three have a tie-strength of two and two have a tie strength of three.

[141] Although the p_2 model does not require information on all the possible dyads in the network (Duijn and Lazega, 1997), it does not allow for missing cases in the independent variables used to explain the value of a dyad. This means we need to have information on all the recipient households that were mentioned by the respondents in the survey. Since it is likely that the sampled households also provided assistance to non-sampled households, we miss information on these households.

information on ten non-sampled households in three additional villages, to have a set of four villages with full network information: Mudzinge, Muringamombe, Mutoramepho and Zvataida. The villages are situated at the southern end of Mupfurudzi Resettlement Scheme and are characterised by similar physical conditions. We interviewed the ten non-sampled households in 2001 and asked them the same questions on coping behaviour as the sampled households in 2000, plus some key information on household characteristics. The latter is combined with data on the non-sampled households that were collected in 1999. This means we have the same information on household attributes in 1998, 1999 and 2000 for sampled and non-sampled households. The non-sampled households were included in lineage, associations and kinship databases.

Unfortunately, we do not have such detailed information on informal insurance relations and household characteristics in the villages in the Communal Areas to present a counterfactual to the resettlement areas. The size of the sample in those areas and the survey structure did not allow us to collect such information. If it would have been possible to collect such data it is however questionable if the high density of the kinship networks in those villages would allow us to distinguish between the contribution of kin and non-kin relationships to the establishment of informal insurance relations.

Although we have data on informal insurance relations between 1992 and 2000, we restrict our analysis to the insurance relations reported for 1998, 1999 and 2000, some 80 percent of the reported situations. There are several reasons for this. First, restricting the analysis to informal insurance relations between 1998 and 2000 allows us to include an explanatory variable on the history of informal insurance relations between any two households in the past. This is important as the present theory on risk sharing suggests current transfers depend on current income and transfers in the past (Ligon *et al.*, 2002). Moreover, work in the field of trust and economic transactions has shown that actors are more likely to interact in the present when they have had successful interactions in the past (Buskens, 1999). Including a variable on past insurance relations also allows us to test the balanced reciprocity hypothesis advanced by Platteau (1997): an insurance gift in the period 1998-2000 (t) may be a reciprocated insurance gift received by the 1998/2000 sender household in the period before 1998 (t-1).

Second, taking a shorter period reduces the chances of endogeneity between social relations and informal insurance relations. To measure the effect of an existing social relation on the possibility that an insurance relation exists between 1992 and 2000, one needs to have information on the existence of the social relation prior to 1992. Although it is possible to construct such pre-1992 networks for religion, lineage, origin and membership in associations, not all the kinship relations can be disentangled in such a way, especially in case of the newly established marriage relations. This means that if we find a relation between marriage and informal insurance in the period 1992-2000 we do not know which relation came first: the marriage relation or the insurance relation. Although it is likely that an insurance relation would result from a marriage relation, we cannot be sure that it is not the other way around. In that case, an insurance relation leads to a marriage relation; for example when a household is heavily indebted to another household, the first may give a daughter to pay off its debts. We will see later that such marriages were not

uncommon in the past and were reported more recently in response to severe shocks (see also chapter 8).

Third, relationships and household characteristics change over time, possibly related to shocks or informal insurance. People may decide to join another church or association while households may be extended in size because one of their sons gets married or the head of household marries a second or third wife. In other cases, household members may die, or look for opportunities elsewhere and migrate. For this reason, it is impossible to construct a variable that covers the nature of a household over a period of nine years. Finally and partly related to this, information on the non-sampled households is only available for 1998/1999 and 2000/1.

To fully capture the effect of previous insurance relations, we would ideally have a variable that captures all the informal insurance transactions that took place between any two households in the village since the establishment of the resettlement villages. This information is simply not available, and we have to restrict ourselves to the transactions taking place between 1992 and 1997. Note that this period includes two drought years, 1992 and 1995. Despite the fact that covariate shocks are often assumed to be uninsurable in communities as these types of shocks affect all households in the community more or less equally, we do observe insurance transactions in those years, predominantly in food.[142] Chapter 7 provides more details on these transactions.

6.4.2. Actor and dyad attributes

To explore the social relationships that are instrumental in informal insurance networks in villages, we need to consider the determinants of the structure of the observed risk sharing networks. Three types of variables are expected to play a role: the characteristics of the sender, the characteristics of the receiver (both are called actor attributes in the p_2 model) and the characteristics of non-risk sharing relationships between the sender and the receiver (called the dyad attributes in the p_2 model). Actor attributes are a set of household characteristics that, in our case, are constant within a household: the variable has the same value irrespective of whether the household is a sender or a receiver.

Actor attributes or household characteristics

For the analysis of observed informal insurance relationships, it is first necessary to control for the occurrence and/or frequency of shocks.[143] If households did not experience a shock in the period 1998-2000, the zeros for the receiver in the dependent variable matrix should be interpreted differently compared to the situation that the household did experience a shock and no assistance was received from households in the village. To control for the occurrence and frequencies of shocks, we

[142] The existence of risk sharing during drought years can be understood by considering the fact that a covariate shock may not have a covariate impact. Some household may find it easier to deal with a drought, for example because they have accumulated assets that they can dispose of to cope with the situation. Alternatively, if no such assets are available and households have access to food aid, grain obtained through such transfers may also be used to share risks, as is documented by Dercon and Krishnan (2002) for Ethiopia.

[143] Ideally, one would want to control for the impact of the shock as well, but we do not have information to do so.

constructed a shock measure by considering deaths, illnesses affecting family labour, idiosyncratic harvest failures and loss of livestock for the households under consideration.[144] This measure is based on data from the ZRHD survey and is constructed independently from the self-reported shocks in the coping behaviour module. As can be seen in table 6.2, based on this measure, a quarter of the household in the four villages did not experience a shock between 1998 and 2000. While the majority of the households experienced either one or two shocks, one household was unfortunate enough to have experienced five shocks.

We have to be aware that this shock measure can only be a proxy indicator of the shocks experienced. Some of the pre-defined shocks that were used to elicit information on insurance relations in the village in the 2000 module on coping behaviour could not be measured with the survey data or only by approximation. An example of the first is the loss of property and the other (not predefined) shocks reported by the respondents, while for example the information on illnesses affecting family labour only covers part of the year and not the full agricultural season.

Table 6.2. Number of shocks experienced between 1998 and 2000

Number of shocks	Number of households	Percentage of households
0	24	24%
1	35	34%
2	23	23%
3	13	13%
4	6	6%
5	1	1%
Total	102	100%

Source: ZRHD survey (1998-2001) and 1999 and 2001 short-form questionnaires for non-sampled households.

There are several other characteristics that may influence the probability of households to be a sender or a receiver in a risk sharing relationship. First, we consider a number of demographic household characteristics. In the previous chapter we saw that households vary considerably in size and composition and that this may effect household coping behaviour. There are large, horizontally (polygamous) or vertically (existing of several generations) extended households that usually operate as a amalgamation of more than one consumption unit in which each wife is responsible for feeding her own children and related family members. There are also so-called nuclear households with a husband, his wife and their (small) children. Large households may have more opportunities to insure some risks internally and therefore may depend less on assistance from other households in the village. This information is captured in two variables. A dummy variable that equals one if a household has an extended character, i.e. if it has non-nuclear household members and zero when it has nuclear members only. We also include a variable that represents

[144] An idiosyncratic harvest failure is defined as a harvest that is more than one standard deviation lower than the average harvest over 1992-2000, excluding the drought years 1992 and 1995. Loss of livestock is defined as a loss of two livestock equivalents per year or when the livestock equivalent owned gets below two as a result of livestock loss.

the number of consumption units in the household, and is measured by the number of kitchens on a homestead.

Secondly, some households have migrant family members on whom they may depend in times of need, which could allow them to withdraw from local informal insurance arrangements. To test this effect, we include a dummy variable that equals one if the household has at least one migrant member that is away from home in two out of the three years under consideration. Additionally, in a patriarchal society it may not be easy for women to create access to assistance from other households (with the exception of old widows). Therefore, we include a dummy variable that equals one when a woman heads a household and zero when a man heads it. Finally, there may be a difference in attitude towards informal insurance by different generations, households with young heads may be more individually oriented compared to households with heads from an older generation. To test for this effect, we include two age variables in our analysis; the age of the household head in years and in an age category.

Differences in household wealth may also affect participation in insurance arrangements in two distinct and opposing ways. Rich households may have a lower stake in participating in an insurance scheme, as they have the resources to deal with shocks themselves and therefore are less likely to need the insurance themselves. While poor households may actually want to participate in an insurance scheme but may not be accepted by other members of the pool as they are considered less reliable as they will have little resources to share in the first place. Evidence of the latter is found by De Weerdt (2002) in Tanzania: poor households have less dense risk sharing networks compared to rich households.

As wealth is often associated with cattle ownership in Zimbabwe (Scoones, 1992; Hoogeveen, 2001), we use a variable that measures the livestock equivalent value of the herd. As there is a large variation in household size we cannot only consider livestock equivalent values of the herd per household as a household with fifteen members and five livestock equivalents is not equally wealthy compared to a four member households with the same livestock equivalent herd size. We take these differences into account by using a measure that expresses the livestock equivalent value of the herd per adult equivalent household member.[145]

Dyad attributes, existent social relationships

We also use attributes of the dyads to explain the configuration of the insurance network. These are the characteristics of the relationship between two households. Previous studies using social network analysis have shown that interaction between actors is not only affected by certain defined social relationships, for example kin or marriage relations, but also by so-called similarity in actor attributes. The probability of relations in friendship and advice networks is often related to the similarity of the actors involved. These relations are more likely to occur between people of the same sex, with the same level of education, with the same ethnicity, etc. (Zeggelink, 1993). When considering social relationships that are instrumental in informal insurance, we need to find those relations that reflect trust or shared values and norms, to reduce

[145] Adult equivalent scales are calculated as follows: 0.56*number of baby boys (0-9 yrs)+0.52*baby girls+0.8*boys(9-14)+0.7*girls+0.67*elderly men (>50)+0.61*ederly women+1*adult men+0.75*adult women.

information and enforcement constraints. The ranking exercise on social relations and informal insurance that we discussed earlier in this chapter gives us some leads. First of all, kinship relations. To distinguish between the (more or less exogenous) situation created at the time of resettlement and the development of kinship relations since resettlement, we estimate the effect of the kin relations that existed in the early years of resettlement and the state of affairs in 1999. To find out if marriage relations are equally beneficial as blood relations in the current context, we also distinguish between blood and marriage relations. This means we have four kinship variables: blood relations in 1980, blood relations in 1998, marriage relations in 1980 and marriage relations in 1998.[146]

The ranking exercise also stressed the importance of a shared past, relations with members of the same (sub)-clan and to a lesser extent co-residence in the same geographical area prior to resettlement, or mutual membership in churches and to a lesser extent non-religious associations. The set of non-kin relationships that we include take the form of similarity matrices, where a cell *ij* equals 1 if both households have the same attribute (e.g. going to the same church, being member of the same clan etc.). In these cases it is important to distinguish a group specific matrix and a general, village level matrix. In the first each household that belongs to one specific church, for example the apostolic church of Johane Masowe is connected. This allows us to test for the importance of membership in that particular religious group for insurance. In this matrix, cell *ij* equals 1 if an adult member of household *i* and an adult member of household *j* both attend the apostolic church Johane Masowe in 1998. The general, village level matrix is the sum of all specific religious group matrices and allows us to test the importance of fellow members of religious groups, regardless of the denomination. In this matrix, cell *ij* equals 1 if an adult member of household *i* attends the same church as an adult member of household *j* in 1998.

The differentiation between the general type of relationship and the specified group is not only possible for membership of religious groups. We follow the same approach for clan membership (is it clan membership in general or membership of a specific clan that matters) and place of residence prior to resettlement (is it a shared geographical origin in general or residence in a particular chieftaincy). Although this is potentially possible for membership in associations as well, the density of a general association network simply becomes too high to be of explanatory power. In the case of associations, we constructed separate membership matrices for each of the associations active in the village in 1998. The funeral groups are an important exception, as virtually all households in the village were members of such a village association and therefore membership did not vary enough to be of explanatory power. To control for endogeneity in memberships that developed after resettlement and risk sharing relations, we use 1998 as the cut-off point for membership. Household members that ended their membership of a religious group or association before 1998 are excluded from the group, as well as households that joined a religious group or association in 1999 or 2000. Including the latter or the former in case they left the association because a risk sharing relation broke down or did not emerge as hoped possibly introduces an endogeneity problem in the analysis.

[146] Note that these variables are matrices that are decomposed to dyad level during the analysis.

We also include a matrix on neighbourliness, to test for the presence of information problems in the village. In this matrix a cell *ij* equals 1 when households live next door to each other (a stand should be visible from another stand) and zero otherwise.

Directed dyad attributes
We also include variables on the direction of transfers. First, we consider if the direction of assistance is related to wealth differences. This variable represents the absolute wealth differences, measured in livestock equivalent herd size per adult equivalent household member, between all households in the village. Cell *ij* contains a number that indicates the wealth difference between household *i* and *j*. A positive number indicates household *i* is wealthier than household *j* while a negative number indicates the first household is poorer.

We also include two variables that capture previous insurance relations between the households. We constructed two matrices. The first reflects the original data where cell *ij* equals 1 if household *i* provided assistance to household *j* in the period 1992-1997. A positive relation between this matrix and the 1998-2000 providing matrix suggest that households are more likely to have an insurance relation with a household in 1998-2000 if they provided assistance to this same household between 1992 and 1997. This suggests that assistance is provided in one direction hence we label this variable charity. The second variable is the transposed form of the first matrix. A positive relation between this matrix and the 1998-2000 providing matrix suggests that households are more likely to be engaged in an insurance relation with a household from whom they received assistance in the previous period. As the matrix on previous assistance relations does not contain any reciprocal relations between households, finding the latter relation suggests that the principle of reciprocity over time, or delayed reciprocity, has a bearing on the direction of assistance relations. We label this variable reciprocity.

6.5. Model estimation

We used the p_2 model to estimate the determinants of observed risk-sharing relations in Mudzinge, Muringamombe, Mutoramepho and Zvataida. As the village is assumed to constitute the risk-sharing group, these determinants are estimated for each village separately. In this section we will present the results of the p_2 estimations and briefly discuss some of the issues we observe in each of the villages. Section 8.6 will take a broader perspective and considers in more detail what this network analysis of risk sharing relations has learned us.

As our analysis is explorative in that we want to identify the type of social relationships between households that are important in the establishment of informal insurance relations in each village, we used a forward selection procedure, as suggested by Lazega and Duijn (1997) and Duijn *et al.* (2003). This means that we first ran a large number of regressions on the observed risk-sharing relations in the village that included one explanatory variable (social relationship or household characteristic) at the time. We will refer to these as the single explanatory variable models. In such a way we selected a number of explanatory variables that independently explained part of the observed informal insurance network. In the next step of our analysis we included all explanatory variables that were selected in this

way and re-estimated the model. Some of the variables that were significant as a single explanatory variable lost explanatory power in combination with other social relationships or household characteristics. These variables were removed from the model and a final model was estimated that included only variables that had explanatory power. In all estimations, we controlled for the occurrence of shocks (as a receiver attribute) while in the final model we also controlled for the history of informal insurance relations between the two households (as a dyad attribute). [147]

Tables 6.3 to 6.6 present the results of the p_2 estimations for the four villages. The first column in the tables lists the names of the variables that had significant coefficient estimates in the single explanatory variable model. The second column gives the estimated coefficients for these variables, while the third column provides the coefficients for those variables that were included in the final model. The parameter estimates have standard errors in brackets. Dividing the parameter estimate by the standard error gives the t-test statistic, a means to test the null-hypothesis that the parameter is zero, meaning that the variable has no effect on observed insurance relations. A commonly used rule is to accept that the parameter is significantly different from zero if the t-test statistic is two or larger. Another way of testing the effect of the explanatory variables is an evaluation of the Wald test statistics. These are provided in the fourth column of the tables, with significance levels in brackets. A significance level higher than 0.05 mean that we are less certain that the parameter is statistically different from zero and therefore we assume the variable does not contribute to an explanation of the observed insurance pattern.[148] Below each table we report the number of dyads representing the number of observations in the analysis.

The coefficients give us an indication on the direction of the relation between existent social relations or household characteristics and the observed insurance relations. The interpretation of these regression coefficients is similar to normal regression models. A positive significant coefficient on the sender or receiver effect indicates that households that score high on that particular characteristic are more likely to be sending or receiving assistance respectively. A positive significant coefficient on the density parameter indicates that households that are connected by that particular social relation are more likely to be involved in an insurance relation. While a positive significant coefficient on the reciprocity parameter means that households connected by a certain social relation are more likely to produce a symmetric dyad, in case both did or did not assisted each other.

Mudzinge village

Table 6.3 presents the results of the model estimations in Mudzinge village. In the initial selection process we found a number of important variables; households related by a kin relation (blood or marriage) in 1998 were more likely to be involved in an insurance relation compared to households that were not related in such a way. Along the same lines we found that households attending Johane Marange church, who were

[147] The coefficients of these variables are only reported when they were significant.

[148] However, we should not conclude that no informal insurance took place between households that are connected through such a relationship. For example, an insignificant coefficient (i.e. $p>0.05$ for the Wald test and a t-test<2) on religious membership in Mudzinge does not necessarily mean that households that adhere to the same religion are never involved in an informal insurance relation. It only means that joint religious membership is not a dominant or statistically significant frequently used relationship to obtain insurance.

neighbours or member of the pre-school had a higher propensity to be involved in an insurance transaction. Households were also more likely to provide assistance to household with whom they had a previous insurance relation.

Table 6.3. p_2 estimations observed risk sharing relations in Mudzinge (1998-2000).

Independent Variables	Forward selection	Final model	Wald test
Actor attributes	-	-	
Dyad attributes			
Johane Marange	1.61 (0.76)		
Neighbours	0.84 (0.41)		
Kin relations 98	0.86 (0.37)		
Marriage 98	1.00 (0.48)	1.15 (0.53)	4.72 (0.03)
Pre-school 98	1.02 (0.43)	1.05 (0.45)	5.35 (0.02)
Charity 92-97	2.10 (0.57)	2.14 (0.61)	12.26 (0.00)
Reciprocity 92-97	1.66 (0.64)	1.80 (0.70)	6.69 (0.01)

Number of dyads: 1056
Source: estimated using ZRHD, lineage, association and kinship data.

When these significant variables from the single explanatory variable models were jointly included in a new model, a considerable number lost explanatory power. As the variables kin and marriage relations are highly correlated, they are not jointly significant. It is more specifically the marriage relations, rather than the blood and marriage relations captured in the kin variable that are used in risk sharing. The relationships reflecting the history of insurance relations and joint membership in the pre-school also kept their explanatory power. Further analysis of the kinship relations shows that it is more specifically marriage relations that are conducive for informal insurance between two households in this village. Although we can establish an asymmetric insurance relation, i.e. that bride receiving households provide assistance to bride providing households, this effect was only significant at the 0.08 level. Despite these reservations, this finding points to the possibility that aside from the opportunity to create access to cattle when they are needed (as argued in chapter 8), the long term bride wealth debt relation could also be instrumental in creating access to resources other than cattle. A finding that is figuratively illustrated by the Shona proverb: "*A son in law is like a fruit tree, you never finish eating from it*." (Bourdillon, 1976).

The importance of the joint organisation of the pre-school is less straightforward to interpret. The association was established in the early days after resettlement (1984) and has had a very stable membership. Members volunteered to join the group or were invited by friends. This group consists predominantly of women, they meet regularly and trust each other in taking care of their children. It could very well be that these features are instrumental in creating insurance relations between women. They are likely to have sufficient information to monitor each other's behaviour and the stable and moral environment of their group (taking care of and raising children) will reduce enforcement constraints.

Apart from the pre-school and marriage relations, we also find two significant effects on previous insurance transactions. Households are more likely to provide insurance

to a household in the period 1998-2000, both when they provided assistance to this same household between 1992 and 1997 and when they received assistance from this household between 1992 and 1997. This result suggests that it is the presence of a previous insurance relationship that matters, rather than the particular direction in the past relationship. In Mudzinge village, informal insurance transfers are therefore a combination of charity and reciprocity.

Muringamombe village

The single explanatory variable models for Muringamombe showed a variety of relations that influenced risk sharing. Membership of the Moyo clan, being neighbours, residence in the same geographical location prior to resettlement, attendance of the same church (irrespective of the denomination), blood relationships at the time of resettlement and past insurance relations based on reciprocity were related to the observed risk sharing relations. Obviously, some of these dyad attributes are correlated, notably those that relate to the situation before resettlement and refer to blood ties, clan membership or area of descent.

Table 6.4. p_2 estimations observed risk sharing relations Muringamombe (1998-2000).

Independent Variables	Forward selection	Final model	Wald test
Actor attributes			
Dyad attributes			
Neighbours	1.11 (0.47)		
Blood Relatives 1980	2.57 (0.83)		
Moyo (m/f)	1.43 (0.73)	2.31 (0.77)	9.00 (0.00)
Religion 1998	1.17 (0.49)	1.09 (0.54)	4.17 (0.04)
Geographic origin	1.99 (0.61)	2.14 (0.66)	10.57 (0.00)
Reciprocity 92-97	2.90 (1.01)	3.00 (1.17)	6.56 (0.01)

Number of dyads: 756
Source: estimated using ZRHD, lineage, association and kinship data.

In the final model we included similarity in geographical origin and membership of the Moyo clan and excluded blood relations that existed at the time of resettlement. The effect of the same area of descent was stronger than being related by blood. This illustrates that the same geographical origin points to a relationship that encompasses blood relatives but is wider than that. Additionally, a household with a head or wife from the Moyo clan is more likely to have an insurance relation with another household from this clan, rather than another. This in turn indicates that clan membership, or lineal descent, is not necessarily the same as the area of residence prior to resettlement or to being related by blood. In the final model we also find a significant effect for religion; households are more likely to be involved in an insurance relation with households in which members adhere to the same religion. Interestingly, Muringamombe was also the only village where villagers explicitly referred to the role of churches when we discussed the histories of the villages since establishment: "*Various churches were established in the village. This was important, as it was another way for the community to know each other well. It changed our personalities, it improved our way of behaviour and taught us how to live together*".

The effect of past insurance transactions is also strong; households that received assistance from a specific household between 1992 and 1997 are more likely to

provide insurance to this same household in the period 1998-2000, an indication that risk sharing relations are based on reciprocity and not on charity.

Mutoramepho village

The first phase of the analysis of insurance relations in the smallest village, Mutoramepho, revealed that households were more likely to have an insurance relation if the women in a household were from the same clan or if men or women in a household had the same clan and sub-clan name. Also, households were more likely to provide assistance to households whose head attended the same church as the head of the providing household. No significant effect was found for the variables relating to past insurance relations. All three variables were related and in the final model only the similarity in women's clan membership remained significant. The variables on past insurance transfers did not significantly explain the current risk sharing relations found.

Table 6.5. p_2 estimations observed risk sharing relations Mutoramepho (1998-2000).

Independent Variables	Forward selection	Final model	Wald test
Actor attributes	-	-	
Dyad attributes			
Sub-clan members (m/f)	1.40 (0.70)		
Religion hhhead 1998	1.55 (0.74)		
Clan members (f)	2.22 (0.80)	2.22 (0.80)	7.71 (0.01)

Number of dyads: 182
Source: estimated using ZRHD, lineage, association and kinship data.

Zvataida village

In Zvataida, our initial results suggested household size (both as a sender attribute and a dyad attribute), blood relations at the time of resettlement, similar clan and sub-clan membership of the male head of household and membership in the netball group were significant in understanding the risk sharing pattern in the village. Moreover, households were more likely to be involved in a risk sharing relation with a household with a different wealth status and the pattern of risk sharing found in 1998-2000 is a continuation of past insurance relations.

The effect of similarity in clan membership is highly related to blood relations, but the latter has more explanatory value than the former, hence households are more likely to provide assistance to their blood relatives who settled in the same village in the early days of resettlement. Differences in wealth are not significant in combination with other variables, therefore this variable is excluded from the final model. Household size is especially important as a dyad attribute rather than a sender attribute. As the variable measures differences in household size (the number of kitchens on a stand), the negative sign tells us households are less likely to be involved in a risk sharing relationship if their sizes differ much. Hence households are more likely to share risk, if they have the same or similar size. Further analysis suggests that it is mostly polygamous households that are more likely to share risks (result not reported here). Although this result should be interpreted with care, as the p-value of the Wald-test was 0.08, this outcome could be interpreted in terms of

similarities in cultural backgrounds, as polygamy is not generally practised nor unanimously accepted in Zimbabwe.

Table 6.6. p_2 estimations observed risk sharing relations in Zvataida (1998-2000).

Independent Variables	Forward selection	Final model	Wald test
Actor attributes			
Household size	-0.66 (0.33)		
Dyad attributes			
Wealth difference	0.05 (0.02)		
Sub-clan hhhead	1.70 (0.82)		
Difference in Hhsize	-0.57 (0.18)	-0.54 (0.24)	5.14 (0.02)
Blood relatives 1980	2.16 (0.57)	1.58 (0.77)	4.17 (0.04)
Net ball	0.83 (0.42)	1.14 (0.53)	4.71 (0.03)
Charity 92-97	3.84 (0.67)	3.43 (0.81)	18.2 (0.00)

Number of dyads: 702
Source: estimated using ZRHD, lineage, association and kinship data.

As was the case with the importance of the pre-school in Mudzinge, the direct relevance of the netball association for risk sharing is not easy to interpret. However, like the pre-school in Mudzinge, it is a women's only club, established in 1996 at the same time that the men in the village established a football club. Their names are respectively Rhino II (soccer) and Rhino II Queen (netball). Membership in the netball club is voluntary although subject to an entrance fee. Given this background there are two possible interpretations for its relevance for risk sharing. First, given the importance of blood relations in risk sharing, that predominantly follow patrilinear descent lines, it might well be that this women's only club provide a possibility for women to share risk. Alternatively, it may well be that the founding members of this club already had good connections and responded to the establishment of the soccer team by establishing their own sports club. In that case, the netball association measures in fact existing relations.

The final model also indicates the importance of past insurance relations. As households are more likely to provide assistance to households they had provided assistance to in the past, the transfers observed in Zvataida can be given a charity interpretation.

6.6. Discussion of the estimation results

In the previous section we analysed the determinants of informal insurance relations in four villages in our study. In Mudzinge, informal insurance takes place between households connected by marriage relations, by joint pre-school membership or by previous insurance relations. In Muringamombe, we found risk sharing between households with a similar geographical origin, between households with members of the Moyo clan and between households adhering to the same religion. Also, households reciprocated assistance provided to them in an earlier period. In the smallest village, Mutoramepho, clan membership of the wife or wives of the household head was instrumental in informal insurance relations. And finally,

households in Zvataida were likely to have an informal insurance relation when they were connected by blood relations at the time of resettlement, were similar in size or member of the net ball club. Moreover, assistance was provided to the same households previously assisted.

These results provide us with a number of issues for discussion. First of all, we find that informal insurance relations are not randomly established between households in a village. There are certain types of relationships that are more conducive for insurance than others. Secondly, and related to that, the analyses showed that each village differs from the other with respect to the specific social relationship that matters for informal insurance. This is as expected as we selected these villages because they had different social dynamics in the first place. The villages differ from each other in their initial social conditions and the development of new social environment after resettlement, but the differences found do not reflect the differences in religious orientation that we reported in chapter three. Our findings confirm earlier results by Barr (2004) who found that the village of residence was the most influential explanator of the degree of household's civil social activity.

Despite these village specific findings, there are some general statements to be made about the type of social relationships that are important in informal insurance. The most significant and robust effects are related to past insurance relations and to existing social relations that pre-date resettlement (blood relatives) or were established at the time of resettlement (clan membership/geographical residence prior to resettlement). Interestingly, when controlling for past insurance relations, the social relationships that embody a shared past prove to be important in the choice of providing assistance. Households are more likely to provide assistance to another household with whom they have a shared past, compared to households that do not have such a relationship or similarity. This is however not to say that relationships that have developed since resettlement do not play a role. They do, but their effect is less strongly felt. For example, marriage relations in Mudzinge tie households, not in terms of shared past, but in terms of shared future. In three villages, associations play a role as well. Religious membership in Muringamombe, pre-school membership in Mudzinge and membership in the net ball club in Zvataida help in finding insurance partners. The conducive role of these associations for insurance may reflect that these households share common values and norms and a certain level of trust. As argued before, the pre-school association and net ball club, both women-only clubs, may provide a specific opportunity for women to relate to one another. It is however surprising that this effect is village specific and many of the associations and religious groups that were established after resettlement in practice to not help in the establishment of insurance links, at least not on a significant level. This suggests that not all forms of social capital are equally helpful for all observed outcomes. The relationships that help in risk sharing are different from relationships that promote other outcomes, such as collective action or the exchange of information. Our results suggest it may be difficult to promote informal risk-sharing arrangements in communities or groups that have little social capital: some initial social capital is highly relevant for the establishment of such arrangements.

The lack of evidence on risk sharing among members of the same church is especially noteworthy. Elsewhere, religious affiliation has proven to be important in gaining access to resources in times of need, see for example De Weerdt (2002) on Tanzania

or Lyon (2000) on Ghana. Especially apostolic churches are known for their promotion of mutual assistance relationships among their members and work on Ghanaian Pentecostal churches in the diaspora has illustrated this importance (Dijk, 1999). Although the possibility of mutual assistance and risk sharing is also brought forward in studies on apostolic congregations in Zimbabwe, our analysis does not provide evidence for the importance of such support networks in the resettlement areas. Respondents solely referred to the spiritual importance of membership in apostolic churches and emotional support provided by church members in times of need.

The effect of previous insurance relations is mixed. We find some evidence of delayed reciprocity, i.e. insurance provided between 1992 and 1997 is reciprocated in the period 1998-2000 in Mudzinge and Muringamombe village. While in Zvataida and in a second group in Mudzinge we find that assistance in the first period goes in the same direction as assistance in the second period. We can however only label this form of assistance charity if we are sure assistance has been provided in one direction only. After all, assistance provided in 1992-97 could be reciprocated in 1998-2000 and followed by a new transfer in the earlier direction. If that is the case, matching the observations on providing assistance only may give us a wrong impression. The cases described in box 6.6. show that in some of these cases, insurance relations were in fact reciprocated, not necessarily before another insurance gift was received from the same household, nor in a perfectly balanced way (that is with equal resources). This does however mean, that in the other cases in Zvataida and Mudzinge, assistance provided in the period 1992-1997 was not yet reciprocated. This may have several reasons. Obviously, it could be related to the fact that the providing household in 1992-1997 did not yet experience a situation that necessitated reciprocation of previous assistance. This suggests it may not be possible to set a time in which to measure reciprocation of an insurance gift. On the other hand, when a providing household does not experience, or is not likely to experience a shock, assistance may be reciprocated in a way that may not be measured in terms of informal insurance. Assistance without state-contingent reciprocation may lead to "indebtedness" and generally creates access to labour or other services provided by the "indebted" household or gives prestige, political power, support for informal leadership etc. to the providing households (Mauss, 1967; Dzingirai, 2001).

Although the results on the previous insurance link is mixed in terms of the direction it takes, the finding that the variable contributes significantly to the explanation of the observed insurance network is important in itself. It emphasises that it is more realistic to describe an insurance pool as a set of bilateral insurance relations rather than a pool where risks are equally shared among the members and insurance transfers come from random members in the pool, irrespective of their previous transfers. As such, our findings underscore the argument made by Platteau (1997).

Box 6.6. Examples of reciprocation of assistance between and within periods

During the 1992 drought Mr. Dambaza gave a bucket of maize grain to Mr. Chinekidzwa when the latter did not have enough food to feed his family. And again in 1999, he assisted Mr. Chinekidzwa when he did not have enough cattle to plough his fields. This good and service were provided as a gift, and Mr. Chinekidzwa was able to do something in return when Mr. Dambaza needed a scotch cart to transport his crops to the market in 2000.
Muringamombe village

From 1996 to 2000 Mr. Moyo repeatedly needed money to pay for medical expenses and he found Mrs. Mukoka was able to provide this to him when he needed it. Over the years, she gave him a total of Z$300. On his turn, he was able to reciprocate this assistance in 2000 when Mrs. Mukoka needed the same amount of money for transport when her beasts were missing.
Mutoramepho village

When Mr. Musona did not have the means to transport food aid from the government to his homestead in 1992, Mr. Nzou provided these services for free. In 1999, when Mr. Nzou lost his daughter, Mr. Musona gave him two buckets of maize and Z$ 100 to assist in the funeral costs. And Mr. Nzou on his turn gave free transport services to Mr. Musona when he wanted to transport his cotton to the depot, some 70 kilometres away.
Zvataida village

Source: ZRHD coping module 2000.

A third point that comes out strongly in our analysis is that none of the final models contained actor attributes (household characteristics) that were useful in explaining the differences that we observed in the tendency of households to provide or receive assistance. This is especially surprising with respect to the shock variable, as other work has shown that the insurance networks are responsive to shocks (see also chapter 8). [149] A possible explanation is the limited accuracy of our shock measure; not all shocks that were probed for in the ZRHD coping module could be objectively measured, nor could we determine the impact of the shock on the household to construct a measure of need. We have tried various specifications of a shock variable, ranging from shock specific frequency measures and shock specific dummy variables for the period 1998-2000 or over the whole period covered in the questionnaire. Across all villages, none of these shock measures proved to be more relevant than the other so we continued to use the frequency shock measure proposed in section 8.4. Some village specific findings are reported in box 6.7).

There are two alternative explanations for the poor performance of our shock measures. First, a shock should not necessarily result in a transfer as households may have responded to shocks through self-insurance such as buffer stock strategies or additional income generation. Alternatively, the informal insurance relations in the village are less responsive to shocks than we would expect them to be. Most likely this is related to existence of extra-village insurance relations that are directly mobilised when a shock is experienced or that are used when intra-village relations are not willing to provide insurance. Although it is possible to include a proxy for

[149] It suggests that differences in the occurrence of shocks between households are not important to explain the observed differences between households in their propensity to receive assistance from other households in their village. Only in Zvataida, in the single explanatory variable model, did our shock measure explain the propensity to receive assistance.

these relations in the model, this approach does not alter the estimation results considerably.[150]

Box 6.7. Use of different shock measures

In Mutoramepho, an aggregate shock measure, measuring the frequency of shocks experienced between 1992 and 2000, significantly explained receiver behaviour in the period 1998-2000 in a single explanatory variable model. The shock measure remained significant after inclusion of the other variables and the final model indicated patterns of risk sharing between 1998 and 2000 were influenced by shared clan memberships by women and shared religious membership by household heads and the number of shocks experienced over the period 1992-2000. The latter suggests this variable could potentially be interpreted as an indicator of the need to receive assistance. Households experiencing subsequent or repeated shocks may be considered more "eligible" to receive assistance compared to households who only occasionally experience a shock.

In the single explanatory model that captured the number of cattle shocks experienced between 1992 and 2000 in Muringamombe, we found a marginally significant effect of the propensity to receive assistance (significant at the 0.07 level). Inclusion of this shock variable in the final model reduced its explanatory power even further and did not affect the other estimation results.

Also we did not find any effect of household wealth on the propensity of households to provide or receive assistance, or differences in wealth to affect the tendency to be involved in an insurance relationship, again with the exception of Zvataida in a single explanatory variable model. Therefore, we cannot make generalised statements such as “households that were rich between 1998 and 2000 are more likely to give assistance" or "households that were poor between 1998-2000 are more likely to receive”. However, we did find evidence for a wealth difference between households at the time of transfer. We explored this possibility by including a variable that compares the wealth status of the providing household and the receiving household at the time the insurance is provided. This matrix contains indicators of the wealth difference between household *i* and *j*, only when these households actually reported an insurance relation.[151] Because we use insurance relations to define this variable it is endogenous and therefore we did not include it in our final models. However, to explore its potential effects, we review the results of including this variable in box 6.8 and conclude that the outcomes suggest that households usually provided assistance to households that are poorer at the time of the transfer.

[150] We included a dummy variable that equals one when households reported extra-village insurance relations in another question.

[151] This means that cell *ij* contains a zero when household *i* did not provide insurance to household *j*, it contains a 1 when household *i* is more wealthy compared to household *j*, and it contains a –1 if household *i* is less wealthy compared to household *j*.

Box 6.8. The effect of transfer-based wealth differences.

In Zvataida and Mudzinge we found a positive sign on the direction of the transfer-based wealth differences; when providing assistance, households provided assistance to households that were less wealthy than they are. Interestingly, in Mudzinge it is the inclusion of the "charity" variable that makes the variable "wealthier at the time of transfer" loose its explanatory value. This indicates that reciprocation of past insurance transfers takes place when the household that received assistance in the past is better off compared to the household that provided assistance to them, confirming a state contingent nature of insurance transfers. Another interesting observation is that the kinship variable (more specifically the marriage variable) is not significant in combination with the "wealthier at transfer" variable. This suggests that households do not generally provide assistance to blood or marriage relations, but only so when these relations are less wealthy compared to them.

In Zvataida, the transfer-based wealth difference between households remains a significant explanatory variable for the observed risk sharing relations in the final model and knocks out the importance of the net ball club.

In Muringamombe, we initially found a negative relation between transfer-based wealth differences, that is, when providing assistance to other households, households provided assistance to households that were wealthier than they are. This relation did not hold in the final model.

In Mutoramepho we did not find any effect of these transfer-based wealth differences on the flow of insurance provision.

Finally, we want to emphasise that the dyad attribute "being neighbours" did not contribute to the explanation of the observed insurance links in the village. Although we found it to be important in Mudzinge and Muringamombe village in the first stage of the analysis, it was overruled by other relations (respectively pre-school membership and religion) in the final models. This suggests that it was not the fact that these households lived next door that was important in their relations. Rather they were organising the pre-school together in Mudzinge, or attending the same church in Muringamombe. At first sight, the finding that informal insurance does not take place more often between households that live next door suggests that information problems may indeed be non-existent in the compact, small settlements in the land reform areas. Yet, we have to realise that this finding may be related to the way the concept of "being neighbours" was measured. We did not measure the actual physical distance between two households, but whether the huts or houses of the homestead of another household were visible from the huts or houses on the homestead of the household concerned. Or, alternatively, and this is suggested by the fact that the neighbour variable is insignificant only when other relationships are included in the model, other existing social relationships facilitate an easy flow of information, on which to base a decision to provide assistance or not.

6.7. Conclusion

Earlier work on risk sharing in the ZRHD communities suggested that the village is not the appropriate level of analysis to delineate a risk-sharing group. The reason is

that relationships of trust that are conducive for risk sharing because they reduce information and enforcement constraints are not likely to exist between everyone in the village, nor to be confined to the boundaries of the village. In this chapter we have asked which existent social relationships are used to share risk. Although this question links in with the current discussion in the literature on the definition of an insurance group, we do not necessarily assume that risk is shared in sub-groups in the village, but may rather exist of a network of bilateral risk sharing relations.

In this chapter we have explored the possibility of using social network analysis to study the type of social relations underlying risk-sharing relations in four resettled communities. We proposed to regard a village as a social network in which actors (households) were connected through patterned ties (relationships). The advantage of this approach is that it takes relationships between households as the unit of analysis, rather than the household and as such considers the actual relationship used in risk sharing rather than a proxy for this relation captured in a household characteristic. The disadvantage of this approach is that the specific character of the data, in which observations are not independent, demands an estimation procedure that takes this into account. We used the p_2 model, a modified logistic regression model to explain the observed network structure with characteristics of the households and characteristics of the existent relationships between households.

The dependent variable in our analysis is a network of observed risk sharing relations in the village that tells us which household provided assistance to which other household in the period 1998-2000. We included a wide range of existent social relationships, household characteristics and directed relationships (such as previous insurance transfers) to explain the observed network structure.
The analysis was performed for each of the four villages for which information on all households in the village was available: Mudzinge, Muringamombe, Mutoramepho and Zvataida villages in Mupfurudzi Resettlement Scheme. In Mudzinge, informal insurance takes place between households connected by marriage, by joint pre-school membership or by previous insurance relations. In Muringamombe, we found risk sharing between households with a similar geographical origin, between households with members of the Moyo clan, between households adhering to the same religion. Also, households reciprocated assistance provided to them in an earlier period. In the smallest village, Mutoramepho, clan membership of the wife/wives of the household head was instrumental in informal insurance relations. And finally, households in Zvataida were likely to have an informal insurance relation when they were connected by blood relations at the time of resettlement, were similar in size and member of the net ball club. Moreover, assistance was provided to the same households previously assisted.

These results confirm that risk is not shared randomly within a village and that particular existent social relationships are more conducive for risk sharing compared to others. Interestingly, the type of social relationship that matters for risk sharing is largely determined in the village, based on the initial social conditions and the village culture that has developed over time. In general, households are more likely to share risk with households with whom they shared risk before or with whom they share a common past, such as blood relatives, lineage or totem relations or households with the same geographical place of residence prior to resettlement. Despite the relevance of the past, we also found that relations representing a shared future or similar

morality are used in risk sharing. Examples are the marriage relations in Mudzinge or church membership in Muringamombe and the pre-school association in Mudzinge. Given the high level of civil social activity found in the resettlement villages, the limited evidence for risk sharing between "newly connected" households is surprising and suggests that this form of social capital, although potentially useful to achieve other aims, is of limited use in risk sharing. This is especially noteworthy for religious membership; other studies have emphasised the importance of membership in churches, especially apostolic churches, in risk sharing. The importance of a shared past rather than a joint present also suggests it may not be easy to build social capital to support informal risk sharing relations.

With respect to the direction of transfers, we found some indications that insurance is state contingent because households that provide assistance are richer compared to the households that received their assistance. Considering the endogeneity of this variable (as its definition is based on the dependent variable) these results should however be interpreted with care. Although previous risk sharing relations matter, we did not find conclusive evidence on the direction of this relation. In Mudzinge we witnessed both charity and reciprocity, in Muringamombe we found reciprocity while in Zvataida the transfers suggest charity. Despite these inconclusive results about the direction of transfers, the fact that past transfers matter, combined with the importance of particular social relationships suggests that it is realistic to assume that an insurance group is composed of a set of bilateral relations, as was earlier suggested by Platteau (1997).

As our results clearly indicate that risk sharing is embedded in a particular social environment and in particular social relations we conclude that a social network perspective is appropriate because it considers the relationships between households rather than households themselves. Hence it is a powerful tool to illustrate this embeddedness and as such generates more insight in the concept of social capital.

Annex 6.1. Description of the p_2 model.

As the p_2 model is an extension of the p_1 model, we first explain the basics of the p_1 model before we outline the principles of the p_2 model and the way it is estimated. A more detailed description of the p_2 model can be found in Lazega and Duijn (1997), Duijn *et al.* (2003) and Zijlstra and Duijn (2003).

The p_1 model

The p_1 model developed by Holland and Leinhardt (1981) analyses the relationships in a dyad. Each dyad (Y_{ij}, Y_{ji}) represents the directed relations between nodes i and j in a network consisting of n nodes and is assumed to be independent of other dyads. In the p_1 model the probability function for each dyad is modelled as a non-linear combination of four parameters: a sender effect (α_i), a receiver effect (β_j), a density effect (μ) and a reciprocity effect (ρ). These network effects are respectively the propensity of actors to send choices, to receive choices, the mean tendency to interact and the force of reciprocation. This probability function is written as

$$P\{Y_{ij} = y_1, Y_{ji} = y_2\} = \exp\{ y_1 (\mu + \alpha_i + \beta_j) + y_2 (\mu + \alpha_j + \beta_i + y_1 y_2 \rho \}/k_{ij},$$
$$y_1, y_2 = 0, 1 \; ; \; i, j = 1\ldots., n, i \neq j, \qquad (1)$$

where

$$k_{ij} = 1 + \exp (\mu + \alpha_i + \beta_j) + \exp (\mu + \alpha_j + \beta_i) + \exp(2\mu + \alpha_i + \beta_j + \alpha_j + \beta_i + \rho) \qquad (2)$$

The p_1 model assumes the density and reciprocity effect are the same for all dyads, while the sender and receiver effects are allowed to vary across and within actors. Thus each actor has two parameters to characterise its attractiveness α_i and β_j. These parameters, household specific fixed effects, need to be identified, making the number of non-redundant parameters equal to $2n$. The parameters α_i and β_j are collected in n x 1 vectors $\boldsymbol{\alpha}$ and $\boldsymbol{\beta}$.

Extensions of the p_1 model have explored the possibilities of including actor attributes in the analysis of network data. A possibility to do so was for example suggested by Fienberg and Wasserman (1981) who defined subgroups on the basis of categorical actor attributes and assumed the sender and receiver effects to be equal for actors in the same subgroups. [152]

The p_1 model has two important limitations (Lazega and Duijn, 1997; Duijn *et al.*, 2003). The first, that the model only allows the inclusion of categorical actor attributes and cannot consider dyad attributes, means the applicability of the model is limited in use. The second is more substantive as the p_1 model assumes dyads to be independent. This is a strong assumption that does not hold in practice: we cannot assume that actor i's relation with actor j is completely independent of his (her) relation with actor k, even when we take actor attributes into account.

[152] For a more elaborate treatment of the p1 model and other extensions, we refer to chapter 15 of Wasserman and Faust (1994).

The p_2 model

The p_2 model has been specifically developed to address these two limitations. In the p_2 model, the unexplained part of the sender and receiver effects are modelled as random effects rather than fixed effects. These random effects are related, implying that relationships from and to the same actor can be related and that hence dyads are allowed to be dependent. Modelling the sender and receiver effects as random rather than fixed effects also reduces the number of parameters in the model and enables a relaxation of the assumption that the density and reciprocity effects are constant over dyads. The model therefore allows for the inclusion of actor and dyad attributes as independent variables.

The p_2 model starts from equation (1) and models the sender, receiver, density and reciprocity effects as linear regression models. The sender and receiver effects are modelled as a linear combination of actor attributes and random effects

$$\boldsymbol{\alpha} = \mathbf{X}_1\boldsymbol{\gamma}_1 + \mathbf{A}, \quad (3)$$

and

$$\boldsymbol{\beta} = \mathbf{X}_2\boldsymbol{\gamma}_2 + \mathbf{B}, \quad (4)$$

where α and β are vectors containing the sender and receiver effects and $\mathbf{X_1}$ and $\mathbf{X_2}$ are matrices of actor attributes with a vector of corresponding coefficients $\boldsymbol{\gamma_1}$ and $\boldsymbol{\gamma_2}$.[153] As $\mathbf{X_1}$ and $\mathbf{X_2}$ will not explain all variation in the sender and receiver effects, residual terms **A** and **B** are included in the equation. These residual terms are n x 1 vectors with components A_i and B_j. They are modelled as normally distributed random effects with variances σ^2_A, σ^2_B , and an expected value of zero. The sender parameter of one actor is the same for all relationships this actor is involved in, and the same holds for the receiver parameter of one actor. Between actors, the random effects are assumed independent. This does not hold within actors; the relationships from and to the same actor may be related: $cov(A_i, B_i) = \sigma_{AB}$ for all i. The covariances are assumed to be independent for different actors, setting $cov(A_i, A_j) = cov(B_i, B_j) = cov(A_i, B_j) = 0$ for $i \neq j$.

If no actor attributes are included in the model, the terms $\mathbf{X_1}\boldsymbol{\gamma_1}$ and $\mathbf{X_2}\boldsymbol{\gamma_2}$ will disappear and σ^2_A, σ^2_B denote the variances of the α and β parameters.

[153] For readers unfamiliar with this type of notation, it can be translated to:
$\alpha = \gamma_{11}X_{11i} + \gamma_{12}X_{12i} + \gamma_{13}X1_{3i} + \ldots\ldots \gamma_{1n}X_{1ni} + A_i$
$\beta = \gamma_{21}X_{21i} + \gamma_{22}X_{22i} + \gamma_{23}X2_{3i} + \ldots\ldots \gamma_{2n}X_{2ni} + B_i$
Where α and β are vectors of sender and receiver effects of household *i.* X_{11i} to X_{1ni} and X_{21i} to X_{2ni} are different household characteristics for household *i*. Although the household characteristics are constant within households (the households has the same value on a characteristic, irrespective of being a sender or receiver), the coefficients have different values in the sender and receiver equations, hence the notations γ_{11} and γ_{21}. A_i and B_i are the random effects or error terms for household *i,* differences in the modelled effects that are unexplained by the attributes.

The density and reciprocity effects are assumed to vary across dyads and modelled as a linear function of a constant and a set of dyad attributes:

$$\mu_{ij} = \mu + \mathbf{Z_{1ij}}\boldsymbol{\delta_1} \quad (5)$$

and

$$\rho_{ij} = \rho + \mathbf{Z_{2ij}}\boldsymbol{\delta_2}, \quad (6)$$

where μ and ρ are the constant parts and $\mathbf{Z_{1ij}}$ and $\mathbf{Z_{2ij}}$ are a set of dyadic attributes with vectors $\boldsymbol{\delta_1}$ and $\boldsymbol{\delta_2}$ containing coefficients for the density and reciprocity effect of these variables respectively. It is required that $\mathbf{Z_{2ij}}=\mathbf{Z_{2ji}}$.

Estimation of the p_2 model

To estimate the p_2 model, the probability function (1) is rewritten as the product of two probability functions: the unconditional probability of Y_{ij} and the conditional probability of Y_{ji}, given the value of Y_{ij}. These dyads are modelled using the expected values (E) of their components and an error term:

$$Y_{ij} = E(Y_{ij}) + \varepsilon_{1ij}$$
$$Y_{ji} = E(Y_{ji}|Y_{ij}) + \varepsilon_{2ji} \quad (7)$$

where

$$E(Y_{ij}) = P\{Y_{ij}=1\} = (\exp(\mu + \alpha_i + \beta_j) + \exp(2\mu + \alpha_i + \alpha_j + \beta_i + \beta_j + \rho))/k_{1ij}$$

and

$$E(Y_{ji}|Y_{ij} = y_1) = P\{Y_{ji} = 1|Y_{ij} = y_1\} = \exp(\mu + \alpha_j + \beta_i + y_1\rho) / k_{2ji}.$$

Then, α_i, α_j, β_i, β_j, μ and ρ are substituted by (3), (4), (5) and (6)

Which gives

$$Y_{ij} = F_1(\boldsymbol{\theta}, \mathbf{X_{1i}}, \mathbf{X_{1j}}, \mathbf{X_{2i}}, \mathbf{Z_{1ij}}, \mathbf{Z_{2ij}}, A_i, A_j, B_i, B_j) + E_{1ij}$$
$$Y_{ji} = F_2(\boldsymbol{\theta}, \mathbf{X_{1j}}, \mathbf{X_{2i}}, \mathbf{Z_{1ji}}, \mathbf{Z_{2ji}}, y_i, A_j, B_i) + E_{2ji}$$

with $\boldsymbol{\theta} = (\mu, \rho, \boldsymbol{\gamma_1}, \boldsymbol{\gamma_2}, \boldsymbol{\delta_1}, \boldsymbol{\delta_2})$ and F_1 and F_2 the conditional expected values of Y_{ij} and Y_{ji}, given the values of **A** and **B**.

The presence of random effects (**A** and **B**) and fixed regression coefficients (γ_1,γ_2,δ_1,δ_2) means the p_2 model is a Generalised Linear Mixed Model (GLMM) that can be estimated with Iterative Generalised Least Squares (IGLS).[154] The application of a link function, in this case a first order Taylor expansion, allows for a linear estimation of the non-linear function. This link function is applied in each step of

[154] Because the observations in the model are not independent we cannot assume an independent error structure that is the same for all observations. In such a situation OLS estimations would give us biased estimates of the coefficients. The Iterative Generalized Least Squares algorithm allows for estimations with an unknown error structure.

iteration process. In the first step, all fixed effects (μ, ρ, $\boldsymbol{\gamma_1}$, $\boldsymbol{\gamma_2}$, $\boldsymbol{\delta_1}$, $\boldsymbol{\delta_2}$) are estimated simultaneously. In the second step, the residuals that result from this estimation are used to compute a covariance matrix, the random effects. The calculated values of the random effects are then used to re-estimate the fixed effects in the third step. The new values of the fixed effects generate a new residual that is used to estimate a new random effect etc. This alternating process continues until convergence is reached.

After convergence we obtain estimates of the fixed and random effects, the regression parameters μ, ρ, $\boldsymbol{\gamma_1}$, $\boldsymbol{\gamma_2}$, $\boldsymbol{\delta_1}$, $\boldsymbol{\delta_2}$ and the variance/covariance parameters σ_A^2,σ_B^2 and σ_{AB} respectively. Generally, we are most interest in the value of the regression parameters. These tell us the average effects of actor or dyad attributes on the behaviour of our actors. These fixed effects generally apply to all actors but do not explain the full variation of behaviour. The unexplained parts of the behaviour are captured in the random effects.

The model produces coefficients, standard errors and p-values for the explanatory variables that can be used for parameter testing. With the present nature of the estimation, it is not possible to obtain model fit statistics, therefore model selection is best based on the Wald-tests that are available on the independent variables included in the model.

Interpretation of regression coefficients is similar to normal regression models; A positive significant coefficient on the sender or receiver effect indicates that households that score high on that particular characteristic are more likely to be sending or receiving assistance respectively. A positive significant coefficient on the density parameter indicates that households that are connected by that particular social relation are more likely to provide assistance to each other. While a positive significant coefficient on the reciprocity parameter means that households connected by a certain social relation are more likely to produce a symmetric dyad (i.e. reciprocate assistance).

Annex 6.2. Model estimations

In this annex we present the full estimation results of the p_2 model in the four villages. The tables are organised as follows. The first column lists the four network effects and the sender-receiver covariance to be estimated. The second column in the tables lists the values of these effects as estimated in an empty model; that is a model without explanatory variables. These estimates illustrate the dependence structure in the data. A significant sender or receiver effect means that households differ from each other in their propensity to give or to receive. A significant sender-receiver covariance indicates that the tendency of a household to give is related to the tendency of that household to receive. A significant density effect tells us that the chances of finding a relation in a dyad is not equal to 0.5 and finally, a significant reciprocity effect shows that some households are more (or less) likely than others to reciprocate the assistance provided to them. The third column lists the independent variables included in the final model and the fourth column in the tables provides the estimates for the actor and dyad attributes and network effects in the final model. All estimates have standard errors in brackets. An explanatory variable may influence more than one effect, for example both the sender and receiver effect and the density or reciprocity effect. In such a case the net influence of the attribute by means of the Wald test statistic, as reported in column five, with p-values in brackets.

Effects

When we consider the size and significance of the estimates for the network effects in the empty model, we see that the sender effect is significant in all villages except Mutoramepho. This means that in Mudzinge, Muringamombe and Zvataida, households are significantly different from each other in terms of their propensity to provide assistance to another household. The receiver effect is significant in all villages, so households vary according to their propensity to receive assistance. The sender-receiver covariance is only significant in Zvataida and given its negative sign suggests that the tendency to give is negatively correlated to the tendency to receive, which is in line with the strong charity effect found in the final model. We find a significant density effect in all villages, which means the probability of finding a relation in a dyad is not equal to 0.5. The negative sign on this parameter indicates that the probability of finding a relation in a dyad is lower than 0.5.[155] Finally, the reciprocity effect is significant in Zvataida only. This means that households differ from each other in their tendency to reciprocate the assistance provided. Finding significant sender, receiver and reciprocity effects means that informal insurance relations are not randomly established between households in a village, and further underscores the need to use an estimation method that takes the non-independence of observations into account.

[155] Although this suggest a relatively low density in the model, we should be careful in interpreting deviance from the nul-hypothesis; in general one is not likely to find a real life network with a chance of 0.5 in finding a relation in a dyad. This would require a very dense network.

Table A.6.1. Full model estimates for Mudzinge village (1998-2000).

Network Effects	Empty model	Independent Variables	Final model	Wald test
Sender variance	0.75 (0.30)*		0.70 (0.30)*	
Receiver variance	0.76 (0.31)*		0.84 (0.33)*	
Sender/Rec. cov.	-0.25 (0.22)		-0.22 (0.22)	
Density Effect	-3.40 (0.25)*		-4.32 (0.48)*	
		Marriage	**1.17 (0.53)**	**4.78 (0.03)**
		Pre-school	**1.08 (0.46)**	**5.37 (0.02)**
		Charity	**1.80 (0.69)**	**6.80 (0.01)**
		Reciprocity	**2.17 (0.63)**	**11.9 (0.00)**
Reciprocity Effect	0.61 (1.19)		-0.27 (1.37)	

Number of dyads: 1056
Source: ZRHD, lineage, association and kinship data.

Table A.6.2. Full model estimates for Muringamombe village (1998-2000).

Network Effects	Empty model	Independent Variables	Final model	Wald test
Sender variance	1.80 (0.55)*		1.40 (0.53)*	
Receiver variance	1.35 (0.47)*		1.48 (0.54)*	
Sender/rec. cov.	0.40 (0.36)		0.04 (0.38)	
Density effect	-3.36 (0.43)*		-4.66 (0.65)*	
		Moyo (m/f)	**2.3 (0.78)**	**8.82 (0.00)**
		Religion	**1.07 (0.54)**	**3.95 (0.05)**
		Geogr. origin	**2.4 (0.67)**	**12.61 (0.00)**
		Reciprocity	**3.66 (1.30)**	**7.86 (0.00)**
Reciprocity effect	0.45 (1.25)		-0.92 (1.25)	

Number of dyads: 756
Source: ZRHD, lineage, association and kinship data.

Table A.6.3. Full model estimates for Mutoramepho village (1998-2000).

Network Effects	Empty model	Independent Variables	Final model	Wald test
Sender variance	0.95 (0.56)		1.26 (0.66)*	
Receiver variance	1.37 (0.67)*		1.73 (0.79)*	
Sender/rec. cov.	-0.48 (0.36)		0.03 (0.50)	
Density effect	-3.36 (0.43)*		-3.08 (0.74)*	
		Clan members (f)	**2.22 (0.80)**	**7.71 (0.01)**
Reciprocity Effect	0.45 (1.25)		1.05 (1.09)	

Number of dyads: 182
Source: ZRHD, lineage, association and kinship data.

Table A.6.4. Full model estimates for Zvataida village (1998-2000).

Network Effects	Empty model	Independent Variables	Final model	Wald test
Sender variance	**1.21 (0.44)***		1.02 (0.46)*	
Receiver variance	1.59 (0.51)*		1.18 (0.50)*	
Sender/rec. cov.	**-0.86 (0.37)***		-0.44 (0.36)	
Density Effect	-3.45 (0.31)*		-4.95 (0.66)*	
		Blood relatives	**1.83 (0.65)**	**7.9 (0.00)**
		Netball 1998	**1.14 (0.53)**	**4.71 (0.03)**
		Charity	**3.41 (0.89)**	**14.7 (0.00)**
Reciprocity Effect	2.69 (0.73)*		1.15 (1.41)	

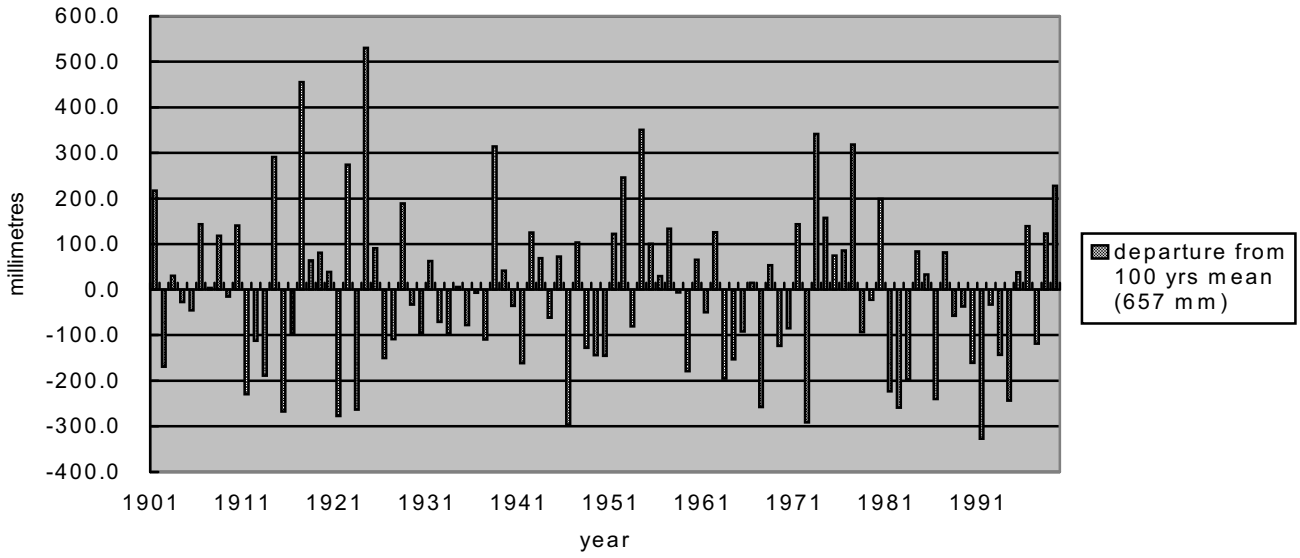
Number of dyads: 702
Source: ZRHD, lineage, association and kinship data.

7. Drought and Government Food Aid

7.1. Introduction

Drought is a recurrent phenomenon in Zimbabwe. Iliffe (1990) for example reports on the occurrence of droughts in the 19th century, and the statistics on rainfall presented in figure 7.1 indicate that since the beginning of the 20th century, Zimbabwe had twelve years in which rainfall was more than 200 millimetres below the 100 years mean. Raftopoulos *et al.* (1999) refer to nine of these years as the worst drought years in the century. Both the colonial and the post-colonial governments have responded to droughts with food programmes. In the post colonial era, these food programmes were aimed at meeting the drought-induced food needs of the farmers in communal, resettlement and small scale commercial farming areas. The grain distributed under the government food programmes was meant to supplement the grain produced by the recipient households, who were expected to be self sufficient in their consumption needs in non-drought years.

Figure 7.1. Departure from average national rainfall in Zimbabwe: 1901-2000.



Source: Zimbabwe Meteorological Services (2000)

This raises two important questions: Did the Government of Zimbabwe succeed in meeting drought-induced food needs? And secondly, are farming households self sufficient in their consumption needs in non-drought years? To illustrate why the second question is important, consider the following situation. If households are not food secure in non-drought years and we find that the food distributed by the government is insufficient to meet household consumption needs in drought years, we may wrongly conclude that the government programme did not achieve its target. While in fact the distribution of food by the government may have actually contributed to the food security position of the households in drought years to a level that is comparable to or even better than non-drought years.

The ZRHD data set covers two national drought years, 1991/92 and 1994/5[156] and contains information on food production and participation in government food programmes in both years. Based on these data we will assess whether the average household had enough grain to meet the household consumption requirements, both in for the full sample and separately for the resettlement schemes, and we will take a more detailed look at the distribution of consumption outcomes across households. The quantitative information that is available from the ZRHD data set is supplemented with information from in-depth interviews with resettled farmers and discussions with key informants at local, district, provincial and national level on the implementation of the food aid operations on the ground.

As the national droughts occurred before 1997, the year the communal households were included in the survey, this chapter only considers resettlement farmers. When interpreting the findings in this chapter, we therefore need to be aware that resettled households are not representative for all rural households in Zimbabwe, both in terms of size of landholdings and in terms of the agricultural potential of their land. Resettled households are predominantly agriculture oriented and derive their livelihood mainly from food crop and cash crop production (Hoogeveen, 2001). Although agriculture is the main occupation of most people living in rural areas in Zimbabwe, many households, especially in the drier southern part of the country, have a more diversified livelihood portfolio. Income from non-agricultural activities or remittances from migrated family members play an important role and can be more important than agricultural production (Scoones *et al.*, 1996).

This chapter is organised as follows. Section two describes the changes in the government food programme in Zimbabwe between 1982 and 1999, the targeting mechanisms used and the availability and distribution of food. Section three provides details on two consumption variables that are constructed from the ZRHD data set: the actual annual food consumption and households food consumption needs. Section four describes the role of food aid in and the contribution of other sources of grain to household consumption needs both in drought and non-drought years. In section five we look at the distribution of consumption outcomes and consider household and portfolio characteristics that determined the access to food aid. Section six considers

[156] Annex 7.1 provides a more details on the choice of these years as drought years. Although the 1992 and 1995 drought seriously affected food production in all three Resettlement Schemes, a comparison of local rainfall with maize production indicates that households in Sengezi were less affected compared to households in Mupfurudzi and Mutanda, both in 1992 and 1995, and households in Mutanda also experienced drought conditions in 1998.

the self-selection of the food aid programmes in 1992 and 1995 and section seven concludes.

7.2. Drought Relief Programme 1982-1999[157]

7.2.1. Evolution of the Programme

The Government of Zimbabwe introduced the Drought Relief Programme (DRP) in 1982. The aim of this programme was that no person in Zimbabwe would starve due to food shortages caused by drought (MPSLSW, 1999). Although the DRP was initiated in direct response to the 1981/82 drought, the programme remained in place after the first post-independence drought passed and it has since undergone substantial changes. The driving force behind these changes was the effort to find an appropriate strategy that ensured that people did not starve in times of drought and at the same time prevented that people would become dependent on food gifts from the government.

In the first years of the programme, families in communal, small-scale farming and resettlement areas who experienced drought-induced food shortages received free food handouts. It was assumed that these households would survive from their own agricultural produce in non-drought years. The Ministry of Public Service, Labour and Social Welfare was responsible for the implementation of this Free Food Handout Programme. Between 1982 and 1985 a total of 345,365 metric tonnes of maize was distributed (FEWS, 1997). For the 38 month period, on average 914,600 individuals received a ration of 10 kilograms maize per month. At that time, Zimbabwe had approximately 7.5 million inhabitants (calculated from Gore *et al.* (1992, p.144). Note however, that not everyone received a ration each month, so the programme covered more people, who on average received less than 10 kilograms maize per month.

Over the years, the Government experienced two main problems with this programme. First, as the volume of food aid to be received depended on the number of persons in a household[158], the number of persons in a family was often inflated in order to get more food. And secondly, people who could survive without the assistance of the government did not refrain from using the free service provided (MPSLSW, 1999). To increase self-targeting for farmers, the Government introduced a Public Works Programme in 1985. The program allowed able-bodied farmers to work for money or food (Food for Work Programme) in times of drought, while the Free Food Handouts Programme remained in place to target vulnerable groups (elderly, disabled and chronically ill). Under the Food for Work programme, the Government targeted relief food to the most needy (those who experienced drought-induced food shortages), by requiring the recipients to provide labour for community projects in return for food. It was believed that those who had other means of surviving would not find it necessary to invest their labour in the projects. The programme has been evaluated positively as the number of beneficiaries under the scheme was very substantial (Wright, 1998) and the programme prevented large

[157] The information in this paragraph is based on information from Wright (1998) MPSLSW (1999) and Zimbabwe (nd) and personal communication with villagers, local leaders, district administrators and social welfare officers, both at the district, provincial and national level.

[158] Each household was entitled to receive 10-15 kilograms per month per household member (MPSLSW, 1999).

increases in acute malnutrition in the 1992 drought (Kinsey, 1993). From 1985 to 1994, a total of 0.91 million metric tonnes maize was distributed. On average 961,850 individuals received 8.7 kilograms of maize per month, each month over this 120 months period (FEWS, 1997).

Yet, the new targeting method did not reduce the number of applicants for assistance and the costs of running the programme (organisation and screening) were substantial. At the same time the adoption of a Structural Adjustment Programme urged the government to cut back on public expenditures. Moreover, traditional leaders expressed concern that the government and NGOs had taken over the households' responsibility to plan and fend for themselves and urged the Government to take a new approach (Dhlembeu, 1998, p.27).

With the aim to reduce the costs involved in the relief operation and to allow farmers to assess their own needs, the Government introduced a new programme during the drought of 1995: the Grain Loan Scheme. Under this scheme, groups of households were registered as loan groups and maize was distributed to these groups on the understanding that it would be repaid to the Government once agricultural production recovered sufficiently. As the loan was to be repaid, it was expected that households would not apply for a loan if they did not have a food shortage and that they would only apply for the quantity of maize they needed to meet consumption needs until the next harvest. The government argued that cost reduction would be achieved by reduced screening costs (increased self-targeting) and the expectation that a major part of the expenses would be recovered through the repayment of the grain. Again, the Free Handout Programme remained in place to cater for the needs of the elderly, disabled and chronically ill. By April 1999, the Government stopped the Grain Loan Scheme because of widespread abuse of the facility. As we will see later, repayment records were dramatically low and cost recovery (or reduction) was never achieved in practice. In the 46 months of its operation, the Government loaned out 781,635 metric tonnes maize under this programme. The free food hand-out programme was terminated in March 1999 due to a lack of funds (MPSLSW, 1999).

The maize grain distributed under all relief food operations was suitable for consumption purposes only. The Grain Marketing Board (GMB) dries the kernels in such a way that the seeds will not germinate when planted. This is common knowledge for farmers and maize purchased from the GMB, or received through government food aid is therefore not used as planting material.[159] Many farmers plant High Yielding Maize Varieties and buy new seeds every year. Still, Bourdillon *et al.* (2002) show that some farmers also use maize kernels saved from last year's harvest as planting material, both in cases of Open Pollinated and High Yielding Varieties. To encourage agricultural production after drought years and to assist farmers who consumed their planting material or did not have enough money available to buy new planting material, the Government provided a crop pack for one or two acres of maize.

[159] A considerable part of the maize imported/donated for the food programme in 1992 was yellow maize, a variety that is not used in Zimbabwe. Food aid beneficiaries regarded the yellow maize with suspicion and argued that their physical constitution suffered from this strange variety.

7.2.2. Targeting

In their different forms and approaches, the food aid programmes under the Drought Relief Programme used a combination of targeting methods. Over the years, food aid was first and foremost geographically targeted, based on provincial rainfall maps provided by the Department of Meteorological Services and local crops forecasts provided by local agricultural extension staff. In the designated areas, formulated criteria were used to screen households on their eligibility. However, as the 1992 drought developed and was announced a national disaster in March 1992, it was impossible for the government to target the areas hardest hit by the drought as every politician wanted to make sure that his or her constituents were getting their share (Hicks, 1993). As the number of applicants for relief food was large in relation to the quantity of food available for distribution, the Ministry of Social Welfare defined clear eligibility criteria. These stated that a household did not qualify to receive food and participate in food for work projects if the household met one of these criteria:

- harvested more than 15 bags of grain
- sold crops for more than Z$ 300
- had more than four bags of grain in store
- with a head/spouse was employed
- had a herd of 10 head of cattle or 20 goat/sheep or a combination of 15 beasts
- received public assistance[160]

These strict eligibility criteria were not necessarily put in practice, as local ministry representatives often lacked the means to screen participants properly and many households felt they were entitled to assistance, simply because “I voted”, or “I fought in the struggle”. Besides screening by non-elected civil servants proved difficult to pursue in the presence of elected officials and a population that expected help from the government in this time of hardship (Hicks, 1993). Although Social Welfare Officers were in charge of the amount of food delivered to distribution points and set a rule for the allocation of the food[161] , the actual distribution of food to families was under the control of the local community and their leaders. This meant that guidelines had very little effect if a community decided that a different allocation was more equitable (ibid).

Under the Grain Loan Scheme areas were geographically targeted and subsequent household targeting was done through Grain Loan Committees (GLC). In communal areas this was done under supervision of traditional leaders (chiefs, headmen) and in resettlement areas the local government structures (village chairmen and councillors) were used. Officially, only households that could be expected to repay the grain in the future were eligible to receive a loan. In practice, this criterion was hardly ever applied as it was felt to be incompatible with the ultimate objective to prevent deaths from starvation. Households that were not eligible to receive food under the grain loan scheme should have applied for free food handouts. Yet, due to the limited budget of this programme and the time involved in application, a transfer of households from the Grain Loan Scheme to Free Food Handouts was often not encouraged.

[160] Public assistance is a means tested social security allowance provided by the government.
[161] Based on the number of household members and the number of days worked at the project.

Although in some areas the presence of food aid programmes was incidental and restricted to national drought years only, the distribution of food under the Drought Relief Programme was not restricted to 1992 and 1995 only. Nation wide, certain areas are more drought-prone than others and faced continuous disadvantaged conditions for crop production. In these areas, e.g. Chiredzi, Gwanda and Beitbridge in Southern Zimbabwe, the situation called for a continuous implementation of the relief programme and the programmes were restarted every October/November, when the households would start to deplete their food stocks. In the Resettlement Schemes in our study, the presence of the food aid programme was also not restricted to the national drought years. Table 7.1 lists participation rates in the government food aid programmes between 1992 and 1998. Participation in the programmes is very high in 1992 and 1995, with only a limited proportion of the respondents that does not receive food aid. But we also see that a considerable number of households did receive food aid in non-drought years, especially in Mutanda.

Table 7.1. Percentage of households in government food aid programmes 1992-1998.

Year	Mupfurudzi	Sengezi	Mutanda	All Areas
1992	95%	90%	96%	94%
1993	-	-	-	-
1994	3%	3%	26%	7%
1995	89%	80%	98%	88%
1996	4%	10%	24%	9%
1997	1%	4%	17%	17%
1998	0%	11%	13%	5%

Source: ZRHD data, information on participation in 1993 not available.

The vulnerability of the target group of the Free Food Hand Out Programme goes beyond weather conditions. Candidates for this programme were identified through the local leadership structure (brought forward by chiefs, headman, village chairmen and councillors). The identification was followed by a home visit of a social welfare officer during which the age (ID card), medical condition (doctor's certificate) and wealth position of an applicant was assessed. Generally, it took at least two months before an application was approved or rejected. Although a set of criteria was developed, reports from our research areas suggest that rules could informally be suppled and were applied differently in different areas. In Mupfurudzi for example, resettlement farmers were by definition not eligible for the free hand outs. They were believed to be able-bodied farmers who should be in a position to produce enough food for themselves in normal years. In the other areas, the free food hand out programme was accessible by both communal and resettlement area farmers. However, no respondents in our survey reported to receive food under this programme.

7.2.3. Availability and distribution of maize

The guidelines for the programmes suggested a distribution of 10-15 kilograms of maize per household member per month. But the actual distribution were mainly determined by the quantities of food available at the GMB, the state owned monopolist in grain marketing at that time, and the availability of vehicles for distribution. During the national droughts of the 1980s, Zimbabwe had significant maize surpluses that guaranteed availability of maize for distribution in the food aid

programmes. The national maize stock at the onset of the 1992 drought was completely different. In mid-1991 a deliberate policy of reducing national food stocks had been introduced, leading to a large maize stock reduction. Thus, when the scope of the 1992 drought became visible, there was hardly any grain available to be distributed in the food programme (Benson, 1998). As it took until October 1992 before the grain donated by international donors became available, the first months of the Food for Work Scheme, were covered by commercial imports. Yet the GMB could not allocate all the imports to the relief effort as it was simultaneously trying to build up stocks and meet commercial demands, including those of the large millers, who supplied the cities as well as the countryside with maize meal. As we will see in section four, the latter played a major role in preventing the extreme drought conditions from turning into a nutritional disaster (Hicks, 1993). As logistical constraints on the part of the government with respect to vehicles and personnel meant that even when enough maize was available, it could not always be distributed timely, the possibility for households to purchase food with their own resources proved to be important.

Due to the limited availability of maize for the relief programme in 1992, relief food was initially distributed every month, provided vehicles were available. The maize was delivered to a central place and allocated to household representatives who were present. Respondents explained that the community provided labour for offloading the food and although the transportation of the maize from the central place to farmers' homes was their individual responsibility, the logistics were generally organised on community level as well. Households would come together and decide how many scotch carts they needed and whose cart to use. In that year, no money was charged to households that did not have transportation means, it was a service provided by the villagers who had transportation means, as everyone was equally affected.

The arrangements under the Grain Loan Scheme were more varied. In 1995, more grain was available nation-wide. Although the grain market was liberalised and there were several commercial buyers/sellers at the market, relief food was still channelled through the GMB. The number of deliveries thus depended on the availability of maize in the local GMB outlet. Principally, recipient households were free to determine the quantity of grain they wanted to apply for. Although some local leaders indicated that they distributed the loans according to family size (at 5 or 10 kilograms per head), in the resettlement areas under study, the quantity of food received was more strongly correlated to the amount households applied for.[162] On average, households in the ZRHD survey received 70 percent of the quantity of grain they applied for. Again, grain was delivered to central locations in the areas where it was collected by the applicant or his/her representative or collectively by the village leadership. Respondents commented that under the latter arrangement, transport was collectively organised, while in the former arrangement the households themselves were responsible for the transportation of the grain to their homesteads. If the households did not have their own means of transportation, this meant they needed to hire the services from their neighbours, at an average rate of Z$3 per bag.

[162] Data collected on the grain loan in the 1996 ZRHD survey show a correlation coefficient of 0.62 between the quantity of grain received and the quantity of grain applied for, while the correlation coefficient between the quantity of grain received and the adult equivalent household members equals 0.47.

Transportation would occasionally be provided for free, but only to relatives or those who were expected to reciprocate assistance in the future.

7.2.4. Repayment of Grain Loan

Before applying for a loan, households were instructed that they would need to repay the grain they requested for and when they received the grain they had to sign a form that stated they were aware of this repayment condition. This form was legally binding and could be used by the District Administrator to enforce repayment, ultimately by confiscating household property. As rainfall and crop production returned to normal the next season, repayment was due after the 1996 harvest, initially in the from of maize. The District Administrator announced repayment dates to Councillors, who notified the Grain Loan Committee representatives to spread the word to the households in the village. A truck from the District Administrators office would come to the village or a nearby central meeting place to collect maize at the announced date. This repayment exercise was monitored by both a representative of the District Administrator and a local representative (either the WARD councillor, VIDCO chairman or Grain Loan Committee secretary), to ensure that repayment records were available at different levels. The minimum repayment quantity was set at one bag of maize (50 kilograms). If scales were available locally, grain was weighted on the spot but the quality of the grain was not screened.

In practice only part of the loans were recovered after the 1996 harvest. The Department of Social Welfare identified two main reasons for loan defaults (MPSLSW, 1999). Firstly, it proved difficult to organise the collection of the repayment efficiently. If their harvest allowed them to do so, farmers were generally willing to repay the grain they received in the previous year as they wanted to ensure access to future loans. However, due to difficulties with logistics (availability of vehicles and timely communication) the grain set aside for repayment was not always or not fully collected at the announced time. As no proper storing facilities were available at the central collection points and the grain was subject to a loss of quality, attacks by weevils or theft, farmers whose grain was not collected took it back home. Although the recovery exercise continued, farmers became reluctant to bring the grain to the central meeting point again and some even used the grain set aside for repayment themselves or sold it to commercial buyers in the area. Consequently, the costs of grain recovery increased relative to the benefits as trucks would drive around and collect little or no grain. Besides, the quality of the maize collected turned out to be lower than the quality of maize distributed, resulting in a loss in settling the GMB account.

A second and more important argument for the limited repayments was the lack of political support for recovery. The political leadership became silent about the exercise and the people came to think that they did not need to repay after all (MPSLSW, 1999). A social welfare officer commented: “The grain loan scheme is promoting the political leadership. It makes them more popular. You can only get more popular when you give things away, not when you start demanding repayments”. This lack of support meant that repayment was actually never enforced. Although originally the loan group structure was developed to promote repayments, in practice the possibility of group members to apply for a new loan was not conditional on past repayment records in the group, as is the case with many input loans provided

by commercial companies like Cottco. Moreover, the possibility to obtain a new loan was not conditional on the individual repayment record either. When the grain loan scheme was operational in the area in subsequent years, anyone could apply for a new loan. Data from the ZRHD survey show that at the inception of the programme and just after the 1995 grain deliveries 94% of the households expected to have to repay the loan, while by early 1998, this figure dropped to half of the interviewed households.

From the above we can deduce that local repayment levels will be related to local conditions. In the resettlement areas under study, 65% of the interviewed households who received a grain loan had fully repaid the loan by early 1997. But, there was a clear difference in repayment record in the three areas: 72% of recipient households in Mupfurudzi fully repaid the loan. In Sengezi this proportion was slightly lower, 66% while in Mutanda the repayment record was lowest (41%). This pattern reflects the agricultural potential in the areas and may also be related to the government structure. In Mupfurudzi, the government is more "present" and local government structure is stronger, while the households from Mutanda fall under two different districts and due to it's isolation, the local government structure is much weaker, and villagers take their own course.[163] Therefore, households in Mupfurudzi were more likely to be informed when repayment was supposed to take place and possibly local leadership structures were more oriented towards repayment.

When summarising the scheme on a national level, a total of 781,636 metric tons of maize grain had been loaned out from May 1995 to March 1999. If all of it were to be recovered, a total of Z$ 1.94 billion would have been realised. Yet only Z$ 51.4 million has been recovered since May 1995. A mere three percent (MPSLSW, 1999). A new phase of recovery was initiated in August 1999 when the ministers of the Drought Management Committee started to mobilise political support to intensify recovery. To reduce the costs of loan recovery and to make loan recovery independent of the availability of trucks to collect maize, households were encouraged to repay their loans in 1995 cash equivalents. Administrative constraints[164], unwillingness to repay on part of the farmers and limited (political) support for enforcement constrained this operation. Repayments were announced on the grass roots level, but many recipients were not willing to repay what was still outstanding. As the outstanding loans had not been mentioned since 1996, they were now regarded as free hand outs. Although the repayment records were much higher in the three resettlement areas compared to the national average, this attitude was also recognised in our research areas and is in line with a general attitude towards and the past behaviour of the Government (see also box 7.1). This point is also nicely illustrated by Bourdillon *et al.* (2002) who describe the attitude of farmers in Sengezi towards the loans they had received from the AFC in the early 1980s[165]:

[163] This is illustrated by the high incidence of squatting in the resettlement area. In stead of enforcing the rules and removing the squatters, local government officials have recently acknowledged their presence and provided them with a legal status as resettlement households.

[164] Records are only occasionally available (both on district and village level) partly because of a discontinuity in local leadership.

[165] The Agricultural Finance Corporation provided loan packages with maize seeds and fertilisers for farmers in the resettlement areas until the mid-1990s.The high default rate was the main reason why the AFC stopped providing this credit facility to the resettlement farmers.

....Default on these loans was widespread in Sengezi, reflecting a strong collective sentiment among farmers that loans were part of the free packages they received from the government. The AFC tried to force farmers to repay by confiscating their property, but the government intervened to stop such confiscation.....

A similar argument could be made with respect to the housing loans that the resettlement farmers received in the late 1980s.

Box 7.1. Farmer's perception of the food aid programmes

When we asked farmers to compare the 1992 Food for Work Scheme to the 1995 Grain Loan Scheme, generally, farmers preferred the Grain Loan Scheme as it provided them with the opportunity to have access to more grain. Moreover, as they did not need to work for it, they could devote time to other activities to generate additional income to meet food and non-food expenditures.

For some households it was difficult to repay the grain loan, as they experienced misfortunes with their harvests. Others were reluctant to pay because they argued it was the responsibility of the government to assist them with food in times of drought. Given this difference in willingness and ability to repay the grain loan, some farmers argue that the Food for Work Programme was better: "..because we all worked and received grain, while with the Grain Loan Scheme some did not repay and hence received free gifts…."

Source: in-depth interviews.

7.3. Consumption variables

To assess if the government food programmes succeeded in meeting drought induced food needs, we need to have information on actual food consumption and households' annual food needs. In this section we explain how these variables are constructed from the ZRHD data set and we refer to some possible sources of bias in our calculations. It follows that when we use the concept consumption in this chapter, we strictly refer to food consumption, more specifically to staple food consumption. This means that non-food consumption, like clothing, medical fees, utensils etc, and non-grain food stuffs, like tea, sugar, groundnuts, beans, cooking oil etc. are excluded. With staple food consumption we specifically refer to the consumption of grain; maize, maize meal, millet, sorghum or rapoko.[166]

7.3.1. Actual annual food consumption

The ZRHD data set contains limited direct information on food consumption. Since 1994, respondents were asked about the food they consumed in the month prior to the interview. Although this could be extrapolated to annual food consumption by multiplying this consumption by twelve, the variability of consumption within one year (related to the seasonal fluctuation of food availability) makes it precarious to do

[166] Maize is the staple food in Zimbabwe, in ground form it is used to prepare a thick porridge, *sadza*, that is served with relish and (if budget allows) meat. If no mealie (or maize) meal is available, millet or sorghum is used to prepare *sadza*.

so.[167] Therefore, we have chosen an alternative approach to construct a measure of annual household food consumption: the amount of grain available for consumption over the year.

The amount of grain available for consumption (AC) can be calculated by adding up several components:

1. The production of grain (maize, millet, sorghum) minus the amount of grain sold and the amount of grain used for commercial processing.[168] This is net production (NP).
2. Grain in stock early in the year minus the grain in stock early in the next year. This is the stock flow (SF).
3. Grain received/borrowed from others (non government) including the amount of grain received in exchange for services (labour) or goods minus grain given/loaned to others. These are net private transfers (NT).
4. Grain purchased (PU).
5. Grain received from the government: food for work or grain loan scheme (FA).

This results in the following sum:

AC= NP+NS+NT+PU+FA

Note that net stocks and net private transfers can be both positive and negative. They are positive when stocks are used to meet consumption needs and households are net receivers of food through private networks. They are negative when stocks are increased over a year by adding food from household production or receipt of food and households are net providers of food to others in their private network.

We are aware that the consumption measure is a constructed measure and therefore subject to measurement error.[169] There are two important elements that should be taken into consideration. First, as is shown in table 7.2, the required information is not available for all years under study. Secondly, the different components were not always uniformly measured in the different years for which data are available or the timing of the survey affected the information collected. In some cases this can lead to an underreporting of household consumption. For example, for households in Mupfurudzi grain purchases are likely to be underreported because these households are interviewed on their food purchasing behaviour three to four months before the harvest. In Mutanda and Sengezi, households are interviewed respectively one to two months or one month before the harvest, a period in which food shortages are more likely to prevail, and hence grain purchases are likely to be higher. In Annex 7.2 we describe in more detail the possible effects on the constructed consumption measure.

[167] When we extrapolate 1995, 1996 and 1997 data on the consumption of grain in the month prior to the interview to annual figures, households on average report to consume respectively 181, 180 and 162 kgs per adult equivalent household member per year. This is significantly lower than the 225 kilograms per adult equivalent that we are using in this chapter. The figure is actually so low that it would question the physical survival of the farmers in question.

[168] Commercial processing is mainly beer brewing or food preparation.

[169] In sections four and five of the chapter we will see that some measurement error indeed is present, as some households reported consumption below physical survival. There is however no reason to believe that measurement errors are systematically disturbing the outcomes for specific households.

Table 7.2. Availability of data on food components in the years under study

	1992	1993	1994	1995	1996	1997	1998
Production	X	X	X	X	X	X	X
Stocks	NA	NA	NA	X	X	X	X
Purchases	X	X	X	X	X	X	X
Transfers	NA	X	X	X	X	X	X
Food Aid	X	NA	X	X	X	X	X

NA: data not available

These difficulties with regards to the available data should be kept in mind when interpreting the results in the empirical section of this chapter. They impact on both perspectives of consumption that we use: firstly, the contribution of the different components to total reported consumption and secondly the extent to which reported consumption meets the consumption needs of the household. The bias in the data will especially influence the latter as it relates the measured consumption to calculated consumption needs.

7.3.2. Household food consumption needs

How can we determine household consumption needs? These depend on the household composition and the minimum caloric requirements per household member. In their annual Food Security Vulnerability Assessments, the Food and Early Warning System Project (FEWS) use a consumption threshold that is based on the Zimbabwe national grain consumption over the 1990s and it is calculated at 250 kilograms of maize equivalent income per capita (MZEI)(FEWS, 2000). In their assessment households with less than 166 kilograms MZEI are highly food insecure and households that have
166-250 kilograms MZEI are moderately food insecure. Households that have more than 250 kilograms MZEI are considered food secure. To correct for the fact that not all household members need equal quantities of food and that households have a varied diet and also consume meat, milk, vegetables, beans and wild fruits etc. we use a minimum of 225 kilograms of grain equivalents[170] per adult equivalent household member.[171]

Although this measure of food security can certainly provide adequate information, calculating food security with this threshold has three possible shortcomings. First, as we only have information on the composition of the household at one date in the year, it only allows us to calculate the consumption needs of the household at that particular point in time. This means the figure does not capture the dynamics in household

[170] This is calculated as follows; The FAO estimates a daily calorie need of 2390 kcal per capita (Morgan, 1991). This is equivalent to 3335 kcal per adult equivalent per day. Annual caloric needs are 365*3335=1217275 kcal. FAO also estimates that 67 percent of the daily calorie intake comes from cereals (FAO, 2003) So grain has to supply 0.67*1217275= 815574 kcal per annum. With a nutritional value of 3630 kcal per kg (Renqvist *et al.*, 1986), this means 815574/3630=224.6 kilograms of maize per adult equivalent.

[171] Adult equivalent scales are calculated as follows: 0.56*number of baby boys (0-9 yrs)+0.52*baby girls+0.8*boys(9-14)+0.7*girls+0.67*elderly men (>50)+0.61*ederly women+1*adult men+0.75*adult women. Similar weights are used by Niemeyer (1991) and FAO (1957). We cannot correct the scale for pregnant or lactating mothers.

composition that may be experienced throughout the year. Related to the availability of food and or income generating activities members might (temporarily) move away from a homestead to seek greener pastures and reduce the pressure on scarce resources. Other members or visitors may temporarily stay at a homestead if the situation there is less strenuous compared to their own. These dynamics can both increase or decrease the consumption needs of the household and are expected to be especially important in drought years. Second, the calculated consumption needs are only based on the normal consumption pattern of the persons present in the household. However, there are circumstances when households need more food than just to cover their own consumption needs, *e.g.* when they host a social ceremony, like a funeral, kurova guva (memorial service one year after someone died), a wedding etc. And third, in practice households consumption needs may be reduced during drought (and even non-drought years) through the extensive coverage of the donor sponsored Child Supplementary Feeding Programme. Under this programme vulnerable children under five[172] and pregnant and lactating women were provided with a daily supplementary meal on five days a week. This meal was intended to provide a third of the total daily requirements (Wiechen, 1994). Later, the programme was extended to include primary school children as well. In five survey years, households were asked if their children benefited from this program. In three of these years (1994, 1995 and 1996) more than half to two-third of the families indicated that their children were fed through this CSFP, with sometimes up to six children per household. After 1996, these figures were lower, 30 percent in 1997 and only 7 percent of interviewed households in 1998.

7.4. Food Aid and Household Consumption: initial findings

Both the Drought Relief Programme (DRP) and the Grain Loan Scheme (GLS) were set up to meet drought-induced food needs of otherwise self-sufficient rural households (World Bank, 1995; Kaseke, 1998; MPSLSW, 1999). In this section we want to assess if the programmes achieved this aim. First, we will consider the magnitude of drought-induced food needs by comparing household grain production in drought and non-drought years. Then, we will review the contribution government food aid to household consumption needs in 1992 and 1995. However, this is not sufficient to evaluate the impact of the programme. We also want to assess if the underlying assumption of the government programmes, that rural households meet their consumption needs through crop production in non-drought years, is reasonable. We will refer to the assumption that farmers will meet their consumption needs through their own production as the food self-sufficiency hypothesis.

7.4.1. Grain production, food aid and household consumption needs

To evaluate the impact of the government food programmes and the food security hypothesis underlying the programmes, we need to evaluate the contribution of different sources of grain to household consumption needs. We start with grain that is produced by the household. Table 7.3 relates the quantities of food grains produced

[172] Areas for the CSFP were targeted on the nutritional status of children under five. If more than 10 percent of the children under five were undernourished, all children under five in that area were eligible for a supplementary meal (Wiechen, 1994).

on the farm to the consumption needs of the household, defined at 225 kilograms of maize per adult equivalent household member. The figures reflect the proportion of consumption needs that is covered by the harvest of grains. 2.19 in 1994 means that on average households produced enough grain to meet 2.19 times their consumption requirements. The figures in the table show that in non-drought years across the resettlement schemes, households on average produced enough food to meet household consumption needs, in 1996 even up to 3.49 times the calculated requirements. In 1992 and 1995, households were generally not able to produce enough food to meet their own consumption needs. The impact of the droughts on food production is however not the same in all three areas. In both years, households in Sengezi were significantly better off compared to households in Mupfurudzi and Mutanda, especially in 1995 when households in Sengezi produced more than the required food needed for consumption.

Table 7.3. Contribution of household grain production to consumption needs

Year	Total sample	Mupfurudzi	Sengezi	Mutanda
1992	0.13	0.01	0.34[h]	0.06
1993	2.71	2.77	3.66	1.73[l]
1994	2.19	2.25	2.52	1.82
1995	0.84	0.39	1.71[h]	0.44
1996	3.34	3.11	3.41	3.49
1997	2.58	2.00	2.16	3.54[h]
1998	2.23	2.84	2.06	1.80

[h] mean is significantly higher than in other areas (0.05)
[l] mean is significantly lower than in other areas (0.05)
Source: ZRHD data

The figures in table 7.3 suggest that households in Sengezi are generally best off in terms of food production and they produced significantly higher proportions of food relative to their consumption needs in 1992 and 1995. While households from Mutanda produced significantly more in 1997, households from Mupfurudzi never attained this position. Although as such this should not be disturbing as Mupfurudzi households generally produce (more than) enough grain to meet the household consumption needs, the lower food production in relation to the consumption needs is not in line with the agricultural potential of the area. As Mupfurudzi is most suitable for crop production, we expected to observe the highest food production relative to consumption needs there. The figures presented in box 7.2. suggest that this observation may be related to a cash crop orientation in Mupfurudzi.

In interpreting these figures on household grain production, we need to be aware that not all the grain that is produced by the household is available for food consumption. Households sell part of the food grains they produce to meet credit obligations and cash needs (*e.g.* to pay school fees and buy inputs), and use some as input in food processing for commercial purposes, like brewing traditional beer. In table 7.4 the production figures are corrected for grain sales, processing and other activities that withhold grain from consumption.[173] The figures show that on average over the five

[173] More particularly grain used in barters for goods or services, grain used in social ceremonies and grain used to repay the 1995 grain loan that households received from the government. These data are

non-drought years and across the resettlement schemes, households attain food security. They retained enough food from their production to meet household consumption requirements, with low availability of food in 1994 (0.84 times the consumption needs) and high availability of food in 1996 (1.28). This high retention of grains in 1996 can be explained by the need to have more grain than is necessary for consumption only. This is related to the need to repay the grain loan to the government and to accumulate grain stocks. The latter may be a response to the use of grain from stocks during the 1995 drought or is aimed at securing a buffer in case food production would be affected by another drought. [174]

Box 7.2. Cash crops versus food crops

Although they have the same quantity of land available for cultivation, households in Mupfurudzi and Mutanda plant more acres with crops compared to households in Sengezi. Households in the three areas also have a different cropping pattern. Compared to Sengezi and Mutanda, more acres are planted with a cash crop (tobacco, cotton or sunflower) in Mupfurudzi. Households in Mutanda plant most acres with food crops (maize, millet, sorghum, rapoko, groundnuts and beans), followed by households in Sengezi and Mupfurudzi. This applies for grain as well as groundnuts and beans. This cropping patterns may reflect differences in soil quality.

Proportion of acres planted with cash crops and food crops

	Total acres planted	Prop. with cash crops	Prop. with food crops	of which grains	Groundnuts and beans
Mupfurudzi	9.02	0.41	0.59	0.53	0.06
Sengezi*	6.85	0.07	0.90	0.76	0.14
Mutanda	8.52	0.10	0.90	0.67	0.23

All differences are significant at 0.05 level, except between Mupfurudzi and Mutanda in total acres planted and Sengezi and Mutanda in proportion of cash and food crops planted.
* Households in Sengezi do not sum up; other crops excluded.

Source: ZRHD data

Table 7.4. Contribution of grain stored to household consumption needs.

Year	Total sample	Mupfurudzi	Sengezi	Mutanda
1992	0.13*	**0.01**	**0.33***	**0.06**
1993	1.08	**1.21**	1.14	0.89*
1994	0.84*	0.88	**0.89**	**0.75**
1995	0.61*	**0.37**	1.07*	**0.39**
1996	1.28*	**1.18**	1.30	**1.35**
1997	1.04	0.99	1.04	1.08
1998	0.99	**1.27**	1.07	**0.64***

* significantly higher or lower compared to other figures in the same line (0.05)
Bold figures are significantly different from 1 at 0.05 level
Source: ZRHD data

not available for all households and all years under consideration, so the figures in table three are only partially corrected for this. For more information see also annex 7.2.

[174] In table 7.6 we will see that food from stocks contributed only limited to the consumption during the drought. Early 1995, households on average had 173 kgs of grain in store and consumed 84 kgs during the 1995 drought. After the 1996 harvest, households on average stored 504 kgs of maize, to secure future consumption needs.

Table 7.4 also indicates that households were clearly not able to retain enough grain from their own production to meet the consumption needs of the household in drought years. In 1992 and 1995 households on average only retained grain to a level of 0.13 and 0.61 of the requirements respectively. When we compare the different regions, households in Sengezi did significantly better in the drought years, while households in Mutanda were significantly worse off compared to households in Mupfurudzi and Sengezi in 1993 and 1998. Especially the latter year is puzzling, as the figures on the harvest in presented in table 7.2 suggest otherwise. A similar pattern applies to households in Mupfurudzi. Especially in 1994 and 1997 they have retained a small proportion from the (on average) abundant harvest, although the contribution of grain from production is not significantly different from one. Why would households endanger their food security by selling substantial parts of their grain harvest? This is not rational, unless household sell part of their grain crops immediately after the harvest when they need to meet certain cash needs (e.g. payment of school fees, credit-obligations etc) and supplement their food requirements from sources of food other than their own production. We will address this question after we have considered the contribution of food aid to household's consumption needs in drought years.

To assess the question if the government adequately responded to the drought-induced food deficits, we added the quantity of food aid received to the grain produced and retained by the household and divided it by the household consumption needs. The outcomes are presented in table 7.5. In the aggregate, government food aid was not sufficient to bridge the gap to meet household consumption needs in 1992 while it was sufficient in 1995. In the latter year, the measured consumption was not significantly lower than the household consumption needs. When we compare the contribution of food aid to household consumption in the two drought years, we see that it was significantly lower in 1992 when it covered only twenty one percent of household food needs. Lower volumes of government food aid are also reflected in the volumes of food received per adult equivalent household member: the mean of 47 kilograms in 1992 is significantly lower than the 82 kilograms in 1995. It is likely that these differences are related to the situation in the country in 1992 and 1995.

Table 7.5. Contribution of food aid and production to consumption needs

	All	Mupfurudzi	Sengezi	Mutanda
1992				
Production	0.13	0.01	0.33	0.06
Food Aid	0.21	0.28	0.15	0.20
Total	0.34*	0.29*	0.48*	0.26*
1995				
Production	0.61	0.37	1.07	0.39
Food Aid	0.37	0.30	0.17	0.61
Total	0.98	0.67*	1.24	1.00
Sign. Level difference in means food aid 1992-1995	0.000	0.476	0.711	0.000

* significantly lower than 1 at 0.05 level.
Source: ZRHD data.

In 1992, the government was not prepared for a devastating drought and national maize stock was too low to meet the urgent needs. Large volumes of food needed to be imported to meet the consumption needs of the population, therefore it took some time before the relief programmes were operational. Additionally, the Government just embarked on a Structural Adjustment Programme that severely limited the funds available for the relief operation. On the other hand, grain reserves were high in 1995 and budget limits were not so much reflected in the quantities of grain distributed, as the government expected to recover these costs in the following years when the grain loans would be repaid.

The outcomes for 1992 are similar across resettlement areas, with households in Sengezi being best off because the potential to produce food was slightly less affected compared to Mupfurudzi and Mutanda (see also figures A.7.2-A7.5. in Annex 7.1). The picture for 1995 is mixed. Households in Sengezi were best off, again because the drought did not affect the potential to produce crops to the same extent as the other areas. Government food aid supplemented their own production that was already sufficient to meet household consumption needs. Households in Mutanda and Mupfurudzi faced similar production losses but different contributions of government food aid. Households in Mutanda received a much higher proportion of food aid compared to 1992, which was sufficient to supplement their own production. Households in Mupfurudzi received comparable quantities of food compared to 1992 and faced the situation in which grain available from food aid and production was significantly below the consumption needs of the household.

Why did households in Mupfurudzi receive less food aid compared to households in Mutanda? They faced similar production deficits and also applied for similar quantities of food aid. The 182 kilograms per adult equivalent household member requested in Mutanda is not significantly higher than the 174 kilograms per adult equivalent household member requested in Mupfurudzi. However, households in Mupfurudzi received significantly less food aid, 69 kilograms per adult equivalent household member compared to 138 kilograms per adult equivalent in Mutanda. There may be two possible explanations why households in Mupfurudzi received only half the ration of households in Mutanda. Either, district authorities experienced a shortage of grain for distribution under the relief programme. Or the programme was implemented differently in different areas. Information from the Zimbabwe Drought Relief Programme Data Archive suggests that the amount of grain available for distribution in the relief programmes cannot explain why households in Mupfurudzi receive lower amounts of food aid. The availability of grain per eligible food recipient is actually higher in Shamva district where Mupfurudzi is located compared to Mutare and Makoni district, where Mutanda is located.[175] Discussions with district authorities in the areas did however reveal different perceptions on the programme and its target groups. In Shamva district, officials responsible for the implementation of the relief and social welfare programmes regarded resettled farmers and communal farmers differently with respect to their needs. As they have considerable landholdings and

[175] When the number of people that requested food assistance and were found eligible is divided by the actual volumes of grain that were made available for distribution, we find that the local government in Shamva on average had 6.6 kgs to be distributed per eligible requester per month, while the local government in Mutare and Makoni district on average had 5.9 and 5.7 kgs per eligible requester per month (calculated from FEWS (1997).

were selected as able-bodied farmers at the time of settlement, resettled households are expected to be self-sufficient in food production and therefore excluded from government relief programmes in non-drought years. On the other hand households from communal areas were eligible for assistance with food in non-drought years. This distinction based on resource endowments was not apparent in discussions with local officials in Mutare, Makoni or Buhera district. These officials were predominantly concerned about preventing hunger and drought related deaths, both in the communal areas and the resettlement areas in their districts. The perception that resettled farmers are able to fend for themselves may have resulted in a relatively low allocation of relief food to Mupfurudzi in 1995.[176] One could also argue that the infrequent operation of relief programmes in Mupfurudzi may also have hampered the development of an efficient organisation of the programme in the villages and hence the effectiveness of the programme. However, this is not likely to affect the volumes of grain distributed, but only the number of households covered.

7.4.2. Other sources of food

Data presented above showed that household food production and government food aid were not sufficient to meet household consumption needs in 1992, while in some non-drought years grain sales could jeopardise the availability of grain for household consumption. These findings suggest that households have access to other sources of food, both in drought years and in non-drought years. Consider tables 7.6 and 7.8 to 7.10 on the contribution of sources of food to reported consumption, respectively for the total sample and separately for the resettlement schemes. Five sources of food are distinguished: grain retained from current production, grain consumed from stocks, grain purchased, grain received through private transfers and grain received through public transfers (government food aid). Note that these tables do not refer to the contribution of the component to calculated consumption needs, but to a component's contribution to the measured consumption. Together they should add up to hundred percent and the components stocks and transfers could be negative when households net added grain to their stocks or net transferred grain out. We will consider the relation between reported consumption and consumption needs in more detail in section 7.4.3.

As the type of year clearly influences the outcomes of this consumption pattern we first look at sources of consumption in non-drought years. When we consider all households in the sample (table 7.6) grain retained from own production is by far the largest contributor to reported consumption in non-drought years, followed at large distance by food previously produced (e.g. from own stocks). In 1996 we see a net increase in stocks, a considerable proportion of the grain production is used to build up stocks, while in subsequent years households used these stocks for consumption to supplement the grain from own production. In all non-drought years, households consumed some grain that was bought and to a lesser extent received from the government, but their contribution to reported consumption was on average low. Private transfers only played a marginal role, in 1996 and 1997 households received on average one percent of their reported grain consumption.

[176] Unfortunately, we do not have survey data to make the comparison of the quantities of food received in resettlement areas and communal areas.

In drought years, the sources of grain for consumption were significantly different. In line with what we reported before, the contribution of own production is low, especially in 1992, and needed to be supplemented with grain from different sources, notably government food aid and grain purchased by the households. The contribution of food aid to reported consumption is significantly higher in drought years compared to non-drought years, but is also significantly higher in 1995 compared to 1992, as we saw before. The contribution of grain from purchases on the other hand is not significantly higher in 1995 compared to non-drought years but very high in 1992.

Table 7.6. Contribution food sources to reported consumption (all households)

Year	Own production	Stocks	Purchases	Private transfers	Aid
1992	**0.12**	**-**	**0.64**	**Na**	**0.24**
1993	0.99	-	0.01	0.00	-
1994	0.96	-	0.03	0.00	0.01
1995	**0.48**	**0.06**	**0.03**	**0.01**	**0.43**
1996	1.76	-0.81	0.01	0.01	0.03
1997	0.79	0.17	0.03	0.00	0.01
1998	0.83	0.11	0.05	0.00	0.02

Source: ZRHD data.

This suggests that households coped differently with the drought in 1992 compared to the one in 1995. Obviously this has to do with a difference in the availability of grain from own production, which was larger in 1995, but also with the relatively large contribution of food aid from the government. In 1995, households could determine the volume of grain they applied for themselves. Although households usually did not get the full volume applied for, these figures suggest they received an amount that minimised their own purchases.[177] As we saw before, the amount of food provided by the government in 1992 was by far not enough to supplement the food produced by the farmers. Therefore, large quantities of food were purchased. Kinsey *et al.* (1998) show that these purchases are predominantly financed by livestock sales and to a lesser extent through savings, taking up (temporal) jobs or non-crop income generating activities (sale of vegetables, second hand clothes or crafts). The need for food purchases and the amount of food purchased is significantly lower in 1995, both at a household level (868 kilograms versus 37 kilograms) and on an adult equivalent basis (135 kilograms and 5 kilograms in 1992 and 1995 respectively). Therefore, we expect livestock sales to be significantly lower as well. Table 7.7 shows however that his is not the case. The number of livestock sold is significantly higher in drought years compared to non-drought years, and it is higher in 1992 compared to 1995. The 1992-1995 difference is however not statistically significant.

To understand this we need to consider another effect of a drought that we have not yet explored. Apart from a lack of grain to meet households' food consumption needs, households also experience a reduction in their earnings from crop sales in drought years, as is demonstrated in the third row of table 7.7. As referred to before, these earnings are used to meet credit obligations, to pay for school (and possibly medical) fees and non-grain food consumption (salt, tea, and cooking oil), etc. Considering the

[177] On average they received 70 percent of the amount of grain they applied for.

earnings from non-crop sources and the limited need to buy grain to meet household food consumption needs, it is likely that household could meet at least part of these expenditures in 1995. While the apparent need for considerable grain purchases in 1992 might have severely limited households to meet these non-grain expenditures. Unfortunately it is not possible to compare non-grain household expenditures in 1992 and 1995.

Table 7.7. Livestock sales and income earned through crop sales 1992-1998

Year	1992	1993	1994	1995	1996	1997	1998
Number of beasts sold[178]	0.87*	0.33	0.33	0.69*	0.42	0.37	0.48
Income from crop sales (in 1990 Z$)	85*	1886	1188	504*	1466	1094	1138

*animal sales significantly higher compared to other years (0.01 level)
* crop income significantly lower compared to other years (0.01 level)
Source: ZRHD data.

When we disaggregate the findings for non-drought years to resettlement area (tables 7.8 to 7.10) we see that on average for all households their own grain production is the dominant source of food for household consumption in those years. However, food from own production is often supplemented with food from stocks and some purchases, public transfers and private transfers. Generally, the contribution of own production to reported consumption is (significantly) higher in Sengezi, with a notable exception in 1996. In that year, households in Mutanda and Mupfurudzi had a significantly higher contribution from own production that in fact was used to build up stocks. [179] As we have indicated before, this is partly a response to the depletion of stocks to meet consumption needs during the 1995 drought. We also find a significantly higher contribution of grain from stocks for households in Mupfurudzi in 1997 and in Mutanda in 1997 and 1998. Considering these figures, we expect that consumption from stocks would have also played a role in the period 1992-1994, but we do not have data to confirm that. The contribution of food purchases to consumption fluctuates both between years and between households in different resettlement areas and is generally low (2-3% of reported consumption), with a relatively high contribution to consumption for households in Mutanda in 1998 (7%). Note however that the contribution of purchased grain to food consumption is likely to be underestimated in Mupfurudzi, as is explained in annex 7.2. The contribution of private transfers to consumption is only marginal and across resettlement areas, households are net receivers in one year, and net providers in others. That private transfers can be considerable, both in drought and non-drought years, and hence contribute considerably to the consumption needs of recipient households (and not the average) is suggested by the more detailed information on maize transfers provided in box 7.3.

[178] The number of beasts sold is measured in livestock equivalent units
[179] Stocks are predominantly filled with grains that are produced by the households. On average these account for 95% of the stocks, with 5% of stocks purchased. Food obtained from the government was only mentioned as a source of stocks in 1996 and 1999. In the aftermath of the 1995 drought, 26% of the households who had grain in stock indicated that this was grain received through food aid, in 1999 17% of households reported to keep food aid grain in stock.

It is mostly households from Mutanda who have a contribution through government food aid in non-drought years, most notably in 1996. As such this is not difficult to understand as the area they are farming is more drought prone and aid programmes are readily implemented when needs arise. For 1996 this is however difficult to explain, as production was generally high and on average households were in a position to restock, possibly because of the programme. Political motives may have played a role in the continuation of the GLS after the 1995 drought.

Table 7.8. Contribution of food sources to reported consumption in Mupfurudzi.

Year	Own production	Stocks	Purchases	Private transfers	Aid
1992	**0.01**		**0.67**		**0.33**
1993	1.00	-	0.01	0.00	-
1994	0.97	-	0.04	0.00	0.00
1995	**0.31**	**0.13**	**0.06**	**0.02**	**0.49**
1996	2.39	-1.41	0.01	-0.01	0.01
1997	0.73	0.23	0.04	0.00	0.00
1998	0.95	0.02	0.02	0.01	0.00

Source: ZRHD data.

Table 7.9. Contribution of food sources to reported consumption in Sengezi

Year	Own production	Stocks	Purchases	Private transfers	Aid
1992	**0.31**		**0.54**		**0.16**
1993	1.00	-	0.00	0.00	-
1994	0.98	-	0.02	0.00	0.00
1995	**0.81**	**0.01**	**0.02**	**0.00**	**0.16**
1996	1.25	-0.30	0.01	0.02	0.02
1997	0.86	0.09	0.05	-0.01	0.01
1998	0.87	0.07	0.04	0.01	0.01

Source: ZRHD data.

Table 7.10. Contribution of food sources to reported consumption in Mutanda.

Year	Own production	Stocks	Purchases	Private transfers	Aid
1992	**0.04**		**0.71**		**0.24**
1993	0.98	-	0.01	0.01	-
1994	0.93	-	0.04	0.01	0.02
1995	**0.32**	**0.04**	**0.01**	**0.00**	**0.64**
1996	1.70	-0.77	0.00	0.01	0.06
1997	0.77	0.18	0.01	0.00	0.03
1998	0.67	0.23	0.07	-0.01	0.03

Source: ZRHD data.

The general pattern of sources of grain for consumption in 1992 and 1995 is also visible in the three resettlement areas; a dominant contribution of purchases in 1992 and a dominant contribution of government food aid in 1995. For both years, households in Sengezi reported a significantly lower contribution of food aid to consumption compared to the other areas. Mupfurudzi households reported the highest contribution of food aid in 1992, while Mutanda households have highest contribution of food aid to consumption in 1995. Households in Mupfurudzi had the most diverse pattern of grain sources in 1995, with a significantly higher contribution of grain from stocks, grain from purchases and grain obtained through private transfers.

Box 7.3. Maize transfers in drought and non-drought years

In years of normal or good crop conditions, it is rather common for households to transfer grain, predominantly maize, to other households. These can be relatives or friends who live in the same village or elsewhere. In the ZRHD 2001 survey, we specifically elicited information on maize transfers and found that as much as 63 percent of the households reported such maize transfers. On average they gave 272 kilograms of their grain harvest to other households. For 38 percent of these households it was not the first time to give maize away. Interestingly, both communal and resettled households report these maize transfers, and the incidence is similar, although communal households give away a lower quantity of maize, on average 239 kilograms.

Interestingly, such grain transfers are not limited to years of normal or good crop conditions. Contrary to the expectation that informal insurance transfers do not provide protection in case of covariate risks such as drought (as all participants in the insurance pool are likely to be affected and hence there are fewer resources to be shared), we did find some evidence of grain transfers in drought years. Based on retrospective questions in 2000, we found in 24 percent of respondents in 1992 and 14 percent of respondents in 1995 gave grain to other families. The incidence of grain gifts was slightly higher in resettlement areas compared to communal areas. The quantities involved ranged between a bucket (15 kilograms) to 910 kilograms in 1992 and a bucket and 600 kilograms in 1995. In both years, the grain is provided to friends, relatives and neighbours who predominantly live in the same or a neighbouring village. This is especially the case for communal farmers, while resettlement farmers also provided grain to families in other rural areas. In 1992, three quarters of the maize transfers were gifts, while the remainders were barters and loans. In 1995, 65 percent of the transfers were gifts, 20 percent barters and 15 percent loans. Most households used their own resources for these transfers, in 1992 10 percent of the transfers were from food aid provided by the government while only one household reported the food aid as a source for transfers in 1995.

Source: ZRHD survey 2000 and 2001

7.4.3. The self-sufficiency hypothesis

From table 7.4 we concluded that households on average retained enough food from their own production to be self-sufficient in their consumption needs in non-drought years.[180] The year 1994 was a notable exception and in 1998 households in Mutanda

[180] This self-sufficiency hypothesis may be more generally applicable to resettled farmers as is suggested by the work of Harts-Broekhuis and Huisman (2001), who found that resettled households in Insiza District are food secure in non-drought years.

were not able to meet their consumption needs from the grain they retained. As in these cases food production was sufficient (see also table 7.3), but grain sales were too high, we now need to consider if the alternative sources of food mentioned above were adequate supplements to household production to meet the consumption needs of the household. Table 7.11 reports the extent to which reported consumption covered the calculated household consumption needs. Like in table 7.4, households could meet their calculated consumption needs in six out of seven years. Only in 1994 was the grain available for consumption significantly insufficient to feed the family.

Table 7.11. Part of household consumption needs covered.[181]

Year	All Households	Mupfurudzi	Sengezi	Mutanda
1992	0.94	0.89	1.05	0.89
1993	1.08	1.21*	1.14	0.89
1994	0.87*	0.90	0.90*	0.80*
1995	1.06	0.86	1.28*	1.07*
1996	1.00	0.84*	1.11	1.03
1997	1.34*	1.38*	1.22*	1.42*
1998	1.15*	1.32*	1.22*	0.92

* Score significantly different from 1 (Wald test with confidence level 0.05)
Source: ZRHD data.

When comparing the households residing in the different resettlement areas, we see that households in Mutanda did not have insufficient food in 1998 anymore, as they reported consumption from grain stocks to supplement household production. Households in Sengezi seem to be better off, however, households all three areas are significantly food deficit in one of the reported years. Households from Sengezi and Mutanda are significantly food deficit in 1994 while the reported consumption in Mupfurudzi was significantly below the consumption needs in 1996. This confirms our suggestion that the amount of grain purchased for consumption in Mupfurudzi is underreported. Remember that households in Mupfurudzi retained large volumes of grain from the 1996 harvest and used a considerable proportion of the harvest to increase their grain stock. Now, with so much grain in store, it is difficult to understand that households will actually not consume the required amounts. It is likely that they purchased the required amount of grain to meet their consumption needs.

It is however still not clear why households in Sengezi and Mutanda were not able to meet their consumption needs in 1994. They produced enough grain to meet their consumption requirements but they sold too much of the grain produced, possibly to meet credit obligations used to boast cultivation or rebuild households assets after the 1992 drought. Although the grain left for consumption was supplemented by purchases in both areas and private and public transfers in Mutanda, this was still not sufficient to attain the required level. Considering the importance of stocks in other years, it is likely that households supplemented their consumption with grain from stocks and the calculated shortage is merely the result of a lack of data in 1994.
To sum up, the food self-sufficiency hypothesis that was assumed in the government drought relief programme is reasonable for the resettlement farmers. Interestingly

[181] The significance of these results for non-drought years does not change when public transfers are excluded from the calculation.

however, self-sufficiency is not necessarily achieved through their own annual production, as some of the grains are sold to meet non-grain consumption expenditures and investments. Annual food production is supplemented by food that was previously produced (i.e. from stocks) and by purchased grains. The Government met drought-induced food needs in two areas in 1995 and the allocations of grain were too low in all areas in 1992 and in Mupfurudzi in 1995.

7.5. The importance of food aid for resettlement households

7.5.1. Distribution of food deficit households

So far we have discussed the food security position of the average resettled household in the ZRHD data set and the different resettlement schemes. We found that with the exception of one year, in general households are able to meet their consumption needs in non-drought years. Food produced on the farm is by far the dominant source of consumption. In drought years, the level of food production declines considerably, but is supplemented mainly by government food aid (1992 and 1995) and/or private purchases (1992) to a level that is on average sufficient to meet their requirements. Moreover, the consumption level attained in drought years is generally not below that of non-drought years, with two exceptions. The attained consumption level in 1997 is significantly higher compared to 1992 and 1995, while the attained consumption level in 1998 is significantly higher than during the 1992 drought.[182]

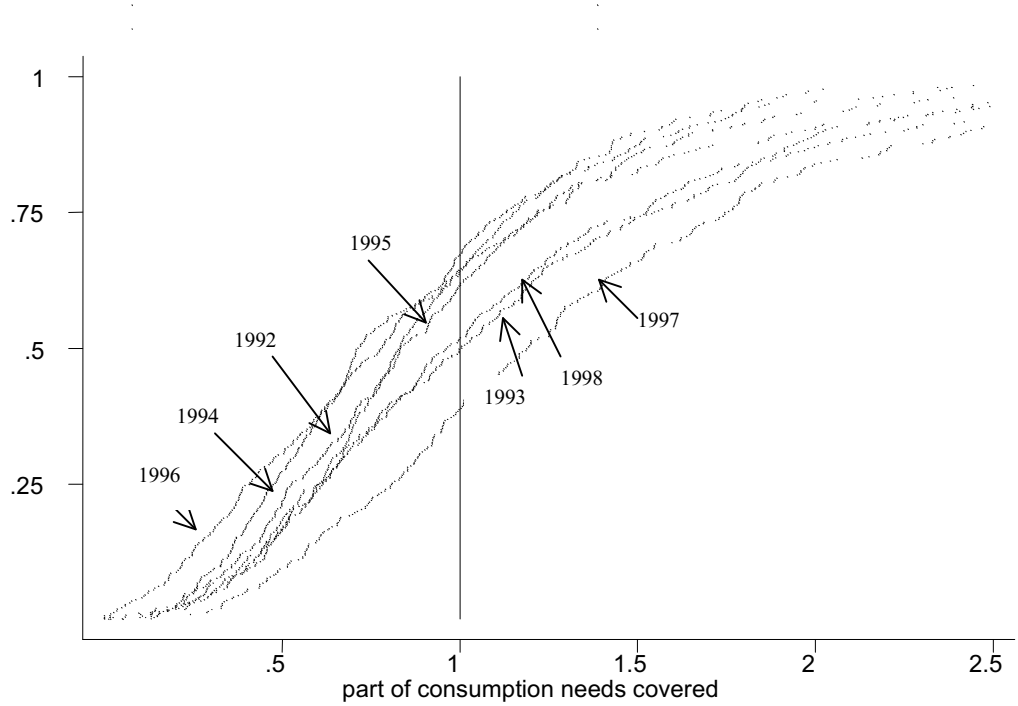
However, only considering averages may be misleading. We also need to look at the distribution of the attained consumption level in the sample, as the average household may have enough food to cover household consumption needs while a considerable number of households may be food insecure. And this is precisely what is happening in our calculations of averages. Households with more than enough to meet household consumption needs balance the households that have a food deficit, to an average that just meets the requirements in the aggregate.

Figure 7.2 shows the cumulative distribution of attained consumption level of all resettled households, for the seven years under study. The horizontal axis show the part of consumption needs covered (with one as the threshold level, if households score below one, they are food deficit) and the vertical axes indicate the cumulative percentage of households. To assess the incidence of food deficiency, we need to look at the steepness of the cumulative distributions; a steeper line indicates a higher percentage of households that are food deficit. We find that a higher proportion of the population reported consumption below their calculated requirements in 1992, 1994, 1995 as well as 1996. In 1993, 1997 and 1998 the proportion of households that are food deficit is lower, but still considerable. [183] This suggests that a considerable proportion of households was not self sufficient in non-drought years. Moreover, food aid provided by the government was not sufficient to meet drought induced food needs for a considerable proportion of households.

[182] Note also that the attained consumption level in 1992 is significantly below that of 1995.

[183] Note that the lack of information on grain stocks before 1995 and the limited information on grain purchases for households in Mupfurudzi is underreporting the measured consumption level relative to the required consumption level, which means that the incidence of food deficiency is likely to be overestimated.

Figure 7.2. Cumulative distribution of consumption outcomes in 1992-1998.



Source: ZRHD data.

Who are these households that were food deficit and more importantly, what was the reason they could not meet their consumption needs? Was the food aid provided by the government not sufficiently targeted? In section 7.5.2 we will analyse in more detail the access to food aid and consider various household characteristics, both related to household composition and portfolio diversification, that may explain observed differences in access to these public transfers.

7.5.2. Household characteristics and access to food aid

There are several characteristics of households that could affect the need to receive food aid from the government and their actual access to such public transfers. In this section we want to explore the relationship between household portfolio characteristics, their position in the village and the amount of food aid they received. We do this by regressing the amount of food aid received by the household (in kilograms per adult equivalent unit) on several household characteristics. First, we include a set of variables related to the portfolio of activities of the households, i.e. the potential to meet household consumption needs by own means, to assess targeting. As we saw in section four, this potential is largely related to the potential to produce food. As this potential to produce food can be highly variable across geographic areas and using households' production potential may introduce an endogeneity problem[184], we include the village mean maize production per acre. Next, we include two

[184] This endogeneity bias can be caused by unobserved characteristics that affect both low production and access to food aid. By taking village level means, the influence of such unobserved characteristics of the household are not disturbing the analysis.

variables on income diversification that reflect the options of households to buy food; non-crop income[185] measured both in a particular year and averaged over the years 1992-1998. To consider the importance of buffer stock strategies, we also include the availability of grain stocks, measured as the volume of grain stored per adult equivalent early in the year[186] and the livestock equivalent value of the animals that households possess. Note that these variables only indicate a potential: a potential to produce food, to consume grain from stocks, to sell cattle to generate cash and buy grain, etc.[187] As these portfolio characteristics can be interpreted in terms of both risk management and risk coping strategies, we expect a to find negative signs on these characteristics. A higher potential for agricultural production, higher non-crop income and larger buffer stocks result in a lower need for food aid and therefore to a lower amount of food aid received (a negative sign on the variable in the regression).

As wealth is often associated with cattle ownership in rural Zimbabwe the buffer stock variable can also be given a different interpretation, as the wealth status of a household may affect its' social position in the village. Since the food aid programmes were administered at village level, the position of the household in the village may affect the access to food aid from the government. We expect that rich households have a central position in the village and may therefore have had easy access to food aid, which would result in a positive sign on the livestock equivalent herd size variable. It is likely that other factors affect the position of the household in a village as well. Unfortunately, we do not have specific information on the relationships between the household and the agents responsible for the food distribution (the village chairman in 1992 and the Grain Loan Committee in 1995). But we can include four other variables on the position of a household in the village. Note that we expect to find a positive sign on a coefficient when households are more central in the village. If the distribution of food is organised along kinship or lineage lines, such relations to other households in the village may improve access to food aid. Similarly, access to other sources of food, notably private transfers, may be conditional on such relations in the village. We capture these dynamics with three variables. First, the number of kinship relations that a household has to other households residing in the same village. Secondly, a dummy variable that equals one if the household head is member of the lineage group that is dominant in the village and thirdly a variable that indicates the proportion of household heads in the village that have the same lineage as the household head.[188]

[185] Excluding livestock sales and public transfers.

[186] Available stocks are measured as the volumes of grain per adult equivalent in stock at the onset of the drought. Note that a precise definition of stocks at the onset of the drought was not available for 1992, as a proxy for this, we took the quantities of grain per adult equivalent retained from the 1991 harvest. If this was high, it is expected that stocks are still available, while if it was low, no stocks are available to supplement consumption. Over 6 years, the height of stocks in year x is significantly correlated to the amount of grain per adult equivalent that is retained from the harvest in yearx-1: coefficient 0.31.

[187] Although the actual use of these strategies could be included in the analysis as well, introduction of these variables would introduce the potential of reversed causality. That means that if we find a negative relation between the sale of livestock and the amount of food aid received, it will be difficult to disentangle whether the higher sales of livestock (and hence purchases of maize) resulted in a lower need to receive food aid, or whether the low allocations of food aid forced households to sell higher number of animals. Besides, such analysis would answer the question on how farmers actually met their consumption needs, while the proposed analysis deals more with targetting and self-selection.

[188] For more details on these variables, we refer to chapter three.

The fourth variable on households' position in the village is the sex of the household head. Zimbabwe, like many other African countries, is a society where men usually take a dominant position and therefore we expect that households who are headed by a woman[189] have a less central position in the village compared to male headed households. In discussions, widows, especially those without adult sons, have indicated that they are less involved in village level activities and felt they are taken less seriously as partners in (market) transactions since their husband passed away. The absence of a husband may for example affect the perceived potential for loan repayment in 1995. After all, officially, the maximum amount of grain to be loaned was determined by the household's potential to repay after the next harvest. Often, the absence of a husband is perceived to reduce the potential for agricultural production. Bourdillon *et al.* (2002) suggested that this disadvantaged position may be offset by the presence of one or more adult sons in the family, who act as the household head when obtaining credit and marketing products. Although this might be perfectly acceptable for a credit institution or a market institution, it is not entirely clear if the same would be achieved in the village organisation; the younger generation is often regarded with some disdain and not part of the "core" of the village. This may limit the access of the household to food aid. Alternatively, female-headed households may have a husband, who is working in town and sent food and other remittances when times get tough. Dekker and Hoppenbrouwers (1994) found that food or cash sent by absent household members was the most important component in household food security during the 1992 drought in a communal area in Southern Zimbabwe. Although labour migration was less common in resettlement areas, there is no reason to believe that this may not have played a role in our research areas, and the need for these households to receive food aid might be lower. To test these hypotheses, we include we a dummy for female headed households that equals one when a woman heads the household.

Finally, we also included household size (measured in adult equivalent household members) and we controlled for differences in program implementation by including dummy variables for the three different resettlement schemes. We performed the regression separately for the 1992 drought, the 1995 drought and the non-drought years for which we have information on food aid: 1994, 1996, 1997 and 1998. Table 7.12 reports the estimated coefficients of the analyses, with t-values in parenthesis. The sign of the coefficients tell us if there is a positive or a negative relation between the independent variable and the quantity of food aid received per capita and the t-values provide us with an instrument to assess if the relation found in the data is statistically significant. As a rule of thumb, a t-value higher than two allows us to reject the null-hypothesis that the coefficient on the independent variable is equal to zero and hence confirms a relation between the independent and dependent variable. The p-value of the coefficient describes the exact significance level of the estimated coefficient and assesses the probability of an incorrect rejection the null hypothesis. A lower the p-value indicates a lower probability of incorrectly rejecting the null hypothesis. Usually, a p-value larger than 0.05 (sometimes 0.10) is taken as a cut-off point. That is with a p-value higher than this threshold, the null hypothesis is not rejected and the coefficient on the variable is considered equal to zero.

[189] Households are defined as female headed if the plot is registered in the name of a widow or when the husband works in town and is away from the farm for most part of the year.

The second column of table7.12 reports our findings for the 1992 drought. Surprisingly, none of the portfolio characteristics were significant in explaining the observed differences in the quantities of food aid received, while variables on the position of the household in the village were. We found a positive and significant relationship between the proportion of households in the village that had the same lineage as the household head and the amount of food aid they received. This suggests that the distribution of food aid was influenced by social structures in the village. However, we also found a negative relation between the number of kin relations in the village and the quantity of food aid received on the one hand and membership of the dominant lineage in the village and the quantity of food aid received on the other. Although these coefficients were only significant at the 0.07 level, they do seem to point in an opposite direction; increased connections lead to receipt of lower quantities of food aid. We also found that large household received less food aid per adult equivalent household member during the 1992 drought and households in Mupfurudzi received significantly more food aid compared to households in Mutanda and Sengezi.

Table 7.12. OLS regression of quantities of food aid received

	Food aid received per adult equivalent household member		
	1992	1995	Non-drought
Mean maize harvest village	-0.10 (-0.97)	-0.06 (-4.03)**	0.002 (1.75)
Maize stocks	0.01 (0.70)	-0.06 (-1.17)	-0.002 (-2.53)*
Herd size/wealth	-0.36 (-0.58)	-0.55 (-2.57)*	-0.013 (-0.28)
Income diversification	-0.01 (-1.65)	0.000 (0.09)	0.000 (0.32)
Mean income diversification 92-99	0.002 (0.44)	-0.002 (-0.70)	-0.000 (-0.89)
Female Headed Household	10.57 (1.19)	-10.36 (-1.42)	0.17 (0.25)
Number of intra-vil. kin relations	-2.06 (-1.92)	-0.47 (-0.67)	0.14 (0.79)
Member of largest Lineage	-15.64 (-1.97)	-6.63 (-1.31)	2.30 (2.19)*
Proportion of intra-village lineage members	0.44 (2.20)*	0.28 (2.08)*	-0.07 (-1.90)
Adultequivalent household size	-3.65 (-5.45)**	-2.04 (-5.46) **	0.01 (0.11)
Sengezi	-8.15 (-0.94)	-80.37 (-7.84)**	-6.17 (-3.36)**
Mupfurudzi	20.68 (2.23)*	-60.14 (-8.42)**	-8.51 (-3.87)**
Constant	69.50 (5.92)*	161.86 (16.69)**	7.97 (3.37)**
No. of Observations	187	348	1331
R-squared	0.2121	0.4728	0.0746
F (Prob>F)	34.05 (0.0002)	36.88 (0.0000)	11.38 (0.0009)

Regression with stratification (resettlement schemes) and clustering (villages)
Significance levels of coefficients: 0.05 (*) and 0.01(**)
Source: estimated using ZRHD, lineage and kinship data.

For 1995 we found two significant portfolio characteristics. The higher the potential for agricultural production in the village that households lived in, the lower the amount of food aid that was received. Additionally, household received less food when they were more wealthy, i.e. when they had a larger herd that could be used in a buffer stock strategy. As in 1992 there was a positive relation between the proportion of household heads in the village from the same lineage and the amount of food aid received. We also found that larger households and households from Mupfurudzi or Sengezi received lower quantities of food aid.

In non-drought years, the picture is mixed. Although the coefficient is not statistically significant, we find a positive rather than a negative relation between the potential to produce food and the amount of food aid received; so larger amounts of food aid were distributed in areas that were less affected by a lack of rainfall. On the other hand, households with larger volumes of grain in stock received less food aid. Again lineage membership and the location of the resettlement scheme also affect the quantities of food aid distributed, although in this case the relationship between lineage membership and receipt of food aid was reversed. When the household head was member of the dominant lineage in the village, the amount of food aid received was higher, while an increased proportion of household heads from the same lineage decreased the amount of food aid received. Note however, that the latter coefficient is only significant at the 0.07 level.

In short, we found that during the 1992 drought, households received larger quantities of food aid per adult equivalent household member when they were small, when the proportion of households from the same lineage as the household head was higher, but not largest, and when they lived in Mupfurudzi. During the 1995 drought, households received more food aid if they were smaller, lived in a village in which agricultural production was more severely affected by the drought, owned less livestock, lived in a village with a higher proportion of households from the same lineage as the household head and lived in Mutanda. In non-drought years, households received more food when their food stocks were low, if they were member of the largest lineage group in the village and lived in Mutanda.

If we compare the determinants of the volume of food aid received in the two drought years, we find some interesting similarities and differences. First, we find that larger households are worse off in terms of their allocation of food aid per adult equivalent household member compared to their smaller neighbours. This suggests that the allocation of food aid was not responsive to the need of the larger households.[190]

The negative relations between portfolio characteristics and amount of food aid received suggest increased targeting in 1995: towards households that lived in villages in which agricultural production was more strongly affected by the lack of rainfall and away from wealthy households with a large cattle herd, who could potentially smooth consumption by sales of buffer stock. Possibly this resulted from the increased opportunities for self-selection that were introduced with the Grain Loan Scheme. We will come back to this issue in section 7.5.3.

For 1992 we did not find a significant negative relations between portfolio determinants and the amount of food aid received. As such this result is in line with the targeting problems that were also signalled by the government (MPSLSW, 1999). However, this lack of evidence for targeting or self-selection should not necessarily

[190] Note that larger households also produce less grain per adult equivalent household member, we found a significant negative relation between adult equivalent household size and adult equivalent grain production in the 1992 drought (-0.18), in the 1995 drought (-0.19) and in non-drought years (-0.24). Although these correlations could be explained by the potential bias in information on large households that is reported in chapter three, this bias cannot explain the lower quantity of food aid received by larger households, as the plot holder is both the eligible recipient of the food aid and the one reporting on the quantity of food aid received.

be given a negative interpretation. To understand this we need to value that this drought was referred to as "the worst in living memory" and as much as 75 percent of the households in our survey did not harvest any grain whatsoever. Considering this devastating impact it is likely that the government prioritised the distribution of food per se, rather than differential targeting for households with different means and portfolio diversifications. In that sense it is actually encouraging that we did not find evidence for a lower allocation of food to less central households like the poor and female headed households.

Another noteworthy result is the evidence we found on the lineage position of households in the village. Both in 1992 and 1995 we found a positive (and significant) relation between the proportion of households from the same lineage and the amount of food aid received. This suggests that the degree to which a household is connected to other households (in this case through a lineage relation) increased the amount of food aid received. However, the precise nature of this "connectedness" is not entirely clear as membership of the largest lineage group in the village and the number of kin relations in the village have a negative (but only marginally significant) effect on the amount of food aid received. These results are somewhat similar to patterns found by Barr (2004). When considering the determinants of household level civil social activities, she finds that households in villages with some initial social capital (i.e. some lineage and extended family relations) are more likely to be involved in local associations compared to households that live in villages that are not diverse in lineage membership and with higher density of kinship relations. Barr concludes that a certain level of initial social capital may be important for the development of civil associations, but too much or too strong social capital may actually hamper group formation. A similar argument could be made for our case of food aid: some social capital will improve a household's access to food aid, while too many relations in the village will constrain the access to food aid. Therefore, we conclude that although we do find some indications of favouritism, the level is limited and does not dominate the distribution of food aid. Alternatively, the lower per capita food allocations for membership of the largest lineage group in the village and households with more kinship relations to other households in the village may indicate the presence of private risk sharing arrangements that reduce the demand for public food aid. We saw in box 7.3 that such private transfers did occur, both during the 1992 and 1995 drought. However, given the low level of available resources (especially in 1992), it is not likely that such intra-village transfers would actually reduce the quantity of food aid demanded by considerable amounts. As we saw earlier, private transfers only contributed a tiny fraction to household consumption needs.

Another noteworthy finding is the fact that households from Mupfurudzi received more food aid in 1992, while in the all the other years, households in Mutanda received higher allocations compared to the households from the other areas. This may appear logical as Mutanda is situated in the natural region that has a limited agricultural potential and is most susceptible to droughts. But we have (at least partly) corrected for these differences by controlling for the effect of rainfall on agricultural production. Moreover, we have also corrected for the possible differences in potential coping strategies (to consume grain from stocks or to sell cattle) between the three areas. Still there is a difference. Most likely, because of the more adverse conditions in Mutanda, the responsible government officials are more used to running the

programmes and run them more easily or out of habit rather than specifically responding to a certain situation.

The importance of connections, the negative relationship between households size and food allocations and the persistent existence of the programme in one area confirm the statements of the Ministry of Social Welfare that the food aid programmes were also used for political purposes. Our findings show that the actual distribution of food was not just based on the needs of the households during the drought years but also allocated politically. This is confirmed by the importance of lineage relationships in non-drought years. In this light, the highly politicised nature of food distributions that were reported in 2002 and 2003, when the government denied the access to food (both in public transfers and the market) to political opponents (Carver, 2002) were not without precedent. With the important qualification that the nature and impact of the politics of food distribution in the 1990s were by no means comparable what happened more recently.

7.6. Increased self-selection?

We already discussed the performance of food aid programmes in meeting the drought-induced food needs of farm households and found that the food for work programme in 1992 did not meet this aim, while the Grain Loan Scheme from 1995 did. A second aim of the food programmes was to reduce dependency on government food aid in times of drought[191] and to improve the targeting of households. Through the set-up of the programmes, the government wanted to encourage self-selection of households. In the food for work programmes this was done by asking households to provide labour and under the grain loan scheme this was done through the introduction of the loan element. It was argued that households would choose not to invest labour in food for work or not to apply for grain under the grain loan scheme if they were able to meet their consumption requirements through own means. The results of the determinants of the quantities of food aid distributed in 1995 suggest at least partial self-selection as households in villages that were less affected by the drought and with larger cattle herds received lower food allocations.

Another way to assess self-selection in the government programmes is to look at the achieved consumption level of households that did not receive food that was distributed by the government. Table 7.13 shows that non-recipient households on average had a consumption level below their requirements in 1992. In Sengezi, the consumption level was not significantly below the requirements, while in Mupfurudzi it was. Only two households were not participating in the food programme in 1992 in Mutanda, their attained consumption level was 0.99 and 0.45 respectively. These findings suggests that in Sengezi some self-selection took place in 1992, while in Mupfurudzi and Mutanda other factors determined the non-participation in the food programme.

[191] In targeting literature, an increased dependency is said to be observable by a decrease in area under grain cultivation. Although our data shows a significant decrease of grain acreage from 5.1 to 4.5 per household, it is not possible to attribute this decline solely to the existence of reliable food aid programmes. There are many more factors at work that could explain this decline. Such analysis is beyond the scope of this chapter.

For 1995, we find more evidence for self-selection as on average all households that did not receive a grain loan reported a consumption level that was equal or higher to their consumption requirements. Note the large difference in consumption level between recipients and non-recipients in Mupfurudzi. These findings suggest that the 1995 drought was not covariate in impact in Mupfurudzi. Further analysis shows that it predominantly affected villages in the south-western part of the resettlement scheme, while the villages in the north-eastern section were less affected. [192]

Table 7.13. Mean consumption levels of recipient and non-recipient households.

Year	Recipients	Non-recipients
1992		
All households	0.95 (N=289)	**0.84** (N=19)
Mupfurudzi	0.90 (N=186)	**0.66** (N=10)
Sengezi	1.06 (N=55)	0.95 (N=7)
Mutanda	0.90 (N=48)	0.72 (N=2)
1995		
All households	1.03 (N=324)	**1.39** (N=39)
Mupfurudzi *	0.76 (N=191)	**1.70** (N=22)
Sengezi	1.29 (N=75)	1.24 (N=16)
Mutanda	1.06 (N=58)	1.03 (N=1)

* means significantly different at 0.0006 level
bold figures significantly different from 1 (0.05)
Source: ZRHD data

Although these findings do suggest at least increased self-selection in 1995, there are two important reasons why we cannot conclude that full self-selection was attained. First, there are still a considerable number of households, some twenty-five percent, who received a grain loan while they would have been able to meet their households' consumption needs from their own grain production, grain stocks, purchases and private transfers. Secondly, not all households who did not receive a grain loan had not applied for a loan either. Some did apply but did not receive grain because something went wrong with their applications. Therefore, not receiving a grain loan is not necessarily an act of self-selection on the part of the household. This is confirmed by a detailed look at the data on reported consumption. Although the average reported consumption level of non-recipients was equal to or higher than the amount of food required for consumption, a considerable number of households could not meet their requirements. 16 of the 39 households that did not receive a grain loan in 1995 reported a consumption level lower than their requirements.

[192] Households in the five villages in the south-western part of the scheme on average reported a maize yield of 68.2 kg per acre, while the households in the four villages in the north-eastern part of the scheme reported an average maize yield of 223 kg per acre. In the latter group, the two northern most villages reported highest production potential.

7.7. Conclusion

In this chapter we assessed the contribution of two government food aid programmes in meeting household consumption needs. To this end, we constructed two consumption variables, the actual annual food consumption (based on production, net stocks, net transfers, purchases and public transfers) and the food consumption needs (based on the nutritional requirements of the adult equivalent household members. We reviewed the importance of the various components in the actual consumption measure and assessed the overall level of consumption attained, in the aggregate and separately for each resettlement scheme.

The Food for Work Scheme (1992) and Grain Loan Scheme (1995) were aimed at meeting drought-induced food needs of farmers who were expected to be self-sufficient in non-drought years. We showed that this self-sufficiency hypothesis is reasonable for households who live in resettlement areas. Yet, we did find that annual consumption needs are not only met through the consumption of maize that was produced in the same year. This has not so much to do with a shortage in food production, but with the fact that a substantial part of the produced grain is sold to generate cash or repay input loans. The sale of grain is made possible by the availability of grain from previous harvests in households' grain stocks. Stored grain is often used as a supplement to current production in meeting annual consumption needs, as is grain that is purchased.

Our analysis of the different food components revealed that the Government could not meet the drought-induced food needs in 1992. Due to budgetary constraints, the grain distributed through the Food for Work Programme was limited. Shortages of food that households experienced because own production failed were predominantly met through grain purchases, to a level that was on average sufficient to meet consumption needs. In 1995, the Government also faced budgetary constraints, but this did not hamper the distribution of food under the Grain Loan Scheme. The Government expected to recover a considerable part of the costs incurred by the repayment of the grain loans in later years. The volumes of food distributed were larger compared to 1992 while the drought-induced food needs were lower. On aggregate, the grain loan was sufficient to meet drought-induced food needs, while grain purchases were not significantly higher compared to non-drought years. The effect of the programme was differentiated in the different resettlement schemes: farmers in Sengezi on average did not experience drought-induced food needs but received a considerable contribution from the government. The grain loan was sufficient to meet drought-induced food needs in Mutanda while it was not sufficient to meet drought-induced food needs in Mupfurudzi.

More detailed consideration of the consumption outcomes showed that the average outcomes conceal a much more diverse pattern with a considerable number of households that could not meet their consumption needs and other households that lived in plenty. This suggests the government food aid programmes were not properly targeted. We explored this question with a regression analysis of the per capita allocations of food aid on household portfolio characteristics, the position of households in the village and several control variables such as household size and area dummies in 1992, 1995 and non-drought years. We did not find any evidence on targeting in 1992, while in 1995 cattle rich households and those who live in a village

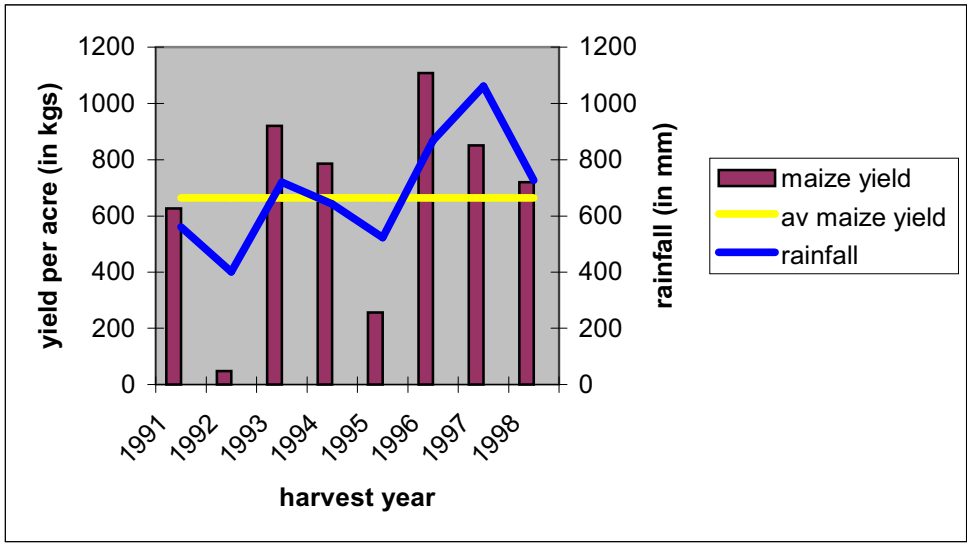
that was less affected by the drought received lower allocations of food aid. In non-drought years households with more maize in stock received less food aid. For both drought years, we also found that households with some (but not too many) connections in the village received more food aid and that larger households received a lower allocation of food aid per capita. In all years, 1992, 1995 and the non-drought years, the per capita quantities of food aid were also differentiated to area. In 1992 they were highest in Mupfurudzi, while in 1995 and non-drought years, households from Mutanda received most food aid. As we controlled for the mean maize production in the village, these differences cannot be explained by the prevailing whether conditions or agro-ecological differences affecting the potential to produce. These observed differences rather reflect geographically differentiated experiences in running programmes or, more likely, political use of the food aid instruments. The limited evidence we found on targeting also confirms this: the importance of connections, the lower quantity of food received by large households and the limited evidence on the importance of household portfolio characteristics.

Our findings suggest an increased level of self-targeting since the introduction of the loan element in 1995 as households in villages with relatively good production potential and households with larger buffer stocks received lower quantities of food aid. We also found that fewer households participated in the Grain Loan Scheme in 1995 compared to the Food for Work Scheme in 1992 and that non-recipient households attained a higher consumption status in 1995 compared to the recipient households. Still, we cannot conclude that the Grain Loan Scheme was fully self-targeted. A considerable proportion of non-receivers could not meet their consumption requirements and there were many households who applied for and received a grain loan, while in fact they would have been able to meet their own consumption needs. These households did not necessarily misuse the grain loan scheme. Most likely, access to the grain loan meant expenditures on food were kept to a minimum and thus allowed these households not to cut back too much on non-grain expenditures, like groceries, school and medical fees and production inputs for the next harvest.

Annex 7.1. Drought and non-drought years

To compare food security in drought and non-drought years, we have to determine which years to consider drought years in terms of the potential for food production. We do this by considering two important and related variables; annual rainfall and maize yields per acre. Figure A.7.1. shows a clear movement of the maize yield per acre with the recorded annual rainfall. Note however that annual rainfall is not a perfect predictor of potential food production; although the annual rainfall figures for 1991 and 1995 are similar, the realised maize yield per acre is not. This suggests that other factors than annual rainfall matter for the production of food. Other studies have shown that amongst others the distribution of rain during the rainy season matters (Dietz *et al.*, 2001) Additionally, too much rain can also negatively affect the possibilities for food production, amongst others through water logging. This can explain the discrepancy between rainfall and maize yield in 1997.

Figure A.7.1. Maize yield and rainfall in the research areas

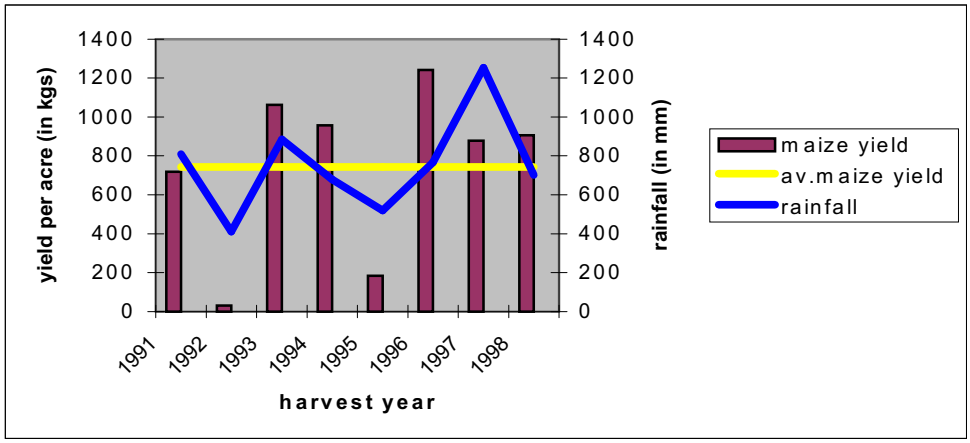


Source: calculated from ZRHD data and rainfall statistics made available by the Zimbabwe Meteorological Services.

The sometimes problematic prediction of food production potential on the basis of rainfall statistics is also apparent if we look at the maize yields in the three different resettlement areas, as presented in figure A.7.2 to A.7.4.. In Sengezi, comparable levels of rainfall in 1991 and 1992 result in completely different levels of maize yield per acre in those years. On the other hand, in 1997 rainfall in Mupfurudzi generated a good yield per acre, while the good 1998 rainfall in Mutanda is not reflected in the level of maize yields per acre at all.

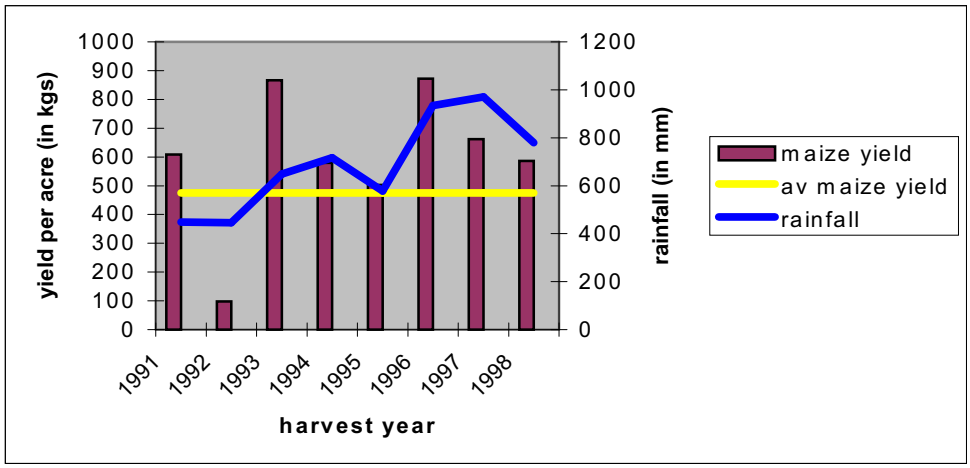
If we consider the figures on maize yield per acre on the aggregate level (figure A.7.1), 1992 and 1995 clearly stand out as years with below average production potential. Therefore, we define these years as drought years and the other years as non-drought years, with two important qualifications. First, although the below average yield is recorded for all three resettlement areas, Sengezi is far less affected compared to Mupfurudzi and Mutanda, especially in 1995. Secondly, Mutanda also experiences a clear reduction in potential for food production in 1998.

Figure A.7.2. Maize yield and rainfall in Mupfurudzi.



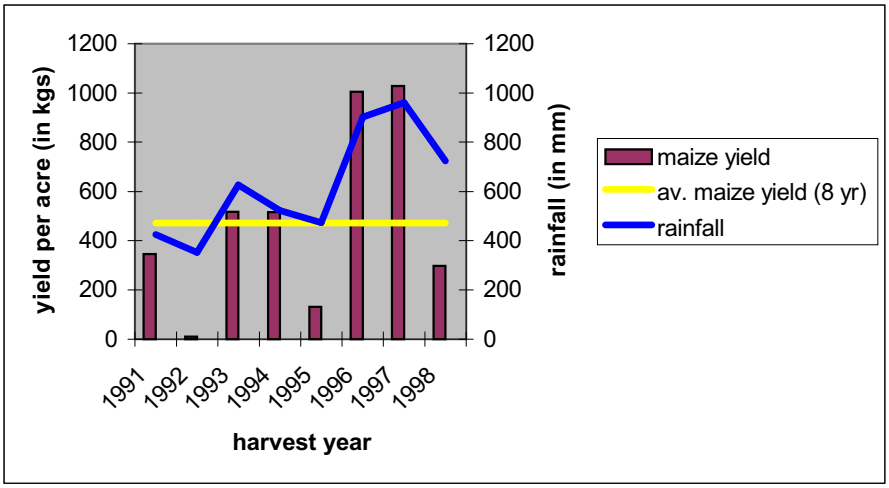
Source: calculated from ZRHD data and rainfall statistics from Zimbabwe Meteorological Services.

Figure A.7.3. Maize yield and rainfall in Sengezi



Source: calculated from ZRHD survey and rainfall statistics from Zimbabwe Meteorological Services.

Figure A.7.4. Maize yield and rainfall in Mutanda



Source: calculated from ZRHD data and rainfall statistics from Zimbabwe Meteorological Services.

Annex 7.2. Possible sources of bias in the data

There are several source of potential bias in the data that we use in this chapter. First, not all information that is needed to construct the consumption measure is available for all the years under consideration. For 1992, we miss information on stocks and transfers, for 1993 we miss information on stocks and food aid and for 1994 we miss information on stocks. Information for 1995 onwards shows that grain stocks may indeed play a role in meeting household consumption needs. In 1995 households consumed on average 103 kilograms maize from their store. In 1996 in response to the 1995 drought many restocked; on average they stored 500 kilograms. In 1997 some 390 kilograms was consumed from the stocks, while in 1998 this amounted to 144 kilograms.

We also cannot fully correct for the grain that is produced by the household but not available for food consumption purposes. Although we have information on the amounts of grain used for commercial processing, we only have partial information on grain used as barter, in a social ceremony or as planting material. Although most farmers buy new hybrid seeds every year, the work by Bourdillon *et al.* (2002) has shown that in times of distress, farmers have used grain that was saved from an earlier harvest as planting material. The extent to which this happens and the volumes of grain involved are unknown. Information on grain used in social ceremonies is only available for 1998 while information on the quantities of grain used in barter has not been specifically asked, but can be deduced from comment notes in the crop production section of the questionnaire. The same applies to information on repayment of the grain loan from 1996. If such information was found it was used in the calculations and deducted from the amount of grain that was retained by the household. As this information was not available for all households in the sample, the amount of grain available for consumption from own production is still likely to be overestimated. To control for the influence in the difference of data availability in the different households on the outcomes of our analysis in table 7.12 we included a dummy variable for these households that have information on grain barters and grain loan repayments.[193] This dummy variable was not significant in the regression of non-drought years (the only years for which this information on barters and grain loan repayments was available) and did not affect the results of the analysis.

The production figures in 1992 and 1993 could not be corrected for the use of grain as an input for commercial processing. Although this possibly leads to an overestimation of the grain available for consumption, the extent to which this will happen is likely to be limited. In the years 1994-1998 the average volume of grain used for these purposes was six kilograms. However, we have to be aware that this is the average over the whole population. For those households involved in commercial processing, the average volume of grain used was 92 kilograms, ranging from 2 to 1080 kilograms.

[193] In 1996, 76 % of the interviewed households who received a grain loan in 1995 indicated to repaid (part of) the loan. The majority of them repaid the full loan, while 15% paid part of the loan. The households that did not repay (part of) the loan indicated that this was because they had a bad harvest (75 percent), the loan had not been followed up (17 percent) or that they will repay later (7 percent). We have information on the volumes of grain involved in repayment for 71 of the 254 households that repaid (part of) the loan. On average, these 71 households repaid 742 kilograms of grain to the government, ranging from 91 to 4000 kilograms.

Secondly, the different components of the consumption measure are not always uniformly measured over the years. The questions on transfers used in 1993 and 1994 were more limited compared to the questions used after 1995. This might very well be the reason behind the lower percentage of households reporting transfers in 1993 and 1994, compared to 1995 and later. In 1993 and 1994, 3 percent of the households reported to receive maize transfers and 14% reported transfers to other households. This is a significantly lower than the 13% that reported to have received maize transfers and 20% that reported transfers to other households between 1995-98. Note however, that the volumes of maize transferred did not differ significantly between those years. The households that reported they received maize, on average received 157 kilograms in 1993-1994 and 184 kilograms in 1995-98, while they gave away 74.5 and 79.5 kilograms respectively. Note however that in all the years the information on maize transfers is deduced from a general question on transfers and not specifically elicited for grain only, as was done in the ZRHD 2001 survey (see also box 7.3)

Thirdly, for the amount of grain purchased, data have been constructed differently for 1992 compared to the subsequent years. For 1992 purchases were recorded in monetary terms and over a whole year, while for subsequent years, purchases were recorded in quantities (kilograms) over the four months prior to the interview. The difference in reference periods causes a possible underestimation of quantities of food purchased in the years after 1992 and the calculated amount of maize purchased in 1992 is strongly determined by the price for maize that is used. The information we have available is not conclusive on these prices. [194]

Another source of measurement error in the amount of grain purchased is related to the timing of the survey in the agricultural cycle. Food purchases are related to the need to supplement food from own production or stocks. When households are not in a position to meet their food needs by subsistence production, the need to purchase food is most likely to be highest just prior to the new harvest. Consequently, a question eliciting information about food purchases will only yield reliable information if the question is well timed. In our research areas, the harvest season may start as early as February and continue until as late as June, depending on the time of planting, the varieties grown and the rainfall pattern. We do not have detailed information on the time of harvesting in the specific areas. There are marginal differences with respect to crop variety planted in the different areas under study. But despite perceived differences in rainfall (amount and reliability), most farmers grow

[194] The mealiemeal price is based on a newspaper announcement from august 1992 (with old and new prices). We assume the average maximum retail prices were also applicable in the research areas, although information on this and the possible existance of a 'black market' for mealiemeal is not available. The price for maize is based on local sales in Sengezi (Z$0.82 per kg). The latter is rather low compared to other sources (e.g. information from Silveira House, a Zimbabwean trainings institute presents prices of Z$ 4.93 per kg, a factor five higher) but more in line with the price for mealiemeal in maizequivalents (0.752). Yet, as prices should reflect scarcity, it is to be expected that prices in Sengezi are not representative for local sales/purchases in Mupfurudzi and Mutanda, as maize was more scarce there compared to Sengezi. Additionally there are differences in infrastructure as well that would be reflected in prices. However, no local sales/purchases prices are available for Mupfurudzi and Mutanda. Taking the relatively low price reported in nr3 will most likely result in an overestimation of the volumes of maize bought for consumption.

short season, early maturing varieties in all areas.[195] This means variety choice is not expected to influence timing of the harvest. But, the duration of rain might. As the rains come up from the south and the rainy season is longer when going northwards, households in the drier southern areas harvest earlier compared to their northern colleagues. This will affect the time of harvesting, with a relatively late harvest in Mupfurudzi and an early harvest in Mutanda. As the sequence of data collection in the respective areas does not follow this pattern (households in Mupfurudzi are interviewed in February, followed by households in natural Mutanda and Sengezi in March/April. This means that especially for households from Mupfurudzi the question does not capture supplementary purchases well. Consequently, the quantities of food purchased are likely to be underestimated, which could be especially important for households that are dependent on food purchases to meet their consumption requirements. Purchasing grain to supplement the grain that is retained from one's own harvest may in fact be a deliberate strategy to meet household consumption needs.

[195] The most popular maize varieties, SC401, SC501, R215 and R201 are early maturing (140 days), drought tolerant and relatively low yielding varieties. Varieties that have a higher yield, are less drought resistant and take longer to mature (150 days for SR52, ZS233 and ZS225) are typically not grown by the farmers under consideration (Agritex (1993) and survey data).

8. To bear a daughter is to ensure future wealth: Bride wealth payments insure against a loss of cattle.[196]

8.1. Introduction

For a long time anthropologists and scholars from various other disciplines have studied the institution of marriage and the exchange of prestations that are frequently related to it. If such prestations are institutionalised transactions whereby a man (or his family) hands over goods to the kin of a woman they are referred to as bride wealth. For cultures in which bride wealth payments are customary they are usually a *sine qua non* for the recognition of the existence of a marital relationship between a man and woman (Turton, 1980). Various authors have interpreted the payment of bride wealth as compensation for the bundle of rights in the woman (sexual, productive and reproductive) that is transferred to the (lineage of the) man (Goody and Tambiah (1973), Holleman (1952) Kuper (1982), Mair (1977), SALC (1997), Tambiah (1989) and Weinrich (1979). Others found it difficult to attribute the variation in bride wealth payments with respect to its size and content to the compensation for rights alone. They stressed that bride wealth payments help to establish relationships between the families involved in marriage. Strathern (1980) for example attributes the development of exchange relationships between affinal relatives to the payment of bride wealth. The thus formed alliances are a form of social capital that can be strategically used in the social, political or economic sphere (see also Baerends (1994) and Comaroff (1980). Peters (1980) observes that bride wealth generates access to resources of others. If these resources can be accessed in times of need they improve household security. Rosenzweig (1988) and Rosenzweig and Stark (1989) illustrate this empirically by showing how marriage improves possibilities for income pooling.

In this chapter we show that the payment of bride wealth in Zimbabwe, that is predominantly composed of cattle, has an additional security enhancing feature by allowing households to put a claim on assets, rather than income. Whereas Rosenzweig (1988) and Rosenzweig and Stark (1989) stress the security derived from building trusting relations through marriage we emphasise the security emanating from the flexible character of the bride wealth agreement, both with respect to the timing of payments and the type of cattle to be transferred. We show that (i) bride wealth payments depend on household assets (they are means-conditional for both the claimant and the provider of bride wealth) and can be effectuated when a claimant

[196] The title of this chapter is inspired on a Shona proverb. This chapter is co-authored by Hans Hoogeveen and has been published in a slightly different version as: Dekker and Hoogeveen (2002). Bride Wealth and Household Security in Rural Zimbabwe. Journal of African Economies, 11(1):114-145.

experiences a negative shock, and (ii) that outstanding bride wealth payments are part of a large network of unfulfilled bride wealth obligations, which effectively act as risk pool.

The chapter is organised as follows. In section two we shortly describe the various qualitative and quantitative sources of information we use in this chapter. In section three we present several characteristics of the Shona marriage system and formulate our hypothesis on why bride wealth is paid in instalments. In section four we present empirical support for our argument that payment of bride wealth in instalments effectively serves as a claim on assets that enhances household security. In part five we formally test our hypothesis with socio-economic data and information on marriage transactions. Conclusions follow in the sixth section.

8.2. Data

This chapter draws on various sources of qualitative and quantitative information. Qualitative information is based on in-depth interviews, focus group discussions and anthropological literature to support and contextualise our arguments. Especially the early work by Holleman (1952) and Bourdillon (1976) proved very useful as these authors present an in-depth analysis of Shona marriage relations. Though this literature is somewhat dated, its content was cross-checked during fieldwork, where it was generally considered an accurate reflection of today's marriage practices. When differences were observed, this mostly held for urban areas (Meekers, 1993). As our study concerns rural areas, the works by Holleman and Bourdillon are considered important sources of reference material.

The quantitative material is derived from the ZRHD data set. As part of the regular data collection in 1996, all married women on a stand (571 women in the panel of land reform beneficiaries) were interviewed on their marriage. These marriage histories included questions on the duration and legal status of their marriage, the number of children they gave birth to, the bride wealth that was negotiated for their marriage, the status of the payments etc. Most of the quantitative material that we use in section four of this chapter originates from these marriage histories. For an additional 64 divorced women, information was collected on their past marriage(s) and the reasons for and arrangements at divorce. These marriage histories are not available for the men in the sample.

Information on the marriages of sons and daughters was not asked directly. But by looking at the changes in household composition, we are able to identify marriage of daughters because they leave the household when they marry. Information on marriages of sons of the households under consideration can also be determined, but less accurately. The reason for this is that a son does not have to move out at the time of his marriage. If he lives with his parents just before he gets married, it is common for him and his wife to stay, at least for the first years. Given this practice one could argue that the marriage of a son could be captured by comparing household rosters over time and relate the arrival of a daughter in law to the marriage of a son. The arrival of (co-) wife of the head of household can be determined in a similar way. The arrival of a new wife is therefore used in the analysis in part five. However, when interpreting the results, we have to realise that the representation of marriages of sons

is not fully accurate. If a son has moved away from his parents to work in town or another rural area and upon marriage he does not send his wife to live with his parents, marriage can take place without a change in resident household members. Additionally, a daughter in law may arrive to live with her parents in law, but only years after the marriage took place.

8.3. Customary Marriage in Shona society

The Shona, the largest ethnic group in Zimbabwe, know several forms of customary marriage. Most common are the *regular proposal marriage*, a traditional marriage with a lengthy and formalised prelude and the *elopement marriage*, a more popular form of marriage that ignores the prelude and makes for a prompt formalisation of the relation (Holleman, 1952). In both types of marriage, the start of a formalised relation concerns the respective families and not only the individuals. This is illustrated by the fact that all males of the bride's family become "father in law" to all members of the groom's family who, in turn, become "son in law" to the bride's family (Bourdillon, 1976).

An important element in Shona marriage is the negotiation and payment of bride wealth. At the end of the preluding period, or after elopement, the groom chooses an intermediary who approaches the family of the intended bride. After the presentation of some gifts 'to open the mouth of the girl's father', representatives of the groom and the father of the bride negotiate the bride wealth or roora (Kileff and Kileff, 1970).[197] Bride wealth comprises of at least two transfers. The first, called *rutsambo,* is usually a gift in cash and kind (clothing, utensils, groceries, goats etc.). It is associated with sexual rights in the woman. The second, *danga*, involves a more substantial payment. It is associated with rights of the groom's family over the children born to the woman. Although there are regional differences and variations according to family background, generally the height of danga depends on the number of (additional) children a wife is expected to bear (Holleman, 1952). For women who have had children before a reduction in danga can be expected. But, the birth of one child prior to the current marriage may be appreciated as it confirms that the woman involved is not barren.

Danga is expressed in cattle, sometimes augmented with a demand for cash.[198] The demand for cattle reflects its importance in rural Zimbabwe where cattle still fulfil important functions as source of draught power –Hoogeveen (2001) shows that households with at least two beasts are able to realise a substantially larger agricultural production than those without because they are able to plough; or as store of wealth –Kinsey *et al.* (1998) show that in times of drought cattle fulfil an important role as buffer stock; or as source of nutrition (milk) and manure. The possession of cattle is also associated with status (Scoones *et al.*, 1996) and the animals play an important role in cultural ceremonies (Parkin (1980) and Holleman (1952).

[197] The word *lobola* is often used to refer to bride wealth payments in Zimbabwe. Yet, this term originates from the Ndebele, the second largest ethnic group in Zimbabwe. The Shona use the term roora.

[198] Customarily the major part of danga is paid in head of cattle. But when the physical distance between the two families is too long, a cash equivalent can be negotiated

In addition to rutsambo and danga, bride wealth consists of two additional head of cattle, the so-called cow of motherhood and a bull for the bride's family. The cow of motherhood is presented to the mother of the bride, to acknowledge that she carried the wife in her womb. The transfer of this beast has a spiritual connotation. Non- or delayed payment is believed to displease ancestral spirits of the mother's family and may cause bad health or other misfortunes to children born from the union. Payment of the cow of motherhood generally takes place after the first child is born. The symbolic value of the bull for the family varies regionally in Zimbabwe. In some areas payment is related to the virginity of the wife while in others it serves to strengthen the relationship between the families involved. In either case, payment of the bull by the son in law is interpreted as sign of respect to his parents in law and as appreciation for the upbringing of his wife. Upon transfer, the bull is slaughtered and the meat divided between the father of the bride, the mother of the bride and the son in law, who will each take the meat and consume it with their respective relatives (Bourdillon, 1976). The extra-individual character of marriage is further illustrated by the fact that all males in the groom's lineage may be asked to contribute to the bride wealth of one of 'their sons' while bride wealth received for any of the daughters from the lineage is customarily reserved for the marriage of the sons (Bourdillon, 1976). Nevertheless, the prime responsibility for the payment of the bride wealth rests with the groom himself.

The height of rutsambo and danga are discussed during the bride wealth negotiations. The timing of the payments nor the kind of animals that have to be provided are a topic for discussion, though customarily a first instalment of the bride wealth is paid at the time of marriage. The different arrangements for bride wealth payments are illustrated by the stories of Mr. Moyo, Mr. Dube and Mr. Hove in box 8.1.

Box 8.1. Different arrangements for marriage payments

Mr. Moyo
Mr. Moyo married in 1979 and was charged a bride wealth of nine head of cattle. As Mr. Moyo had been working for some time, he had money and eight head of cattle when he married. Of these he transferred three to his father in law. In 1987 when Mr. Moyo had 22 head of cattle, he paid another two to express his satisfaction with his marriage.

Mr. Dube
Mr. Dube married his first wife when he was still living on his father's plot in Maranga communal area. His father helped him to marry by giving him the six head of cattle that were demanded as bride wealth. All six head had to be paid at the time of marriage because his wife had been engaged in a previous marriage, and the bride wealth that her ex-husband had paid for her had to be repaid. After ten years of marriage, the couple had now set up their own home in Maranga communal area, Mr. Dube married a second wife, the daughter of farm workers from the nearby commercial farm. At the time they got married, Mr. Dube could only afford to pay the rutsambo and he delayed the payment of danga (seven head of cattle).

Mr. Hove
When Mr. Hove wanted to get married, his father in law demanded nine head of cattle, of which five had to be paid before he could live with his wife. The remaining four head of cattle could be paid over time. It took Mr. Hove almost two years to earn enough money to buy the five beasts.

Source: in-depth interviews

The payment of a first instalment at the time of marriage leaves the son in law indebted to the father of his wife, a practice that is referred to as *jeredzwa*, which literally means "something outstanding". The indebtedness is actively sought as is illustrated by the fact that even if the (family of the) son in law is in a position to pay the bride wealth in full at the date of marriage, one is not expected to do so. Full payment of danga is a sign of disrespect and is thought to deny the relationship that exists between the son in law and the family of his wife (Bourdillon, 1976).

The reasons behind the active pursuit of *jeredzwa* in Shona society will be explored in the remainder of this chapter. More specifically we ask ourselves why delayed payment of bride wealth is deemed desirable and why during bride wealth negotiations the type of animals required are not specified. Both phenomena are counterintuitive as delayed payment implies that the bride providing family foregoes the (re) productive potential and the nutritional benefits embodied in the animals. While non-specification of the type of animals means that the household may end up with beasts that do not fit well in the herd's optimal composition.

For the groom there are clear advantages to delayed payment. It prevents him from impoverishing himself at a time when he is just about to start his own family. It also allows him to establish whether the marriage is successful (both in terms of (re) production and the way he and his wife live together) before he transfers valuable assets to his father in law. In this respect, the practice of delayed payments conforms with the argument that bride wealth is paid in compensation to the children born to the lineage of the husband. Yet, apart from altruistic motives (either to ensure that his daughter has a good start in marriage or to facilitate divorce if the daughter is being mistreated), for the father of the bride (and his family) the advantages of flexible repayment terms are less obvious.

A possible advantage for the father of the bride is that the creation of affinal relations facilitates income pooling. There are indications that outstanding bride wealth obliges the son in law to provide all kinds of services or payments (Bourdillon, 1976); see also the case of Mr. Moyo in box 8.2 and our observations on risk sharing relations in Mudzinge village presented in chapter 6. But not all authors agree on this. Holleman, (1952) for instance, stresses that no interest is charged on outstanding bride wealth payments, though he acknowledges that in cases where repayments are urgently needed and the debtor is unable to fulfil the request, he will try to give his father in law a small contribution that is not considered repayment of the outstanding bride wealth. "Rather than payment of interest, this should be considered a sign of the earnest inclination to pay off the debt" (Holleman, 1952, p. 173). On the other hand the Shona proverb: " A son in law is like a fruit tree, one never finishes eating from it", suggests the existence of an income pooling element in the father-son in law relationship (Bourdillon, 1976; Hamutiyinei and Plangger, 1987). And the case of Mr. Moyo in box 8.2 illustrates that this pooling is not just beneficial for the party that provides the bride.

To the extent that Shona marriage facilitates income pooling between affinal relatives, the empirical literature on income pooling suggests that informal insurance mechanisms only provide a partial pooling of idiosyncratic risks (Cochrane, 1991; Mace, 1991; Deaton, 1997; Grimard, 1997; Ravallion and Chaudhuri, 1997; Jalan and Ravallion, 1999; Ligon *et al.*, 2002). As we have seen in chapter two of this

dissertation, this finding is usually attributed to information and enforcement constraints. Given that insurance is partial there is scope for additional ways of sharing risks other than pooling income. Udry (1990) for instance shows how outstanding debts can have risk sharing properties. He describes contingent credit relationships between households in Northern Nigeria, for which repayment of debts is conditional on income realisations of both the credit provider and the credit receiver. We argue that outstanding bride wealth payments in Zimbabwe have similar risk sharing properties. By accepting delayed bride wealth payments, the father of the bride (the credit provider in Udry's story) deliberately keeps the option on future cattle open. He may call in an instalment of the outstanding payments when he considers it necessary to do so and by custom, interviewees explained, a son in law has to meet a request for payment of bride wealth cattle *if he has the means to do so*. It is likely that a son in law will meet the request as most men regard the payment of bride wealth to be a moral obligation towards their family in law. Payment ensures a good relationship between the families while a son in law who refuses to pay (part of) the outstanding debt is treated with disrespect by his in laws.

Box 8.2. Outstanding obligations help to forge relations

Mr. Moyo
After the transfer of two cattle in 1987, Mr. Moyo was left with an outstanding bride wealth of four animals. His father in law indicated that he could pay the remainder in cash. And as Mr. Moyo was often assisting his in laws, he was only charged Z$ 700 per head. Yet at that time, he was not in a position to pay this amount. A few years later Mr. Moyo's father and mother in law died. Their heirs, claiming that he had failed to pay his bride wealth, raised the price of the cattle to Z$ 1300 per head. Two years ago, when Mr. Moyo wanted to pay the cash due, the heirs said his was not necessary, as he was looking after his family in law very well and taking care of some of their children. Till date, the cash payment for the four head of cattle is still outstanding, but valued at Z$ 1300 per beast against a market value of Z$ 10.000 the remainder of his bride wealth is mostly a nominal amount.

Source: in-depth interviews

For the father of the bride, an option on future cattle is potentially valuable. Especially in an environment where cattle are important for income generation, as buffer stock and in the social sphere; where they may be lost by any act of nature and where formal insurance against such losses are absent. That cattle can be easily lost is a fact of life in rural Zimbabwe. Participants in focus group discussions indicated that cattle theft is not uncommon (Muvirimi and Ellis-Jones, 1999). Drought can have devastating consequences for one's herd as well. Scoones *et al.* (1996) for instance shows that in the Chivi area (in Southern Zimbabwe) after the 1982-1984 droughts the number of households without cattle more than doubled from 23.3 percent to 50.7 percent. In the ZRHD data set, 21 percent of the households owned two or less animals following the 1992 drought. By 1999 these households had recovered and 13 percent of the households possessed an insufficient number of animals to be able to plough (Hoogeveen, 2001).

The hypothesis put forward in this chapter is that delayed payment of bride wealth is not only beneficial to the groom, but also to the family who provides the bride as it generates an option on future cattle. By postponing the demand of the full bride

wealth, the father of the bride does not loose the claim on cattle wealth that a daughter represents at the time of marriage, but transfers these claims to a time in the future.[199] This claim enhances household security, a function that is reinforced by the fact that (i) there is flexibility in the type of animals that may be repaid and (ii) there is a large pool of households from which animals can be claimed. In this sense the bride wealth differs fundamentally from the bilateral relations described by Udry. The large pool results from the fact that virtually all families have outstanding bride wealth claims. This implies that even if a given household cannot recover bride wealth directly from its in laws, the latter may be able to recover it from their in-laws and in turn hand it over to the household making the initial claim.

8.4. A debt arrangement with insurance elements?

The argument developed in the previous section raises a number of issues. First, for bride wealth to act as cattle pool the demand of bride wealth (in cattle) has to be a generally accepted phenomenon, the receipt of bride wealth has to be acknowledged as a means to access wealth. And for outstanding bride wealth debt to represent a security function that can last a lifetime –the number of daughters available for marriage is limited-, the size of bride wealth claims should be considerable. Secondly, payment in instalments needs to be an essential and accepted feature of the Shona marriage system, claims should be outstanding for a lengthy period and the timing of payments should not be related to predetermined phases of the marriage, such as the birth of children or otherwise. Thirdly, claims must be enforceable. And finally repayment should be means-conditional. In the remainder of this section we use information from the marriage histories in the ZRHD data set[200] and case studies from the research areas to address the first three issues. The conditionality of bride wealth payments is considered in section five.

8.4.1. The significance and value of bride wealth payments

The negotiation of bride wealth is a common feature of Shona marriage. Only 2 of the 520 women that were interviewed on their marriage histories indicated that no bride wealth was asked when they got married, while 18 women said their bride wealth still had to be negotiated as they were married recently.[201] A large majority of married women (90 percent) consider the payment of bride wealth an important element in their marriage. It is considered to bind both families together (a response given by 42 percent of interviewed women), to unite the couple (20 percent), to compensate the family of the bride (15 percent) and to reflect the customary and spiritual aspects of the marriage (13 percent). The significance of the bride wealth payments is also illustrated by the unsuccessful attempt of the colonial administration to curtail and

[199] It is this intertemporal dimension that distinguishes the security benefits from the Shona bridewealth system from those reported for other bride wealth arrangements in Africa. Turton (1980) for example relates the bride wealth payments of the Mursi in Ethiopia to the importance of cattle as a bufferstock. The Mursi pay bride wealth cattle as a lump sum at the time of marriage. Upon receipt, the family of the bride redistributes the majority of the cattle within their family network. Turton argues that the cross-sectional distribution of cattle is such that livestock is not distributed too thinly so that many families are ensured of access to buffer stock to smooth consumption.

[200] An overview of this information and other data referred to in this section is presented in Annex 8.1.

[201] These women were married for at most two years.

control the value of bride wealth payments (WLSA, 1997). And the strong opposition, both by rural community court officers and the rural population, against abolishment of the practice (Cutshall, 1991; SALC, 1997).

Bride wealth is not only important for ceremonial purposes, the transfers involved are substantial. The survey data show that in 1998, cattle received through bride wealth payments represent two-fifth of all non-market cattle transfers[202] and one fifth of cattle acquired through market transfers. The eight to nine head of cattle that are demanded as bride wealth, represent a substantial amount of wealth. It is slightly less than the average herd size of the households in the ZRHD data set (9.4 heads of cattle over the period 1993-1999). At a median price of Z$ 3500 (for cows in 1999 prices) and a gross (1997/98) household income of Z$ 18,652 for resettled households and Z$ 8,592 for communal households bride wealth for one daughter reflects almost 2 to 4 times a household's gross annual income.[203] Considering the fact that in Zimbabwe a woman would have given birth to on average 6.3 children at the end of her reproductive life (CSO, 1995) not all of whom survive or get married, it follows that bride wealth claims reflect a substantial part of a household's life time income.

That bride wealth can be used as means to access wealth is illustrated by the proverb "To bear a daughter is to ensure future wealth" (Hamutiyinei and Plangger, 1987), the accounts in box 8.3 and 8.4 and by some of the less common types of marriage like the *reverse proposal marriage* ,where the initiative for the marriage negotiations comes from the bride's family and a *credit marriage* or *child marriage,* in which a young daughter, in exceptional cases even a yet unconceived girl, is promised to a family in order to obtain advance payment of the bride wealth (Holleman, 1952; Bourdillon, 1976). The credit marriage is officially prohibited but in her ethnographic study on households in Chipinge District in south-eastern Zimbabwe, Vijfhuizen (1998) reports an increase in credit marriages after the 1992 drought. Participants in focus group discussions also referred to this practice. Both types of marriage are typically initiated by households that need resources. [204]

Households do not need to be desperate to try to access wealth through the marriage of a daughter. Generally one might expect that, for reasons of social pressure or out of loyalty, daughters from poorer households marry sooner, so as to allow their parents to benefit from the receipt of the (first instalment) of bride wealth that is generally associated to marriage. Using the same data set Hoogeveen *et al.* (2003) estimate a duration model to explore whether the timing of marriage of an unmarried daughter is affected by the wealth status (expressed in cattle owned) of the household from which she originates. They find that daughters from poorer households indeed marry at a younger age.

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[202] Non-market cattle transfers include the transfers of cattle due to inheritance, compensation payments (for example when crops were destroyed by cattle of other families) or follow from cattle sharing and caring arrangements.

[203] Gross income has been determined by calculating the various components of household income. It consists of gross crop income for all crops grown, gross income from entrepreneurial activities, gross income from female activities (gardening mostly), income from off farm employment, income from public transfers, income from remittances and gross income from livestock.

[204] That shocks may fuel marriages is further illustrated by observations in Chipinge in 2002. To secure access to food in a situation of threatening hunger and starvation, Zimbabwean women were reported to marry residents from a local refugee camp to be eligible for the guaranteed food deliveries in those camps that were administered by international refugees organisations (Mangwende, 2002).

Box 8.3. Bride wealth as means to escape poverty

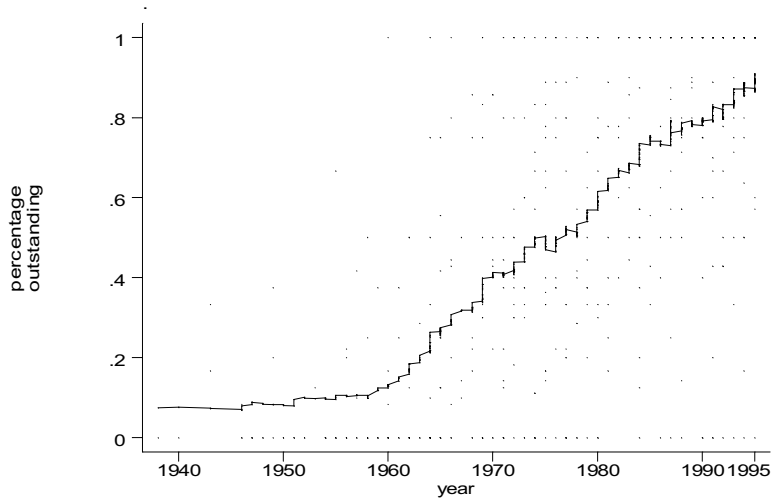
Mrs. Marapira
Mrs. Marapira was widowed three years ago. She and her two daughters possess no cattle. Though she possesses sufficient land, she only grows crops on her residential plot where they practice zero tillage as they lack draught power. The food from this plot is insufficient to feed her family so to supplement her own harvest, Mrs. Marapira works for others (weeding; cotton harvesting) in return for maize. The situation is rather desperate, and as she indicates herself, the lack of draught power is her major problem. The one possibility she sees for improvements is if bride wealth is received when one of her daughters gets married.

Source: in-depth interviews

8.4.2. Flexible payments of the outstanding bride wealth

The responses of the women that were interviewed on their marriage history indicate that it is common not to pay full bride wealth at the time of marriage; cattle payments were still due in eighty percent of the reported marriages. As bride wealth payments are made over the duration of the marriage, outstanding payments decrease with the length of the marriage. This is illustrated in figure 8.1, which presents an unweighted smoothed graph of the proportion of outstanding bride wealth and the duration of marriage. The figure suggests that ten percent of the bride wealth is paid at the date of marriage and that the remainder is paid by an average rate of two percent per year.[205]

Figure 8.1. Kernel smoothing estimation of the percentage of bride wealth cattle outstanding and year when marriage was concluded (bandwidth of 0.2)



Source: Estimation based on ZRHD data.

Information on the most recent marriages that were documented in the marriage histories also shows that it is rare for full bride wealth to be paid at the time of

[205] The duration of the reported marriages varied between 0-77 years, with a mean of 17.1 year.

marriage. Full payment was reported in one of the twenty-five marriages that were solemnised in 1994 and in two of the thirty one 1995-marriages.[206]

Although exact information on the timing and reason for payments made over the duration of their marriages was not available, analysis of the outstanding bride wealth payments suggests that payments are only partially related to certain phases in the marriage, like child birth. The regression results presented in table 8.1 show that after controlling for the duration of the marriage, the fraction of bride wealth outstanding reduces by 2.7 percent for each child that is born.[207] Conditional on the number of children born, each additional year of marriage reduces the outstanding payment with 1.5 percent. Considering the relatively small reduction of outstanding bride wealth payment per child that is born (also when compared to the consequences of time) we conclude that there is considerable flexibility in the timing of the payment of instalments.

Table 8.1. OLS regression on the percentage of bride wealth cattle outstanding

Variable	*Coefficient*	*P>|t|*
Number of children	-2.70	0.000
Number of years	-1.50	0.000
No. of Obs.: 487		
Adj. R-squared: 0.44		

Source: authors' estimation on ZRHD data.

8.4.3. Contract enforcement

By allowing his son in law to pay in instalments the father of the bride obtains an explicit claim on resources[208], which, if necessary, can be enforced in various ways. For instance, if the son in law is reluctant to pay while he has the means to do so, the father of the bride can take his daughter and, more importantly, her children into custody until the demand for debt repayment, or a sufficient part thereof, is honoured. This is what happened to Mr. Dube (box 8.4) when he failed to meet the request of his father in law.[209] The defaulting groom can also be sued at a legal forum (Cutshall, 1991) where he may be forced to choose between paying his debt, or ending the marriage. Such threats are effectuated and failure to pay bride wealth is an accepted reason for divorce; it was reported by four percent of divorced women in the ZRHD study. However, these options are only used as a last resort. A more common

[206] As the timing of of past payments is not reported, it is only possible to consider full payment at the time of marriage for marriages that were most recently solemnised.

[207] Obviously, the birth of a child is not the only factor that can signify a certain stage in a marriage. However, the close relation between the number of cattle demanded and the number of children expected to be born out of the marriage suggest that the birth of a child is an important phase.

[208] This is different from claims in income pooling arrangements, where the claim is more implicit and the actual transfer of resources more dependent on the goodwill of the other party.

[209] That calling a daughter back is only a potential mechanism to enforce bride wealth payments is illustrated by the case of Eustina. Eustina married her husband in 1999 and left her father's plot in the resettlement areas to live with her husband. When after a year, her husband had not paid any bride wealth, her father took her back and she would only be allowed to return to her husband's family when initial payments were be made. When we met Eustina in 2001, her prospective husband had not paid any installment and she was still residing at her parent's plot, insecure about the status of her marriage.

possibility for the father in law to enforce payment is to suggest that the ancestors might get angry and cause barrenness or other misfortune to the marriage.

Box 8.4. Enforcement of outstanding claims

Mr. Dube
Five years after he married his second wife, his parents in law left the commercial farm on which they lived to start their own farm. Doing so was not easy as they lacked the money to build their house and to buy farm implements. And since they did not own any cattle, crop cultivation was hard. However, Mr. Dube's parents in law knew that Mr. Dube's father had a lot of cattle. They therefore approached Mr. Dube to pay some of the cattle that were still due for the marriage of their daughter. As Mr. Dube did not have any cattle for himself he approached his father for assistance. This time his father refused to help him claiming that he had assisted him with his first marriage, and that it was now the turn of his brothers to be assisted in acquiring a wife.

The father in law insisted that he needed four beasts. To put pressure on Mr. Dube, he took his daughter (Mr. Dube's wife) home. Only after taking up a job as a commercial farm worker was Mr. Dube able to buy four head of cattle to pay a first instalment of his bride wealth and did his second wife return to live with him. Still the parents in law were not satisfied and they kept approaching Mr. Dube to pay the remaining three head of cattle. Only after he and his wives had moved to a resettlement area where they could increase their production and acquire cattle, he was able to meet their demand. This pleased his father in law. And when Mr. Dube's second wife died in the late 1980s, a niece, who lives with him until today, replaced her.

Source: in-depth interviews

It only makes sense to initiate enforcement mechanisms if a son in law is able to pay. This means the father in law is confronted with an information problem, comparable to the one that affects all informal insurance arrangements; it is difficult to observe another person's or household's situation. However with respect to cattle these problems are considerably less. In Zimbabwe, unlike their colleagues in many West African societies, small farmers are generally not secretive about their cattle wealth. The herd is gathered in the family kraal every night, where it is easy to be observed by anyone. This allows the claimant to make a good judgement of the possibility of his request to be met, before he puts the claim to his son in law. The information problem is further reduced by the presence of the claimant's daughter who lives with the in laws. She is likely to have a dual loyalty towards both her husbands family and her natal family (as box 8.5 illustrates) and can therefore act as reliable source of information.

In case a son in law does not have the means to pay, debt repayment can be postponed for a long period and outstanding obligations can even be met through the bride wealth received for a daughter (as in Mr. Hove's case in box 8.5). The latter only works if the amount of bride wealth demanded and paid is stable or increases over time. Figure 8.2. shows that cattle demands have remained stable for the past fifty years at an average of eight to nine heads of cattle.[210] The nominal amount of cash

[210] Although the graph in figure two suggests a slight decrease in the number of cattle demanded, a Chow test did not reveal the existence of a significant break in the data.

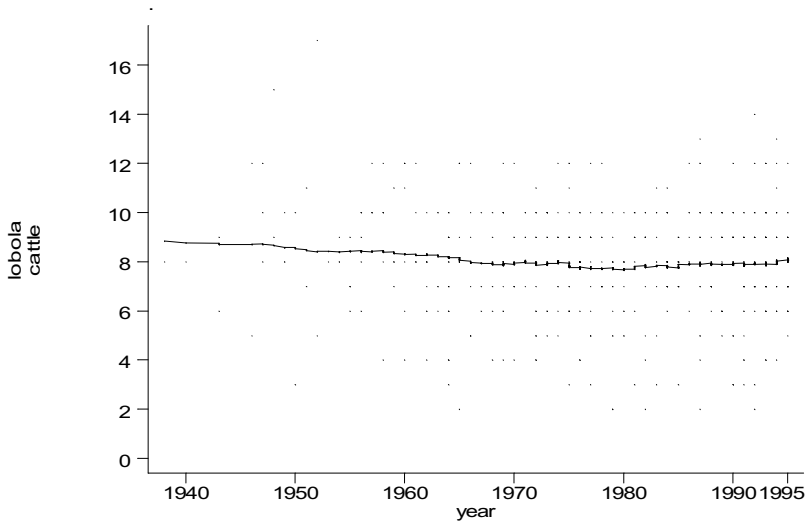
payments increased from Z$ 60 for those married between 1940 and 1950 to Z$ 1037 for those married after 1990. This increase is a reflection of inflation. In real terms cash payments decreased slightly since 1980, the period for which inflation figures could be obtained.

Box 8.5. Passing on of outstanding obligations creates a large pool to draw from

Mr. Hove
When Mr. Hove's mother in law died, her family demanded Mr. Hove's father in law to settle the outstanding payment of one head of cattle. But Mr. Hove's father in law did not have enough cattle to meet this request. Even a year after the death of Mr. Hove's mother in law the payment had not been settled. To enforce settlement of this outstanding debt the family of the mother in law refused to perform the kurova guva ceremony, a ceremony to welcome the spirit of the deceased and to distribute her personal belongings. This troubled Mr. Hove's wife so much that she suggested Mr. Hove to pay the remaining four head of cattle to his father in law. This allowed the latter to meet his obligations and after settlement of the debt the kurova guva ceremony was performed.

Source: in-depth interviews

Figure 8.2. Kernel smoothing estimation of bride wealth demanded and year when marriage was concluded (bandwidth 0.2).



Source: Estimated using ZRHD data.

In case the marriage ends before full payment of the danga is realised, an arrangement has to be made for the settlement of outstanding debts. Interviewees explained that in case the son in law dies, the responsibility for paying off the debt can be transferred to his father (if he is still alive), his brother (especially in case of a substitution marriage where the brother of the deceased inherits the wife)[211] or his children, when the

[211] With the high incidence of HIV/AIDS, the character of substitution marriages has changed. When the death of the husband is suspected to be related to HIV/AIDS, the bereaved wife will be taken care

deceased leaves considerable wealth for them and/or when they are grown up. Traditionally the settlement of debt is similar to that in some cases of divorce[212] and depends on the number of cattle paid and the number of children born from the marriage. In case the agreed bride wealth was eight head of cattle, four head have been paid and four children have been born when the daughter dies, the debtor can be dismissed from paying the remaining four head of cattle. In case the daughter had given birth to six children, the debtor is still obliged to pay two heads of cattle. In the opposite case that four cattle had been paid and the daughter only gave birth to two children, the debtor has the possibility to reclaim two heads of cattle. In practice, these rules are not strictly followed and final settlement of bride wealth debts is negotiable. Yet, the need to fulfil outstanding obligations is generally strongest when the daughter of the claimant dies. Her family may be reluctant to bury her before the payment is realised. And under the threat of spiritual retribution, the son in law will go through great lengths to meet his outstanding liabilities.

The possibility to enforce the insurance contract is further enhanced by the fact that even when a debtor himself does not have the means to pay at the time that he is approached by his father in law, he may acquire cattle through his own network of marriage relations. This implicitly assumes that information on outstanding claims of one's debtor is available. But interviewees indicated that this is not the case. Considering the long time that is usually taken to pay full bride wealth, one could however safely assume that if one's debtor (or his family) has a married daughter, he is likely to have a claim in another family. If a debtor approaches his debtor(s) to acquire a beast to pay an instalment of his own outstanding obligations, it follows that cattle starts circulating (similar to Mr. Hove's case described in box 8.5). It is precisely this circulation of cattle that Mair (1977) calls the "essence of the bride wealth system". It follows that there is a large pool of households from which debt can be recalled. As this is an important element in the bride wealth system we illustrate how this works below.

Suppose that each family has three married daughters[213] and at certain times (for example the death of the wife) a groom could use the outstanding claims of his family to meet the urgent request by his father in law. The first daughter of family A married into family B who themselves married into C, D and E. The second daughter married into family F who are connected to G, H and I. The third married into family J who are related to K, L and M. Now if A is in urgent need of cattle, it can approach families B, F and J. If they cannot provide the cattle from their own herd they can in turn approach the families C, D, E, G, H, I, K, L or M. These families on their turn can, if they do not possess the cattle themselves, approach their own set of related families on whom they hold a bride wealth claim. In this way the claim on bride wealth is passed on from one family to the next, till eventually a family is found that can provide the required beast(s). Then a series of claim repayments ensures that these

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of by one of his brothers, but no sexual rights will be claimed and official inheritance of the spouse will not take place. The same applies to the situation where the sister of the wife replaces her in marriage.

[212] The possibility for a settlement will depend on the nature of the divorce. When the woman initiates the divorce and supported by the community court, the husband cannot reclaim any cattle that have been paid. However, if the community court does not acknowledge the grounds for divorce given by the woman, then the husband has the right to reclaim any difference between the number of cattle paid and the number of children born to him. Finally, if the husband requests for the divorce, he cannot reclaim any of the beasts that he transferred to the family of his wife.

[213] In Zimbabwe rural women aged 40-49 gave birth to, on average, 6.8 children (CSO, 1995).

animals end up with the family that started of the chain of events (A). An interviewee reported that in case of an urgent request, the chain of bilateral relations might cover up to seven families. Although the families in the middle do not benefit from the transfer of cattle themselves, payment of the cattle and a reduction of the outstanding debt is acknowledged in each part of the chain.

Calling in claims and passing cattle on only works well if bride wealth claims cannot be cancelled against each other: that is, if family B does not reverse the marriage by marrying a daughter into family A. Mutual cancellation of debts is prevented by customary rules related to the choice of a marriage partner. Reciprocal marriages, where any male belonging to the lineage of the prospective bride already has a (recognised) relation with a female belonging to the lineage of the groom, are met with strong disapproval (Holleman, 1952). It is also not permitted to marry those with the same clan or sub-clan name, even if the existence of a (blood) relationship cannot be established. On the other hand, marriages which reinforce existing affinal relations between non-relatives are regarded in favour (Bourdillon, 1976).

The large risk pool that emanates from this network of bilateral relations makes the bride wealth arrangement suited to deal with locally covariate events. A characteristic that is further enhanced by the fact that bride wealth is paid in cattle and not in money. In drought periods, the household income can drop to virtually nothing, while the family herd is less heavily affected. Over the period 1991/1992-1997/98, a period with two national droughts, the correlation coefficient between household crop income and national rainfall in the ZRHD data set was 0.31, while the number of cattle in the household was negatively correlated to national rainfall (-0.04). Both correlations are significant at the 0.01 level (Hoogeveen, 2001).

8.5. A test of the cattle insurance hypothesis

The information presented so far suggested that the father of the bride is flexible in calling in his claim on cattle from his son in law and that he has several options to enforce this claim. For the claims to enhance household security they should be means-conditional, that is depend on household resources, as well. After all, effectuating a claim on cattle to improve household security can only enhance security when the household that is requested to pay, is not in adverse circumstances too. For the bride wealth debt system to operate as insurance mechanism, households should effectuate their claim on bride wealth cattle after they experienced a negative shock. This means-conditionality and responsiveness to shocks is explored in a multinomial logistic regression. In this analysis we use information on marriage transactions of 550 households in four years (1996, 1997, 1998 and 1999) of the ZRHD data set. For each household in each year a dependent variable that categorises participation in bride wealth transactions is defined. The variable equals one if households only **received** a bride wealth payment, it equals two if households only **paid** a bride wealth instalment, the variable equals three if a household both **received and paid** a bride wealth instalment and four if a household **neither received nor paid** a bride wealth instalment in that year. Taking household characteristics as controls, we estimate the probability for households to belong to one of these four categories.

On the right hand side, we first include a number of variables that are related to (changes in) household composition. As households may obtain a transfer of cattle as a first instalment of bride wealth payments when a daughter gets married, a dummy variable is included that equals one for the year a daughter got married and started to live with her husband. To allow for some time between the marriage and the first instalment, the variable also equals one when a daughter moved away to get married in the previous year. To take the reverse case of the marriage of a son or household head, an arrival of a new wife in the household is included (although this does not cover all marriages that take place, see section two) and a transfer of bride wealth cattle to another household is expected when this dummy variable equals one (that is, when a new wife arrived). A household may also be involved in bride wealth transactions when an adult household member dies. This will be the case if the deceased is a wife for whom bride wealth is still outstanding, but also if it is a husband who still has to pay part of the outstanding bride wealth. In either case one expects death (a dummy variable that equals one when an adult household member died) to be associated to a transfer of cattle to another household. Household size is included in the regression to control for differences in bride wealth claims and liabilities. Larger households are likely to have more bride wealth claims and liabilities and therefore expected to be more often involved in bride wealth transactions.

To explore the means conditionality of bride wealth payments a variable representing household wealth is included. As Zimbabwean families strongly associate cattle ownership with wealth (Scoones *et al.*, 1996), the number of cattle a household possesses is taken as an indicator for wealth.[214] To avoid endogeneity we take pre-transfer livestock possessions and expect households with lower pre-transfer cattle resources to be more likely to receive bride wealth instalments and households with higher pre-transfer cattle resources to be more likely to pay bride wealth instalments. To test the insurance hypothesis, a shock variable was defined that indicates a difference in livestock possessions between one year and the next. This variable equals one if a household reported a loss of more than one livestock equivalent[215]. It is defined with a lag of one year to allow for time between the experience of the shock and the effectuation of the bride wealth claim.[216] We also include local rainfall as indicator for locally covariant shocks to test the system resilience for these type of shocks. [217]

The estimates are limited to the sub population of households with heads aged over 35. The presumption is that these heads of household can reasonably be expected to participate in the bride wealth system. Reported p-values take into account the cluster and stratification effects in the sample and observations are not weighted.[218] Village

[214] The number of cattle is the sum of the number of cows, heifers, bulls, trained oxen and young oxen. We deliberately exclude small stock such as goats and sheep, as these are usually not considered in bride wealth payments.

[215] We use livestock equivalent to standardize the loss of beasts. The following weights are used: cow 0.71; heifer 0.58; bull 0.83; trained oxen 1.0; young oxen 0.59; calf 0.30.

[216] If the bride wealth transfers are measured in t, the difference in livestock possessions is measured between t-1 and t-2.

[217] Local rainfall statistics were made available by the Zimbabwe Meteorological Department.

[218] Observations on communal and resettled households are pooled. As we do not consider a comparison between resettled and communal households it is not necessary to adjust for sample bias, see also chapter three.

level dummies were incorporated in the estimation but are not reported, as the results were similar to those presented. The results of the analysis are reported in table 8.2. The second column in this table reports the odds ratio, the probability of being in one group over the control group (households that neither received nor paid bride wealth instalments), based on the household's score on the variable. An odds ratio of 1 indicates equal probability, while an odds ratio smaller than 1 represents a lower probability (a negative sign in an OLS regression) and an odds ratio larger than 1 indicates a higher probability (a positive sign in an OLS regression).

The regression results suggest that unmarried daughters are an option on cattle. Households in which a daughter recently got married have a 5.1 times higher probability of receiving bride wealth over not being involved in bride wealth transactions, compared to households in which no daughter married. Interestingly households in which a daughter recently got married are also more likely to receive and pay cattle. This suggests that (at least part of) the cattle received through marriage can be used to fulfil outstanding obligations for other marriage payments (for example those of the father or brothers) and supports the argument that marriage creates a pool of bilateral cattle debt-relations that can be called upon to create access to cattle. But not all households with a daughter who married actually received bride wealth cattle. In fact, some households in which a daughter recently married only transferred bride wealth cattle to another household. There are two possible explanations. First, the reported out-transfer may be a delayed circulation effect; if the daughter married in the previous year, her father may have received a first instalment in the previous year and give it to his claimants in this year (in such cases an out transfer is not matched with an in transfer in the same year). Alternatively, the marriage of a daughter triggered a claim from another household that was met by the family of the bride even though they did not receive an instalment themselves. Not receiving an instalment does not necessarily mean that no bride wealth was demanded. It is likely that the daughter eloped, in which case the time between the daughter moving out and negotiations (not to mention the payment of the first instalment) of the bride wealth can be substantial.

That payments circulate is also supported by the result that the arrival of a new wife (which basically is the reverse of the marriage of a daughter, namely the marriage of a son or the marriage of a household head) is significant in distinguishing households that are involved in bride wealth transaction from those that are not. These results should however be interpreted with some caution as the arrival of new wives does not represent all marriages of sons and household heads (as was reported in section two).

The regression results show that death in the family leads to a transfer of bride wealth to other households; either to settle unpaid bride wealth or to deal with inheritance issues. And larger households are more likely to be involved in any bride wealth exchanges compared to smaller households.

The test for means-conditionality shows that households are more likely to receive bride wealth cattle when they experience a low wealth status (as measured by pre-transfer livestock possessions) while they are more likely to transfer cattle to others when they have a high wealth status. This change in signs between the first and the second panel of households confirms the conditionality of bride wealth payments and suggests that the bride wealth debt arrangement enhances household security.

Additionally, the coefficient on the shock variable show that the bride wealth arrangement is responsive to shocks; households are more likely to receive a bride wealth instalment after they experienced a negative shock in livestock possessions. The shock variable is not significant in explaining why households are more likely to pay a bride wealth instalment or to both receive and pay a bride wealth instalment over not being involved.

Finally, local rainfall has a positive coefficient for all groups involved in bride wealth transactions; with higher rainfall, households are more likely to be involved in bride wealth transactions over not being involved. When reversed we see that low rainfall will reduce the probability of being involved in bride wealth transactions and therefore constrains the operation of the system in case of locally covariate events related to rainfall.

Table 8.2. Multinomial logistic regression on roora transfers

	Odds ratio	P-value
Bride wealth cattle received		
Marriage of a daughter	5.11 (+)	0.000
Death in the family	0.82 (-)	0.536
Arrival of new wife	1.33 (+)	0.258
Household size	1.07 (+)	0.003
Pre transfer cattle possessions	0.97 (-)	0.012
Loss in livestock possessions	1.62 (+)	0.019
Local rainfall	1.08 (+)	0.001
Bride wealth cattle paid		
Marriage of a daughter	1.35 (+)	0.062
Death in the family	1.49 (+)	0.025
Arrival of new wife	3.37 (+)	0.000
Household size	1.04 (+)	0.004
Pre transfer cattle possessions	1.03 (+)	0.011
Loss in livestock possessions	0.98 (-)	0.911
Local rainfall	1.00 (+)	0.001
Bride wealth cattle paid and received		
Marriage of a daughter	2.32 (+)	0.041
Death in the family	1.56 (+)	0.291
Arrival of new wife	3.73 (+)	0.000
Household size	1.10 (+)	0.000
Pre transfer cattle possessions	1.02 (+)	0.264
Loss in livestock possessions	1.28 (+)	0.568
Local rainfall	1.00 (+)	0.203
Comparison group: no bride wealth cattle received or paid		
Observations	1825	
Relevant sub population (head of household aged >35)	1746	
F (21,5)	48.86	
Prob>F	0.0002	

Source: Estimated using ZRHD data

These results show that the Shona bride wealth system, aside from compensating the family of the bride, cementing a relationship between the two affinal families and assuring the recognition of the bond, also operates as insurance mechanism (for cattle). It provides households with valuable assets at the time of marriage of their

daughter, when they experience a negative shock and when their wealth is low. Equally important, households do not have to pay when they have a low wealth status, and are thus shielded from further impoverishment. Considering the economic return to cattle and the fact that households in need call in (part of) their outstanding debt, the transfer of bride wealth is a de facto transfer of resources (the return on cattle) from fortunate to less fortunate households. In this sense the bride wealth system is an intricate combination of debt and insurance that resembles the contingent credit system described by Udry (1990) and it has the advantage of a large pool of households that anticipate in the system.

8.6. Conclusion

In this chapter we discussed two specific aspects of Shona marriage payments, the payment in instalments and the absence of a specification of the age, sex and health of cattle to be transferred. We showed how these elements allow bride wealth to operate as cattle insurance for Zimbabwe's smallholder farmers. We have shown that only a part of the agreed bride wealth is paid at the time of marriage while the remainder is paid over a considerable period of time. This means that the option to obtain cattle for unmarried daughters is not lost at the time of their marriage. After the marriage, the outstanding bride wealth payments represent a debt, which allows the father of the bride to claim cattle from his son in law. The importance of this claim is its contingent character. The data show that it is called in when the household experiences a loss in cattle possessions or has a low wealth status, while payment of an instalment takes place when a household has a high wealth status and the transfer of cattle does not endanger the cattle possessions of the debtor. As such, outstanding bride wealth payments provide an insurance for productive capital and buffer stock: cattle. The option value of this debt, explains why bride wealth is not fully transferred at time of marriage and why it takes a long time to fulfil bride wealth obligations.

The restriction on the choice of marriage partners, however minimal, in combination with the fact that families have both bride wealth liabilities (for their married sons) and claims (for their married daughters) creates a vast network of affines. In this way the marriage arrangement is able to deal with the problem of small risk pools commonly associated to informal insurance arrangements. And it does so without losing the information advantages associated to close bilateral relations. Due to their visibility compared to income, the transfer of cattle also helps to deal with information problems.

Insurance through bride wealth payments is not an alternative explanation for the existence of bride wealth payments. We acknowledge the reasons behind the existence of the institution and argue that it is the flexibility in the timing of the payments and the fact that customarily bride wealth is paid in cattle, have allowed this institution to develop into an insurance mechanism as well. This underscores the plea of Benda-Beckmann (1994) to take a functional approach to social security studies, as security may be derived from relations or institutions that are not normatively defined to do so. It would be interesting to further explore what drove the institution to take on this function, which appears to be rather special for Zimbabwe. The focus group respondents associated the start of payment of bride wealth in instalments with the de-stocking carried out under colonial rule. As a result, insufficient cattle were said to be

around to pay bride wealth in full, leading to the acceptance of payments in instalments. It could not be verified if this was indeed the case. But if it happens to coincide, it illustrates nicely how historical events affect the character of an institution.

Annex 8.1. DATASHEET

Overview of data from ZRHD data set used in section 8.4.

Table A.8.1. Status of negotiated bride wealth

	Married women	Percentage of married women
No negotiations took place	2	0.4%
Still to be negotiated	18	3.5%
Negotiated	500	96.1%
Total	520	100%

Source: Marriage histories, ZRHD data 1996

Table A.8.2. Importance of bride wealth payments in marriage

Reason	Percentage of women
Binds the families together	42%
Unites the couple	20%
Compensation to family of bride	15%
Customary/spiritual recognition	13%
No importance	10%
Total	100%

Source: Marriage histories, ZRHD data 1996

Table A.8.3. Market and non-market cattle transfers

	1998	Sum over 1997-1999
Sum of cattle received in bride wealth payments	24	48
Sum of non market cattle transfers received	62	158
Sum of market cattle transfers received	113	497

Source: ZRHD data 1997-1999

Table A.8.4. Average herd sizes

1992	1993	1994	1995	1996	1997	1998	1999	Average 1992-1999
9.9	8.1	8.7	9.5	10.7	9.5	9.2	10.0	9.45

Source: ZRHD data 1992-1999.

Table A.8.5. Gross household income

	in Z$ for 1997/1998
Resettlement households	18652
Communal area households	8592

Source: ZRHD data 1998.

Table A.8.6. Status of cattle payments in marriages

	All marriages 1940-1995	1994 marriages	1995 marriages
Full payment of bride wealth cattle	21%	4%	7%
Bride wealth cattle still outstanding	79%	96%	93%
Total	100%	100%	100%

Source: Marriage histories, ZRHD data 1996.

Table A.8.7. Reasons for divorce

Reason mentioned for divorce	Proportion of women that mentioned the reason
Male or female promiscuity	33.8%
Lack of material support	23.0%
Disrespect or attitude by husband	12.1%
Domestic violence	10.9%
General hardship (economic and health)	7.4%
Failure to pay bride wealth	4.4%
Problems with affinal relatives of the husband or the wife	4.3%
Tension with co-wives	4.1%

Source: Marriage histories, ZRHD data 1996.

Table A.8.8. Nominal amounts of cash demanded in bride wealth.

Year of marriage	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-1995
in Z$	60	98	251	488	700	1037

Source: Marriage histories, ZRHD data 1996.

Table A.8.9. Correlation coefficients for the period 1991/2-1997/8

Income in 1990 values	National rainfall in mm
Household crop income	0.31 *
Household real total income	0.26 *
Household maize yield	0.40 *
Household cattle possessions	-0.04
Real value of livestock sold	-0.17 *

* correlation significant at the 1 percent level or higher.
Source: originally published in Hoogeveen (2001, p. 147), based on ZRHD data 1992-1999 and rainfall statistics from the Zimbabwean Meteorological Service.

9. Conclusion.

Small farmers in Zimbabwe, like many farmers in developing countries, face many risks and uncertainties that affect their level of income and their (cash) needs to meet expenditures. Consider for example that ploughing cattle may be ill at the time the fields need to be ploughed, or that a plough is stolen. It will be more difficult to prepare the land sufficiently, which reduces the harvest that can be obtained. More seriously, a household member falls ill and dies after prolonged illness. Apart from emotional stress, this incurs considerable costs for medical expenses and the funeral ceremony and may affect the availability of labour in the household. Also, the harvest may not be sufficient to meet household consumption needs, either because rainfall was too low, or for more idiosyncratic reasons such as water logging in particular fields or because wild animals ate the crop before it could be harvested.

In a country like Zimbabwe where insurance markets are missing and public social security is largely limited to the provision of food aid during periods of droughts, farm households depend on their own coping strategies to make it through bad times. As risks are pervasive, households have usually planned strategies to deal with such events and may have a diverse set of activities and assets that allow them to do so. This dissertation is about the above mentioned shocks and the ways households respond to their occurrence. We particularly focus on the social arrangements that households use to deal with shocks and the social relations they use to attain security, such as labour or cattle sharing arrangements in a village, mutual gift-giving relationships between church members or assistance provided by the government.

In this concluding chapter we give an overview of the issues at stake and the perspective that we have taken to study them (in section 9.1). In section 9.2 we summarise our main findings while section three briefly highlights four, of undoubtedly more issues that call for continued research and we consider some relevant policy lessons that can be derived from our work.

9.1. Risk, Resettlement and Relations: the issue and our perspective

Our study is situated in Zimbabwe's resettlement areas. These areas, Mupfurudzi, Sengezi and Mutanda, were established in the early 1980s and provided small black farmers with the opportunity to settle on former commercial farms. The settlers received relatively large pieces of good quality land and they settled in communities that differed considerably, both in their physical and social set-up, from the communal areas, the areas where the majority of small black farmers was and still is living. This a-typical situation of resettled farmers allows us to study in more detail the influence

of the social environment on risk coping behaviour and more specifically risk sharing arrangements. The relevance of this work lies in the importance of risk coping strategies and support networks to mitigate risk and their relation to poverty and vulnerability.

Risk sharing arrangements are typically defined as a system of mutual assistance relationships in a given group, where a transfer from other members in the group insures any unpredicted event affecting one member. The constraint in risk sharing can be summarised as finding the right partners to share risk with. An insurance group should be both sufficiently heterogeneous and homogeneous. Heterogeneity ensures there is no perfect correlation of risks between its members: the group should consist of households with at least partly uncorrelated income streams. A risk-sharing group does however require homogeneity in terms of norms and values. This allows for the existence or creation of relationships of trust, a prerequisite to deal with information and enforcement constraints that are prevalent in situations where not all behaviour can be fully observed and commitment to stay in the insurance arrangement is limited. We argue that resettlement has influenced the opportunities for risk sharing. Not only because resettled farmers live in communities with a different physical and social set-up, issues that are explored in chapter four, five and six, but also because they may be thought of as households that are able to fend for themselves. Although many resettled households did not settle on their own, the social structure of resettlement villages is characterised by a relative scarcity of kinship relations, especially in comparison to villages in the communal areas that are usually organised around kinship relations. On the other hand resettlement households are engaged in many more non-religious associations compared to their communal area colleagues, potentially to make up for this lack of kinship relations. The lower mean of kinship relations in resettlement villages reduces risk sharing behaviour and promotes individual responses to shocks, while the alternative social structures developed in the resettled communities are not all conducive for risk sharing and village specific. This implies that social capital is highly context specific and may not always improve household's opportunities to engage in risk sharing. Although the higher level of asset ownership in the resettlement areas generally facilitates more individual responses to shocks, some situations call for outside assistance, such as droughts. We evaluated the allocation of public food aid during two major drought years in chapter seven and found that allocation reflected geographical differences (but not those related to agricultural performance) depended on household's intra-village connections and did not respond to household size. Irrespective of the long and continued investment of the government in resettlement areas, these results suggest that intra-village dynamics and perceptions of government officials may also influence household's access to public sources of assistance in times of drought. In chapter eight we moved away from the differences between resettled and communal households and consider in more detail a particular institution that combines debts with claims, allows for contract enforcement, reduces information problems and creates a large insurance pool through bilateral connections: bride wealth payments.

In this dissertation we combine elements from three different approaches that study risk coping behaviour: the literature on risk and insurance from development economics, the livelihood framework and social security studies. These approaches represent distinct strands of literature with traditionally limited cross-fertilisation. Traditionally, the literature on risk and insurance solely focuses on the presence and

impact of risk to explain household behaviour. The activities of the household are interpreted as a response to risk, whether to prevent, mitigate or cope with its impact. Current risk studies increasing pay attention to the particular context in which such strategies take place. Livelihood studies take a broader perspective and are concerned with making a living in general. Although these studies acknowledge that risk is an important factor, they stress that household behaviour is not just determined by risk, but also by other factors. Current social security studies take a position somewhere in between. These studies are also centred on risks and consider how social relations help to deal with adverse situations but do not interpret all activities or social interactions of a household as an intentional response to risk nor as insurance per se. We argue that notwithstanding these differences, these approaches can be complementary. The current livelihood framework clearly outlines the range of assets and contextual influences that determine livelihood outcomes. It does not provide concepts and tools to gain more insight in, nor formalises, the actual relation between assets, access and outcomes. The concepts and models from the risk and insurance literature do allow for a concrete analysis of the ways in which households respond to shocks, while social security studies, as we will see below, emphasise a functional approach to social relations, institutions and arrangements.

This complementarity is best illustrated with reference to recent advances in the risk sharing literature to consider in more detail the determinants of the level of insurance and address the definition of the risk-sharing group. This calls for analysis on the type of institutions and social relations involved in providing protection. Here risk sharing studies explore the same field as social security studies that emphasise that social security is not only provided through relations and institutions normatively defined to do so, but also through relations and institutions that do not normatively have such role (Benda-Beckmann, 1994). Udry (1990) has for example demonstrated that informal credit relations often have insurance characteristics, while Fafchamps and Lund (2003) argue that gift giving relationships may also have those attributes. Along these lines we have shown in chapter 8 that the specific form of Shona bride wealth payments enhance household security as well. Other work on the choice of insurance partners, such as De Weerdt (2002) and Murgai *et al.* (2002), study in more detail the context in which risk sharing takes place and which types of relationships are instrumental in dealing with information and enforcement problems. These studies bring in elements of access and assets brought forward in the livelihood framework. We have used a similar approach in chapter six.

Institutions and social relations are also central in social capital research. Although the concept is highly debated, sometimes haphazardly applied and therefore in danger of being a "catch all" without real content, it is important to document the influence of social assets on livelihood outcomes. Yet, we refute a distinction that is commonly made between structure (social network, institutions etc.) and cognition (norms and values, trust, attitudes etc.). We argue that in the context of our research, these dimensions cannot be easily separated as risk sharing arrangements, like many economic transactions in developing countries, are embedded in social relations and based on claims. The attitudes, norms and values embedded in these relations make it easier to deal with issues of information and enforcement and therefore are instrumental in risk sharing. However, such facilitating attitudes, norms and values are no guarantee for sufficient protection, as claims are not automatically converted into access to resources; they represent a potential. To attain security, claims need to

be effectuated and the possibilities to do so depend on the particular context households live in. Here again, the current livelihood approach offers a useful framework.

Although these reflections on livelihood, social security, risk sharing and social capital have stressed the importance of social relations in providing security to households, it also revealed that social relations are not just a characteristic of an individual or a household. They involve at least one other actor and are hence relational. This suggests a standard social capital measure, such as the number of memberships in associations, will only be a proxy indicator for what we are ultimately interested in. Although we use such measures in this dissertation, this does not provide us with information on the particular type of relationships or arrangements that actually provide security. Therefore, we argue that a social network approach, which takes the relationships between households rather than households as a unit of observation, is useful in gaining more insight. This approach was further explored in chapter six.

The starting point and major source of data in this dissertation is the Zimbabwe Rural Household Dynamics (ZRHD) data set, a unique data set that comprises a long term panel of land reform beneficiaries (1984-2001) and a shorter panel for communal households (1997-2001). This data set contains a wealth of relevant information and the long panel on these households provides an opportunity to study risk and risk coping behaviour, as these are difficult to capture in cross-sectional analysis. To get more insight in risk sharing behaviour we were able to develop specific questions and a risk coping module that were included in the ZRHD survey and we collected additional information on intra-village kinship relations. The latter, combined with data collected for a study on social capital development in the same communities, allowed us to quantify participation in social networks. We used qualitative material to shape the survey questions and to elaborate on issues that presented themselves after initial analysis.

9.2. A summary of findings

In our first empirical chapter**, chapter four**, we reviewed the resettlement experience. We discussed the social evolution of the communities that were established in the early 1980s and compared the current socio-economic characteristics of these households with current information on households and villages in the communal areas. This provided us with relevant information on the context of our analyses in the subsequent chapters. Contrary to common beliefs, we found that most land reform beneficiaries did not settle in complete social isolation. Many settler households were acquainted with at least one household in their new community, either through a kinship relation, because they lived in the same geographical area prior to resettlement or because they were related by lineage. The number of intra-village kinship relations had also increased considerably over almost twenty years, notably through marriages but also by "invitation" of relatives to settle on vacant plots. Still, in 2000, resettled villages are relatively kin-scarce compared to villages in the communal areas.

We also found that resettled households heavily invested in new social relationships after they settled, notably through participation in religious and non-religious associations. Especially the latter proved to be far more numerous and diverse in character compared to the communal villages. These associations may provide an opportunity to make up for the relative scarcity of kin relations in resettlement villages.

As expected, resettled and communal households differ from each other with respect to access to land and their asset holdings, notably cattle. Interestingly, we also found that resettled households have grown considerably over time and are significantly larger than communal households. This difference in household size is explained by a higher incidence of vertically extended households, households in which a married son, his wife and their children also live on the residential plot. Because it is more difficult for sons of land reform beneficiaries to obtain land elsewhere, they have established their own kitchen on their father's plot and cultivate a portion of his fields, a phenomena that clearly reduces the per capita benefits from land reform over time.

Considering the importance of kin relationships in risk sharing, both in Zimbabwe and elsewhere, and the relative scarcity of kinship relations in resettled communities, it is important to ascertain if resettlement has affected coping behaviour of households experiencing shocks. Moreover, if such differences would be found, it is important to know if these differences can indeed be explained by the fact that resettled households had moved away from their kinship networks. Alternatively, resettled households may have different coping behaviour because they have more resources to deal with shocks themselves. We explored these issues in **chapter five** where we presented data on the prevalence of certain types of idiosyncratic risks and the way Zimbabwean households responded to the shocks that emanated from the risks. Although, we did not have the relevant information to assess the severity of the shock and hence quantitatively evaluate the capacity of households to cope with the shock, more descriptive details on the shocks referred to provide insight in the potential magnitude of the shocks.

When considering household responses to shocks we distinguished two options. One is to solve the problem with the resources owned by the household (cash, labour or assets), a so-called individual response. Secondly, a household may (approach someone to) be assisted, a so-called network response. Combining individual and network responses, or the lack thereof, we developed a typology on household coping behaviour: households may have an individual response, a network response, a combined response (both an individual and a network response) or neither an individual nor a network response. Generally, we found that households most often used a network response to deal with shocks, sometimes in combination with an individual response, followed by no response and finally an individual response. We also found that coping behaviour varied for different shocks. While a household was more likely to use its network when it experienced a lack of cattle to plough, labour shortages and the need to meet medical expenses, funerals typically called for a combined response and an idiosyncratic low harvest was mostly solved by the household itself. We think the latter can be explained with reference to difficulties of information on outcomes and monitoring household behaviour in their agricultural practices. This result suggests that information asymmetries cannot be assumed to be non-existent, even in these small nuclear villages. Differences in household coping

behaviour are however not only explained by the experience of different shocks. Household size, cattle wealth and kinship relations matter as well. We found that larger households more often used neither a network nor an individual response when they reported a shock. In line with our expectations, cattle rich households more often reported an individual response while households with more kinship relations in the village less often used coped by themselve.

As hypothesised, we also found evidence for differences in household coping behaviour between resettled and communal households. Although both were most likely to use their network in response to a shock, resettled households more often dealt with a shock by themselves but were also more likely to be deprived of assistance if they failed, or were reluctant to do so. As resettled households are generally larger, have less intra-village kinship relations and more cattle, these characteristics could explain the observed differences in coping behaviour between resettled and communal households, and taken together, they do. However, detailed analysis of the effect of each variable separately showed that singularly, none of these variables were able to explain the observed differences between resettled and communal households. The village mean of intra-village kinship relations did provide conclusive evidence on these differences. Households living in villages with more kinship relations are less likely to cope with a shock by themselves and more likely to receive assistance through their support network. The results suggest that in villages with a higher mean number of kin relations, not only the households with kin relations share risks, but also unrelated households. In line with earlier findings on the importance of village cultures, our results suggest that villages develop a particular culture of risk sharing that becomes more conducive when the mean number of intra-village kinship relations increases. These results suggest that the alternative social structures that have emerged in the resettled communities, as reported in chapter four, may not offer the same opportunities for risk sharing as the kinship structures that are generally prevalent in communal areas.

These results are however different from those obtained in earlier work on risk sharing in the ZRHD communities. In the full-insurance test performed by Hoogeveen (2001) and the risk pooling experiment conducted by Barr (2003a) resettled and communal communities and households did not behave differently. Their results seem to suggest that the relative scarcity of kinship relations may be compensated by other relationships, such as those in the newly created associations. To explore this issue, we considered in more detail the nature of risk sharing relations and the underlying social structures and insurance patterns in **chapter six**. To do so we proposed a social network approach to unravel the determinants of observed risk sharing relationships between households in four of the resettlement villages: Mudzinge, Muringamombe, Mutoramepho and Zvataida in Mupfurudzi Resettlement Scheme. This approach takes the relationships between households, rather than the household, as the unit of analysis, which allows us to gain more insight in the influence of social structure on risk sharing. The analysis in this chapter is closely related to other work on the choice of insurance partners and sub-group insurance that is currently undertaken. The specific character of our data does however pose a methodological challenge, as the observations cannot be considered to be independent and therefore a prime assumption of statistical analysis is violated. This means that conventional estimation techniques are likely to give biased results. To overcome this problem, we use the p_2-model, a social network analysis tool that explicitly models

this dependence and uses the characteristics of households and the relationships between them to explain observed network patterns, in our case risk sharing relationships.

The p_2-estimations confirm that risk is not shared randomly within a village and that particular social relationships are more conducive for risk sharing compared to others. Interestingly, the type of social relationship that matters for risk sharing is largely determined in the village, probably based on the initial social conditions and the specific culture that has developed over time. In general, households are more likely to share risk with households with whom they shared risk before or with whom they share a common past (such as blood relatives, lineage or totem relations or households with the same geographical place of residence prior to resettlement). We also found some relations representing a shared future or similar morality to be used in risk sharing. Examples are the marriage relations and the pre-school association in Mudzinge or church membership in Muringamombe. Given the high level of civil social activity found in the resettlement villages in chapter four, finding only limited evidence on risk sharing amongst new relations is surprising at least. It suggests that this form of social capital, although potentially useful to achieve other aims, may be of limited use in risk sharing. This is in contrast to other studies that have documented the importance of religious affiliation for risk sharing in Africa, especially in apostolic or Pentecostal Churches. The importance of a shared past rather than a joint present also suggests it may not be easy to build social capital to support informal risk sharing relations. Therefore we conclude that the alternative social structure developed in the resettlement villages provide some opportunities to share risk, but may not be equal to the kinship structures in communal villages. Unfortunately, we did not have such detailed information on risk sharing relationships in communal areas to provide a counterfactual.

With respect to the direction of transfers, an issue that is relevant beyond the communal-resettlement divide, we found some indications that the direction of insurance transfers reflect temporal differences in wealth because households that provide assistance are richer compared to the households that received their assistance. Considering the endogeneity of this variable (as it is based on the dependent variable) these results should however be interpreted with care. We also found that past risk sharing relations influenced current risk sharing relations, but we did not find conclusive evidence on the direction of this relation. Current insurance can be both in the same direction as previous insurance, a pattern that we labelled charity, or a reciprocation of earlier insurance. Although inconclusive about the direction of transfers, the fact that past transfer matters, combined with the importance of particular social relationships suggests that it is realistic to assume that an insurance group is indeed composed of a set of bilateral relations, as was earlier suggested by Platteau (1997).

As our results clearly indicate that risk sharing is embedded in a particular social environment and in particular social relations we conclude that a social network perspective is appropriate because it considers the relationships between households rather than households as the unit of analysis. Social network analysis is a useful tool to illustrate this embeddedness and as such generates more insight in the concept of social capital.

After these evaluations of intra-village relationships, we turned to an extra-village agent in **chapter seven,** where we considered the role of the Zimbabwean government in providing social security to small farmers. As Kaseke (1998) argues this role is largely restricted to guaranteeing food security in drought years, we assessed the operation of the Drought Relief Programme in two national drought years, 1992 and 1995. This programme was operational since 1982 and at meeting drought-induced food needs. It assumed that rural households were able to meet their food requirements in non-drought years, the so-called self-sufficiency hypothesis. The evolution of the set up of the programme, from free handouts to food for work and the grain loan scheme, was inspired by arguments of cost reduction and decreasing smallholders' dependence on the government. Increased self-selection would meet both arguments. The food for work programme, operational in 1992, aimed at increased self-selection by asking rural households to provide labour for public works in exchange for grain. It was assumed that those who did not need food would allocate their labour elsewhere and hence would not participate in the programme. A similar argument was used to launch the grain loan scheme in 1995, in which households were given a grain loan that would have to be repaid after the next good season. The loan element was also introduced to reduce the costs of the food component in the programme, as the loans were to be repaid in later years.

Three questions are central in this chapter. Is the self-sufficiency hypothesis valid for the farmers in our study areas, or, are resettled farmers able to meet their consumption needs in non-drought years? Was the government able to meet drought induced food needs in 1992 and 1995? Did the change in set-up of the food programmes from food for work to grain loan scheme lead to an increased self-selection of farmers and cost reduction of the programmes? To answer these questions, we constructed two consumption variables. Based on figures on production, stock, gifts, purchases and food aid were calculated the actual annual consumption. We compared this with the predicted consumption needs of the household by calculating and summing the consumption needs of the different household members. As the required information is only available from 1997 for communal farmers we restrict the analysis in this chapter to resettlement farmers, and carefully consider differences between the resettlement schemes.

We found that the self-sufficiency hypothesis is reasonable for the resettlement farmers. On average they are able to meet their food consumption needs in non-drought years, although not solely from the grain produced in the previous harvest. A careful consideration of various sources of food (production, stocks, private transfers, public transfers and purchases) revealed that grain stocks and purchases are important in meeting household food consumption needs in non-drought years.

Further evaluation of the sources of food during drought years showed that the relief food obtained through the Food for Work Programme was not sufficient to meet drought-induced food needs in 1992, most likely because aid rations were limited due to budgetary constraints of the government. For all farmers together and in each of the resettlement schemes, the food aid obtained through food for work and the little grain they produced themselves only covered a third of household consumption needs. The remainder, a share that was significantly higher compared to other years, was obtained in the market up to a level that was on average sufficient to meet household consumption requirements. In 1995, with the grain loan scheme, the government did

meet drought induced food needs in Sengezi and Mutanda. There, the quantities of grain distributed were much larger compared to 1992 while the drought induced food needs were lower (almost non-existent in Sengezi). Production and grain loan together were sufficient to meet consumption needs, so grain purchases did not increase. In Mupfurudzi, the drought induced food needs were considerable and the food obtained through the grain loan scheme, albeit larger in quantity compared to 1992, was not sufficient to meet household consumption requirements. Consumption of grain from stocks and additional purchases helped households to cope with the situation.

A more detailed review of the consumption outcomes showed that the average outcomes conceal a much more diverse pattern with a considerable number of households that could not meet their consumption needs while other households lived in plenty. This suggests food aid was not sufficiently targeted. We explored this question in a regression analysis of the per capita allocations of food aid in 1992, 1995 and non-drought years on household portfolio characteristics, the position of households in the village and several control variables such as household size and resettlement scheme dummies. We did not find any evidence on targeting in 1992, while in 1995 cattle rich households and those who lived in a village that was less affected by the drought received lower allocations of food aid. In non-drought years households with more maize in stock received less food aid. For both drought years, we also found that households with some lineage connections in the village received more food aid and that larger households received a lower allocation of food aid per capita. In all years, 1992, 1995 and the non-drought years, the per capita quantities of food aid were also differentiated to area. In 1992 they were highest in Mupfurudzi, while in 1995 and non-drought years, households from Mutanda received most food aid. As we controlled for the mean maize production in the village, the prevailing weather conditions or agro-ecological differences affecting the potential to produce cannot explain these differences. These differences rather reflect geographically differentiated attitudes towards resettlement farmers or different experiences in running food programmes and/or a political use of the food aid instrument. The latter explanation is further supported by the importance of connections in obtaining higher allocations and the lack of responsiveness of the food aid programmes to large household sizes.

To reflect on the cost reduction argument that inspired the change in set up of the programme, our findings do suggest an increased level of self-targeting. The analysis showed that with the introduction of the loan element in 1995 households in villages with relatively good production potential and households with larger buffer stocks received lower quantities of food aid. We also found that fewer households participated in the Grain Loan Scheme in 1995 compared to the Food for Work Scheme in 1992 and that non-recipient households attained a higher consumption status in 1995 compared to the recipient households. Still, we cannot conclude that the Grain Loan Scheme was fully self-targeted. A considerable proportion of non-receivers could not meet their consumption requirements and there were many households who applied for and received a grain loan, while in fact they would have been able to meet their own consumption needs. These households did not necessarily misuse the grain loan scheme. Most likely, their access to the grain loan meant expenditures on food were kept to a minimum and thus allowed these households not to cut back too much on non-grain expenditures, like groceries, school and medical fees and production inputs for the next harvest.

Another finding not in favour of reaching the cost-reduction goal of the grain loan scheme is the fact that at a national level, a mere three percent of the loans was repaid in 1999. This low recovery rate on loans is attributed to a number of factors ranging from administrative and logistical constraints to limited willingness of farmers to repay their loans and a lack of measures to enforce repayment, or more importantly the lack of political support to use such enforcement mechanisms. Regarding the seemingly political nature of the food aid programmes, one may even wonder if cost-reduction and increased self-targeting were ever really aimed at or only avowed by mouth.

In **chapter eight**, which is based on joint work with Hans Hoogeveen, we portray another risk sharing arrangement that represents intra-village, extra-village and potentially nation wide insurance relationships. We explain how an institution that is not normatively defined to provide security in fact functions as an asset-insurance: bride wealth payments. We argue that this institution represents claims and debts that provide insurance against a loss of cattle, which is enhanced by various customs, norms and values related to the institution of marriage in general and bride wealth payments in particular.

In Zimbabwe bride wealth payments are usually defined and paid in living cattle. The average number of cattle demanded ranges between eight and nine head, a value that represents an estimated two to four times gross annual income. Given this considerable value and the productive, reproductive and buffer stock capacities embodied in the animals, access to bride wealth is regarded as access to wealth. This is amongst others illustrated by the Shona proverb that is used in the title of the chapter: to bear a daughter is to ensure future wealth. Customarily, bride wealth payments are made by a son in law to the father of his prospective bride to compensate her family for the loss in labour, the reproductive rights that are transferred to the lineage of the husband and the costs of her upbringing. Bride wealth payments also serve to cement relations between the marriage partners and the respective families of the individuals involved in the union. As this binds families together, the payment of bride wealth may enhance the opportunity to pool income and marriage relations could be regarded as a form of social capital to be used in income pooling. That this is in fact the case is also illustrated in chapter eight where we show that in one of resettlement villages, Mudzinge, risk is shared between households who are related by marriage. However, the income pooling literature has demonstrated that such pooling only partially protects households against fluctuations in income and hence there is room for additional measures.

We argue that bride wealth payments offer an additional opportunity to share risk, namely to protect farming households against a loss of cattle. Our argument is based on two important observations. First, we show that is not common for bride wealth to be fully paid at the time of marriage and additional payments are usually made in instalments, the timing of which is only partially related to specific events such as child birth. Payments remain outstanding for a considerable period and full payment may take a lifetime. This means a son in law is indebted to the father of his wife for a long time, a position referred to as *jeredzwa*. Second, the age, sex and condition of bride wealth cattle to be transferred are not specified during the bride wealth negotiations.

This flexibility in bride wealth payments is beneficial for both the son in law and the father of his wife. The son in law is not impoverished at the time of his marriage and the father of his wife retains a claim on cattle that may be used in times of need. Regression analysis showed that bride wealth payments indeed respond to shocks and depend on the resources available in the household. The outstanding debts are called in when need arises (defined as a negative cattle shock) or when cattle resources are low, while outstanding debts are paid when households have the means to do so. The functioning of bride wealth payments as an insurance against a loss of cattle is enhanced by the fact that the claim on cattle is rather explicit and can be enforced by taking the daughter (and her children) back, spiritual retribution or in (customary) court. There are also several arrangements to settle bride wealth debts in case a marriage is ended before the payments are made in full. In such cases, the opportunities to enforce payments are strongest when a wife dies, as her family, again with reference to spiritual retribution, may refuse to bury her until the debts are settled.

Our analysis also shows that bride wealth cattle received when a daughter marries can be used to pay outstanding bride wealth debts with other families, a characteristic of the payments that enhances its insurance function. Considering the fact that most households will have both cattle claims and debts, we show that restrictions on the choice of marriage partners that prevent a cancellation of these claims and debts between particular families, creates a chain of bilateral debt relations though which cattle can be transferred. This means that even when households themselves do not have sufficient cattle to meet the request to pay off part of their bride wealth debt that is claimed by a marriage relation, it can call on its own claims on another family to obtain cattle.

9.3 Relevance of our findings and future research

Although most of the data used in this dissertation were collected before or during the prelude to the political turmoil and economic downturn that has unfolded in Zimbabwe since the early 2000s, we believe that the results of our study are still relevant today. If only because risk and uncertainty govern daily life in Zimbabwe even more than before. However, it is not unthinkable that the personalised relationships described in our work have been politicised, and as such influence the operation of risk sharing arrangements and the possibility to protect against shocks, which would alter the results of our work.

With respect to the impact of resettlement on risk coping behaviour, we have shown that resettled farmers more often use their own assets to cope with shocks and they have fewer opportunities to share risk. Our analysis also suggests that each village has its own risk sharing culture, that increases with the mean number of intra-village kinship relations and that the relationships used to share risk are village specific and are partly determined by a shared past. This means that some initial social capital is conducive for the development of intra-village support systems in newly established communities. Our findings strengthen earlier findings by Barr (2004) who found that initial social capital is conducive for the development of non-religious associations, other forms of co-operation and trust in these relatively new communities. This

suggests that some effort at influencing the social set-up of new resettlement projects may improve the opportunities to cope with risk.

A more general finding that emanates from our work, that may be of interest to policy makers as well, is that social capital is highly context specific. Our work on social networks revealed that relationships or networks that are instrumental in achieving a particular outcome in one location, such as a village, may not provide the same result in another location. Moreover, social relationships or networks that are beneficial to achieve one particular outcome, such as a gardening club, may not be instrumental to obtain assistance in times of need. The nature of relations used in risk sharing and the conditions to do so are highly affected by the context. Given the fact that geography matters, interventions aimed at the development or promotion of social capital should therefore be grounded in local reality. This diversity of local specific social capital also underlines the need to use precise measures for social capital. An index, such as the number of memberships in associations, will only provide a general impression on the influence of social relationships on outcomes and thus remains a catch-all. A more precise consideration of various types of relationships and networks on the other hand allows us to gain insight in the particular relationships that matter and the reasons why. More importantly the characteristics of these relationships, such as a shared past, inform us on issues of enforcement and information relevant for the development of risk coping interventions and highlight the possibility that social capital has the tendency to exclude particular individuals or households from risk sharing arrangements as well.

Finally, and this is also relevant for risk coping interventions, we found evidence that risk sharing takes place through bilateral relations, rather than in a group. Although relations may involve more than two persons or households and may in explicit arrangements cover a considerable group, our results suggest that information and enforcement problems are best solved in bilateral relations that embody some form of balanced reciprocity. Interventions to sustain risk-sharing behaviour, as currently take place through numerous initiatives in small-scale insurance schemes in the health sector, should bear this in mind.

As with most research, the scope of our focus and choice of specific research questions meant we could not study all relevant aspects of risk, resettlement and relations that we encountered. At least four issues deserve further attention. First, in chapter five we evaluated household coping behaviour and concluded that the different social set up of resettlement communities indeed affects coping behaviour. Our analysis was based on the frequency of the type of coping behaviour, but did not consider its efficiency. To further explore the impact of different social environments, it would be good to measure the impact of a risk and assess the relative contribution of individual and network responses in dealing with such situations. Although this is done on an aggregate level in the full insurance test, a disaggregation to specific risks would be sensible to further our understanding of the responsiveness of risk coping behaviour to particular types of risk. Such an analysis would however require more detailed information than is currently available in the ZRHD data set.

Secondly, and to some extent related, the results in chapter five suggest that mean intra-village kinship relations affect household coping behaviour. The well-defined relation between risk, coping and vulnerability calls for a more in-depth analysis on

the influence of intra-village kinship relations and other social relations on livelihood outcomes. Initial attempts to establish such a relationship undertaken by Barr (2002) reported no statistical evidence on the link between different dimensions of social capital measured in the villages and household income as a measure of economic outcome. As this is in sharp contrast to other work on social capital (Narayan and Pritchett, 1997) and the qualitative references made by respondents on the importance of social relations to individual well-being, future work may focus on alternative specifications of the relation between social capital and well-being.

Thirdly, and already mentioned in the introduction, the high prevalence of HIV/AIDS infection in Zimbabwe, where an estimated 34 percent of the adults is infected, will impact on the occurrence of risk and the practise of risk sharing. The impact of AIDS related illnesses and deaths would be similar to non-AIDS related illnesses and deaths. It will affect the availability of labour in the household and the resources needed to meet medical and finally funeral expenses. It will thus put a strain on household finances and reduce its capacity to cope. However, given the increasingly covariate nature of the disease it will become more difficult to cope. As more people or households are affected the demand for assistance will increase while the number of households not affected, the labour and other resources available for assistance and the possibility of future reciprocation of assistance will decrease (White and Robinson, 2000). Especially funeral, labour sharing, patient caring and fostering arrangements are likely to come under stress and may eventually collapse when the incidence of labour shortage, the number of funerals to attend, the number of patients and finally orphans to be taken care of simply become too high. Although it is often believed that the scope of HIV/AIDS infection will be lower in resettlement areas compared to communal areas, because of their relative isolation and a prohibition on labour migration in the first decade after resettlement, the impact of HIV/AIDS is also felt here. Either because the second generation, that is the adult children of the original settlers, is more involved in migration and hence more likely to be infected, thus increasing the incidence of HIV/AIDS and its impact on risk and risk sharing in resettled communities. Or, the resettled households are -or will be- increasingly approached to provide assistance to AIDS-affected relatives living elsewhere, for example to provide monetary assistance of to foster in AIDS orphans. Considering the high prevalence of HIV/AIDS infection in Zimbabwe and the long term impact and consequences of this pandemic, both in terms of an increased uncertainty and reduced possibilities to cope with it, it is important to get more insight in the effect of the disease on risk sharing behaviour. However, the rigorous analysis needed to single out the effect of HIV/AIDS on risk and risk sharing behaviour and arrangements and the sensitivity of the subject and the information required, means it will be extremely difficult to do so.

Finally, throughout our work we have taken the household as a unit of analysis. Although we considered the relations between households in chapter six, we still considered the household as unit. Like most risk-sharing studies, we measured the occurrence of risk at the household level, the relationships between households as a unit, etc. Yet, not all risks are experienced by the household as a unit. Some members might be affected more than others. Moreover, in chapter six we found that some risk sharing relations were determined by gender. This suggests relations between households are in fact relations between individuals in the household and it is not certain that all household members equally benefit from a relationship of an

individual household member to someone outside the household. In fact, recent studies suggest that risk is not fully shared within the household (Dercon and Krishnan, 2000; Goldstein, 2000; Duflo and Udry, 2003). We suggest this may be because men and women participate in different insurance networks. Work that explicitly includes participation in risk sharing network in the analysis of intra-household resource allocation may provide further insight in the underlying patterns that explain these outcomes. Again, this would need more detailed information than is available in the ZRHD data set.

Samenvatting

Summary in Dutch

Het leven van kleine boeren in Zimbabwe, zoals dat van veel boeren in ontwikkelingslanden, kenmerkt zich door veel onzekerheden en risico's die zowel het niveau van het inkomen als de behoefte aan geld of andere bestaansmiddelen beïnvloeden. Een koe kan ziek worden in de tijd dat er eigenlijk geploegd moet worden of een ploeg is verdwenen of gestolen, wat een goede bewerking van het land bemoeilijkt en kan resulteren in een lagere opbrengst. Ernstiger is het wanneer een lid van het huishouden ziek wordt en na een lang ziekbed overlijdt. Naast een emotionele druk, brengt dit behoorlijk wat kosten met zich mee (voor medische behandeling en de begrafenis) en kan het de beschikbaarheid van arbeid in het huishouden negatief beïnvloeden. Ook kan een oogst tegenvallen, bijvoorbeeld omdat er te weinig regen is gevallen, een gebeurtenis die veel mensen in een bepaald dorp tegelijk zal treffen, of om meer individuele redenen zoals het onderwaterlopen van een bepaald veld of omdat wilde dieren een deel van de gewassen opgegeten hebben voordat die geoogst zijn. Hierdoor zal het moeilijker zijn om in de voedselbehoefte van het huishouden te kunnen voorzien.

In een land als Zimbabwe waar de verzekeringsmarkt niet of nauwelijks is ontwikkeld en de sociale zekerheid van overheidswege voornamelijk beperkt is tot het geven van voedselhulp in tijden van droogte zijn boeren afhankelijk van hun eigen strategieën, *coping strategies*, om met dergelijke gebeurtenissen of schokken om te gaan. Aangezien huishoudens zich bewust zijn van deze risico's én inkomens- of consumptieschokken als gevolg van deze risico's vaak voorkomen zijn de meeste huishoudens daar in meer of mindere mate op voorbereid. Zij hebben vaak een divers pakket van activiteiten en middelen om hiermee om te gaan. Dit proefschrift gaat over bovengenoemde schokken en de manier waarop huishoudens daarop reageren. De sociale arrangementen en sociale relaties die huishoudens hierbij gebruiken staan centraal. Voorbeelden hiervan zijn bijvoorbeeld wederkerige hulprelaties met buren, onderlinge uitwisseling van arbeid in een dorpsgemeenschap of het gebruik van koeien van familieleden, maar ook de hulp die van de overheid wordt verkregen.

Deze sociale arrangementen zijn onderwerp van verschillende stromingen in de literatuur, waarvan in **hoofdstuk twee** een uitgebreid overzicht wordt gegeven. In the economische literatuur wordt vooral gesproken over informele groepsverzekeringen, *risk sharing* of *risk pooling*, waarbij een onverwachte gebeurtenis van een lid wordt verzekerd door bijdrages van andere leden in de groep. Dergelijke systemen werken het beste in relatief kleine groepen waar informatie over ieders gedrag makkelijk beschikbaar en verifieerbaar is en er mogelijkheden zijn om impliciete afspraken, eventueel onder dwang, na te laten komen. Centraal element in deze systemen is dat uitbetaling conditioneel is op een bepaalde gebeurtenis (een schok). In recente studies

over *sociale zekerheid* wordt een breder perspectief genomen. Sociale zekerheid wordt niet alleen verkregen via de overheid of via informele verzekeringen, maar ook via mechanismen die ervoor zorgen dat huishoudens of individuen niet onder een bepaald, door de samenleving vastgesteld minimum terechtkomen, zonder dat deze hulp wederkerig is of reageert op een schok. Bovendien is in deze studies de aandacht niet alleen gericht op arrangementen en relaties die een expliciete zekerheidsfunctie hebben, maar ook op instituties die een andere functie hebben en waarbij de relatie tussen premie en uitbetaling niet strikt is, zoals bijvoorbeeld het systeem van bruidsprijs betalingen dat wij in hoofdstuk 8 beschrijven. *Livelihood studies* daarentegen richten zich vooral op de verscheidenheid aan mogelijkheden die huishoudens hebben om in hun bestaan te kunnen voorzien en de verschillende contextuele factoren die daar invloed op hebben. Hieronder valt het voorkomen van schokken maar ook bijvoorbeeld het rechtssysteem of de relaties tussen mannen en vrouwen. De toegang tot bestaansmiddelen via sociale relaties, ook wel sociaal kapitaal genoemd, neemt in alledrie de benaderingen een belangrijke plaats in. Wij proberen in dit proefschrift de inzichten van deze verschillende stromingen te combineren. Het idee dat mensen elkaar verzekeren en de bijbehorende behoefte aan informatie en handhaving is het uitgangspunt maar we beperken ons niet tot groepsverzekeringen en besteden ruimschoots aandacht aan de institutionele en contextuele factoren die toegang tot informele verzekeringsmechanismen mogelijk maken.

In onze studie staan boeren uit drie landhervormingsgebieden in Zimbabwe centraal. Deze gebieden, Mupfurudzi, Sengezi en Mutanda, zijn aan het begin van de jaren tachtig van de twintigste eeuw opgezet op kleine zwarte boeren de mogelijkheid te geven een nieuw boerenbedrijfje te starten. De boeren die zich hier vestigden kregen behoorlijke stukken land van relatief goede kwaliteit. De dorpen waarin zij kwamen te wonen verschilden, zowel in sociaal als in fysiek opzicht, aanzienlijk van de zogenoemde communale gebieden, de gebieden waar de overgrote meerderheid van de kleine zwarte boeren voor de onafhankelijkheid woonden en nu nog steeds wonen. De bijzondere situatie van deze landhervormingsboeren geeft ons de mogelijkheid om meer inzicht te krijgen in de invloed van de sociale omgeving op de manier waarop boeren met risico's omgaan en meer in het bijzonder de informele verzekeringsrelaties die ze daarvoor gebruiken. Deze invalshoek is mede mogelijk gemaakt door het bestaan van een unieke dataset die verzameld is door Bill Kinsey. In deze dataset wordt een groep van 400 landhervormingsboeren door de tijd gevolgd. Zij zijn ondervraagd in 1984, 1987 en elk jaar tussen 1992 en 2001. In 1997 is de onderzoekspopulatie uitgebreid met 150 boeren uit de communale gebieden waardoor een vergelijkend perspectief mogelijk is. Deze dataset vormt de basis van de empirische analyses in dit proefschrift en is aangevuld met gegevens die we zelf verzameld hebben, met name over verwantschapsrelaties in de dorpen, en gegevens over andere vormen van sociaal kapitaal die in het kader van een ander onderzoeksproject in dezelfde gebieden verzameld zijn. Diepte-interviews en groepsgesprekken leverde een schat aan informatie op die richting geven aan de statistische analyses en de resultaten illustratief ondersteunen. In hoofdstuk **drie** geven we een uitgebreide omschrijving van de verschillende bronnen van informatie.

In **hoofdstuk vier** beschrijven we de huishoudens en de onderzoeksgebieden. We bespreken de ontwikkeling van de sociale structuren in de landhervormingsdorpen die aan het begin van de jaren tachtig gesticht werden en vergelijken hun huidige sociaal-

economische kenmerken met die van huishoudens en dorpen in de communale gebieden. Deze beschrijving geeft ons de nodige informatie over de context waarin we de analyse van de volgende hoofdstukken kunnen plaatsen. In tegenstelling tot de gangbare gedachte in Zimbabwe blijkt dat landhervormingsboeren vaak niet alleen met onbekenden in hun nieuwe dorp terechtkwamen. De meeste huishoudens kenden tenminste één ander huishouden in hun nieuwe dorp: verwanten, mensen die voor de landhervorming in hetzelfde gebied woonden of mensen met wie een verre bloedverwantschap (totem relatie) bestond. Bovendien is het aantal verwantschapsrelaties binnen deze dorpen in de loop van de jaren sterk toegenomen, voornamelijk door huwelijken tussen de kinderen van landhervormingsboeren maar ook omdat deze boeren verwanten hebben uitgenodigd om zich op vrijgekomen of overgebleven stukken land te vestigen. Toch is vandaag de dag het aantal verwantschapsrelaties in de landhervormingsdorpen relatief schaars ten opzichte van dorpen in de communale gebieden. De boeren in de landhervormingsgebieden hebben ook op een andere manier in nieuwe sociale relaties geïnvesteerd, met name door deelname in kerkelijke en niet-kerkelijke verenigingen. Ten opzichte van communale boeren zijn landhervormingsboeren relatief vaker lid van niet-kerkelijke verenigingen. Deze verenigingen kunnen het gebrek aan verwanten mogelijkerwijs compenseren.

Zoals te verwachten verschillen landhervormings- en communale boeren in hun toegang tot land en daaraan gerelateerd hun bezittingen, met name vee. We zien ook dat huishoudens in het landhervormingsprogramma over de tijd flink in omvang zijn gegroeid en significant groter zijn dan communale huishoudens. Dit verschil is met name te verklaren doordat landhervormingshuishoudens vaker drie generaties omvatten, een gevolg van het feit dat er voor de volwassen zonen van deze huishoudens geen land beschikbaar is in de landhervormingsgebieden en het voor hen moeilijker is om elders land te vinden omdat hun vader niet meer in een communaal gebied woont.

In **hoofdstuk vijf** gaan we na of het gebrek aan verwantschapsrelaties en het grotere veebezit van landhervormingsboeren invloed heeft op de manier waarop zij met schokken omgaan. Hiertoe onderscheiden we twee manieren waarop boerengezinnen op een schok kunnen reageren. Ze kunnen het probleem oplossen met middelen van het huishouden zelf (met gespaard geld, arbeid of bezittingen), wat wij een individuele reactie noemen. Het is ook mogelijk dat ze hulp van andere gezinnen vragen of krijgen, een netwerk reactie. Een combinatie van deze mogelijkheden levert een typologie op van huishoudgedrag dat vier typen kent: huishoudens hebben ofwel een individuele reactie, of een netwerk reactie, of zowel een individuele en netwerkreactie of reageren niet actief op de schok, bijvoorbeeld door het land met de hand te bewerken wanneer zij plotseling geen koeien hebben om de ploeg te trekken. Over het algemeen rapporteren de meeste huishoudens die een schok meemaken een netwerkreactie, soms in combinatie met een individuele reactie. Daarna volgen de situaties waarin huishoudens niet actief reageren, en een individuele reactie.

Het type reactie hangt af van de soort schok die men mee maakt. Een netwerk reactie komt het meeste voor wanneer huishoudens een gebrek aan koeien heeft om te ploegen, een gebrek aan arbeid of wanneer het geld nodig heeft om medische behandelingen te betalen, terwijl een begrafenis typisch een combinatie van netwerk en individuele reacties oproept en een individuele misoogst meestal door het huishouden zelf wordt opgelost. Het ligt voor de hand te denken dat dit laatste te

maken heeft met de moeilijkheid om voldoende informatie te hebben over de reden van deze individuele misoogst, bijvoorbeeld omdat een gezin niet veel op het land heeft gewerkt of omdat de velden van het gezin proportioneel veel last hebben gehad van overvloedige of juist te lage regenval. Naast deze verschillen in type schok, spelen ook de grootte van het huishouden, het aantal koeien dat men bezit en het aantal verwantschapsrelaties in het dorp een rol. Grotere huishoudens laten vaker geen actieve reactie zien wanneer ze een schok meemaken, terwijl huishoudens met veel koeien, zoals te verwachten, vaker een individuele reactie laten zien en huishoudens met meer verwantschapsrelaties juist minder vaak een individuele reactie vertonen.

Zoals verwacht zijn er ook verschillen tussen landhervormings- en communale gezinnen in de manier waarop ze met schokken omgaan. Hoewel beide typen huishoudens meestal een netwerk reactie hebben, vertoonden landhervormingsboeren vaker een individuele reactie of zijn zij verstoken van hulp op het moment dat zij geen eigen middelen willen of kunnen inzetten om met de schok om te gaan. Het feit dat deze gezinnen groter zijn, meer bezittingen en minder verwantschapsrelaties hebben zou deze verschillen kunnen verklaren. Bij elkaar genomen doen ze dat ook. Wanneer we echter naar de individuele invloed van deze variabelen kijken blijken ze niet instaat te zijn de verschillen tussen communale en landhervormingsboeren te verklaren. Verschillen in het gemiddelde aantal verwantschapsrelaties in het dorp kan dat wel. Huishoudens in dorpen waar gemiddeld meer verwantschapsrelaties zijn gebruiken minder vaak individuele strategieën wanneer ze een schok meemaken en ontvangen vaker hulp via hun netwerk. Dit suggereert dat in dorpen met een hogere verwantschapsdichtheid niet alleen de huishoudens met verwantschapsrelaties elkaar helpen, maar ook huishoudens die geen verwantschapsrelaties binnen het dorp hebben. In het verlengde van een eerdere studie die de ontwikkeling van een specifieke dorpscultuur liet zien, suggereren onze resultaten dat dorpen een eigen "verzekeringscultuur" ontwikkelen die actiever is naar mate de verwantschapsdichtheid in het dorp toeneemt. Dit doet eveneens vermoeden dat de alternatieve sociale netwerken die in relatief nieuwe dorpen zijn opgebouwd niet dezelfde mogelijkheden tot informele verzekering bieden als de verwantschapssystemen die in de communale gebieden bestaan.

Om meer inzicht te krijgen in het type sociale relatie dat boeren gebruiken om zich onderling te verzekeren bestuderen we in **hoofdstuk zes** de verzekeringsrelaties in vier dorpen in een van de landhervormingsgebieden in ons onderzoek. We gebruiken hiervoor een sociale netwerk analyse die in plaats van huishoudens, *relaties tussen huishoudens* als onderzoekseenheid neemt en de determinanten van deze relaties onderscheidt. Dit biedt ons de mogelijkheid om meer inzicht te krijgen in de invloed van sociale structuren op informele verzekering. Het specifieke karakter van deze analyse levert echter wel een methodologisch probleem op omdat de observaties niet onafhankelijk van elkaar zijn en normale schattingsprocedures daarom een vertekent beeld kunnen opleveren. We lossen dit probleem op door gebruik te maken van het p_2 model, dat deze afhankelijkheid tussen variabelen modelleert en de karakteristieken van huishoudens en de relaties tussen de huishoudens gebruikt om de geobserveerde netwerkpatronen, in ons geval verzekeringsrelaties, te verklaren.

De resultaten van deze analyse laten zien dat informele verzekeringsrelaties tussen huishoudens in een dorp niet willekeurig zijn maar de lijnen van bestaande sociale structuren volgen. Sommige sociale relaties worden vaker gebruikt om elkaar te

verzekeren dan andere. Het type sociale relatie dat van belang is hangt sterk af van het dorp waarin men woont en is waarschijnlijk gerelateerd aan de initiële sociale structuur van het dorp en de specifieke cultuur die door de tijd in het dorp ontwikkeld is. Over het algemeen zijn huishoudens eerder geneigd een verzekeringsrelatie te hebben met huishoudens waar ze in het verleden ook een verzekeringsrelatie mee hebben gehad, als gever of als ontvanger, of met huishoudens waarmee men een gemeenschappelijk verleden deelt (verwanten, leden van dezelfde totem of huishoudens die voor de landhervormingen in hetzelfde gebied woonden). Ook vonden we verzekering via een aantal sociale relaties die een gedeelde toekomst (huwelijkse relaties) of een gedeelde moraal (lidmaatschap in kerken en de crèche) vertegenwoordigen. Gegeven het rijke verenigingsleven is de beperkte verzekeringsfunctie van lidmaatschap in deze organisaties op zijn minst verrassend. Het suggereert dat deze vorm van sociaal kapitaal, hoewel mogelijk nuttig om andere doelen te bereiken, niet of slechts beperkt geschikt is om zekerheid te verkrijgen. Dit is des te opvallender omdat in andere studies de rol van met name kerkgenootschappen in wederzijdse verzekeringen juist wordt benadrukt. Het belang van een gedeeld verleden suggereert bovendien dat het niet gemakkelijk is om sociaal kapitaal voor onderlinge verzekeringssystemen op te bouwen. We concluderen dat de alternatieve sociale structuren die in de landhervormingsgebieden zijn gecreëerd wel mogelijkheden tot onderlinge verzekering bieden, maar niet gelijk zijn aan de verwantschapsrelaties die in de communale gebieden. Deze uitspraak geldt overigens alleen voor de frequentie waarmee deze relaties worden gebruikt. Een eerdere studie in dezelfde gebieden heeft aangetoond dat de mate waarin onderlinge verzekering beschermt tegen schokken niet wezenlijk verschillend is tussen de communale en de landhervormingsgebieden (Hoogeveen, 2001)

In hoofdstuk zes hebben we ook gekeken naar de richting van verzekeringstransfers. Opvallend genoeg vinden we geen verschil in participatie in verzekeringsnetwerken tussen rijke en arme huishoudens. Wel vinden we dat de huishoudens die geven op het moment van geven rijker zijn dan de huishoudens aan wie ze geven. Dit is een bevestiging van het "*state-contingent*" karakter van een verzekeringsrelatie en geeft een (mogelijk) tijdelijk verschil in rijkdom tussen gever en ontvanger aan. Aangezien deze variabele endogeen is moeten we deze uitkomst echter voorzichtig interpreteren. Ook vonden we dat huishoudens vaker een verzekeringsrelatie hebben met een huishouden met wie ze in het verleden al een verzekeringsrelaties hebben gehad, maar vonden geen eenduidend resultaat over de richting van dit verband. Huidige verzekeringsrelaties kunnen zowel in dezelfde richting verlopen als relaties in het verleden, een patroon dat wij liefdadigheid noemen, of geïnterpreteerd worden als een terugbetaling van een "schuld" die in het verleden is opgebouwd, een wederkerige hulprelatie. Hoewel er geen duidelijkheid is over de precieze richting van dit verband, is het vinden van een verband tussen huidige verzekeringsrelaties en die uit het verleden wel van belang. Het feit dat het verleden telt en dat slechts bepaalde sociale relaties van belang zijn laat zien dat een verzekeringsgroep hoogstwaarschijnlijk is opgebouwd uit verschillende bilaterale relaties, zoals eerder door Platteau (1997) is gesuggereerd, en niet als groep waarbinnen onderlinge verzekeringsrelaties alleen bepaald worden door het lot, namelijk wie pech heeft en wie niet.

In **hoofdstuk zeven** belichten we de rol van de overheid in sociale zekerheid. Volgens Kaseke (1998) beperkt deze zich voornamelijk tot het geven van voedselhulp in tijden van droogte. We beoordelen daarom het functioneren van het voedselhulpprogramma

van de overheid in twee jaren van nationale droogte, 1992 en 1995. Het programma dat al sinds 1982 operationeel was had tot doel om te voorzien in de voedseltekorten die veroorzaakt werden door een gebrek aan regenval. Uitgangspunt van het programma was dat boeren huishoudens in "normale" jaren zelf voldoende voedsel kunnen produceren om in hun behoefte te kunnen voorzien, de zelfvoorzieningshypothese, en dat de overheid voedselzekerheid zou garanderen wanneer de boeren dit als gevolg van gebrekkige regenval niet konden doen. Het karakter van dit programma is in de loop van de tijd veranderd van een vrije distributie van voedsel tot voedsel voor werk projecten (1992) en een graanleningen systeem (1995). Deze verandering was ingegeven door de noodzaak om de kosten van het programma te verminderen en boeren te stimuleren in hun eigen behoeften te voorzien en minder afhankelijk te laten zijn van de overheid. Een toenemende mate van zelfselectie zou beide argumenten tegemoet komen. Het voedsel voor werk programma, operationeel in 1992, was gericht op zelfselectie door rurale gezinnen te vragen arbeid te leveren voor publieke werken in ruil voor voedsel. De overheid ging er vanuit dat degene die geen voedsel nodig had, hun arbeid elders zou inzetten en niet aan het programma deel zou nemen. Een vergelijkbaar argument is gebruikt bij de introductie van het graanlening systeem in 1995. Met dit systeem konden huishoudens een graanlening krijgen die ze na de volgende (goede) oogst weer terug moesten betalen. Het element van een lening is tevens geïntroduceerd om de kosten van de graancomponent in het programma te verminderen, de lening zou immers in latere jaren weer worden terugbetaald, waardoor er per saldo een deel van de kosten "terugverdiend" zou worden.

In deze context stellen we in hoofdstuk zeven drie vragen. Is de zelfvoorzieningshypothese van toepassing op de boeren in onze studie, of wel, kunnen de landhervormingsboeren in normale jaren in hun eigen voedselbehoeften voorzien? Kon de overheid voorzien in de voedseltekorten die veroorzaakt zijn door de droogte in 1992 en 1995? En heeft de verandering in de opzet van het programma daadwerkelijk geleid tot een toegenomen zelfselectie van boerenhuishoudens die voedselhulp ontvangen en een kostenreductie van het programma? Om deze vragen te beantwoorden construeren we twee consumptie variabelen. Op basis van de gegevens over productie, voorraad, giften, aankopen en voedselhulp van de overheid kunnen we de jaarlijks gerealiseerde consumptie berekenen. Die vergelijken we met de consumptie behoefte van het huishouden dat berekend kan worden aan de hand van de voedselbehoefte van de verschillende leden in het huishouden. Aangezien deze informatie voor de communale boeren pas beschikbaar is vanaf 1997 en we vooral geïnteresseerd zijn in de droogte jaren 1992 en 1995, beperken we de analyse in dit hoofdstuk tot de landhervormingsboeren, waarbij we wel een onderscheid maken naar de verschillende gebieden waarin zij wonen.

Een vergelijking van de gerealiseerde consumptie met de consumptiebehoeften in niet-droogte jaren laat zien dat de zelfvoorzieningshypothese inderdaad van toepassing is op de landhervormingsboeren: gemiddeld genomen zijn zij in staat om voldoende voedsel te produceren om in hun eigen behoefte te voorzien. Interessant genoeg wordt de behoefte niet altijd alleen uit de productie van dat jaar gedekt, maïs uit eigen voorraad en aankopen op de markt spelen ook een rol. Een nadere evaluatie van de bronnen van voedsel tijdens droogte jaren laat zien dat de voedselhulp die verkregen is met het voedsel voor werk programma in 1992 niet voldoende was om in de voedseltekorten die door de droogte werden veroorzaakt te kunnen voorzien. Dit

heeft waarschijnlijk te maken het beperkte overheidsbudget dat in die tijd beschikbaar was. Voor alle landhervormingsboeren en in elk van de gebieden afzonderlijk was de eigen productie en het overheidsvoedsel samen slechts voldoende om in eenderde van de voedselbehoefte te voorzien. De rest, een gedeelte dat significant hoger was dan in de andere jaren, werd aangekocht op de markt. In 1995, met het graanlening systeem, was de overheid in Mutanda en Sengezi in staat om in de voedselbehoefte van de boeren te voorzien. In die gebieden was de hoeveelheid voedsel die gedistribueerd werd veel hoger dan in 1992, terwijl de tekorten veroorzaakt door de droogte veel lager waren en in Sengezi zelfs bijna niet bestonden. De eigen productie en de graanlening was voldoende om in de consumptie behoeften te voldoen, waardoor de aankopen op de markt niet stegen. In Mupfurudzi waren de productie tekorten door de droogte aanzienlijk en de hoeveelheid voedsel ontvangen via de graanleningen, hoewel groter dan in 1992, waren niet voldoende om in het tekort te voorzien. Dit tekort werd aangevuld door het gebruik van voorraden en aankopen op de markt.

Een meer gedetailleerde kijk naar de consumptie uitkomsten laat zien dat de gemiddelde uitkomsten een vertekent beeld geven en een zeer divers patroon aan consumptie uitkomsten verbloemen. Er is een flink aantal huishoudens dat helemaal niet in haar voedselbehoefte kon voorzien, terwijl een ander deel van de huishoudens juist ruimschoots voldoende had. Dit suggereert dat voedselhulp niet voldoende gericht is geweest op de groep die het nodig had. We hebben deze vraag verder onderzocht met behulp van een regressie analyse waarbij we de per capita hoeveelheid voedselhulp in resp. 1992, 1995 en de niet-droogte jaren willen verklaren met huishoudportfolio karakteristieken, de relaties van huishoudens in hun dorpen en een aantal controle variabelen zoals huishoudgrootte en het gebied waarin ze wonen. In deze analyse vonden we geen enkel bewijs voor gerichte voedselhulp in 1992, terwijl in 1995 de rijkere huishoudens en huishoudens die wonen in gebieden die minder door de droogte waren getroffen, minder voedselhulp ontvingen. In niet-droogte jaren ontvingen huishoudens met meer voorraden ook minder hulp. Voor beide droogte jaren vonden we ook dat gezinnen met clan relaties in het dorp meer voedsel hulp ontvingen, terwijl grotere huishoudens per capita juist minder voedsel ontvingen. In alle jaren was er ook een verschil in voedseltoewijzing per gebied, in 1992 was die het hoogste in Mupfurudzi, terwijl in 1995 en in de niet-droogte jaren de huishoudens in Mutanda het meeste ontvingen. Aangezien we voor het productiepotentieel in de verschillende gebieden en dorpen gecontroleerd hebben, kan een verschil in intensiteit van de droogte deze regionale verschillen niet verklaren. Het is mogelijk dat deze regionale variatie een gevolg is van een verschil in de houding van de lokale overheid ten aanzien van landhervormingsboeren dan wel een verschil in ervaring om dergelijke voedsel programma's te implementeren of duidt op een politieke inzet van het programma. Deze laatste mogelijkheid wordt onderschreven door het belang van relaties in het dorp om grotere allocaties van voedselhulp te ontvangen en het vinden van een negatieve relatie tussen gezinsgrootte en per capita allocatie van voedsel, een indicatie dat verdeling niet volgens behoeften gaat.

Wat vertelt deze analyse ons over de mogelijke zelfselectie van boeren, en daarmee de potentiële kostenreductie van het programma? Met de introductie van de graanlening is de zelfselectie toegenomen: gezinnen in dorpen met een redelijk productie potentieel en grotere capaciteit om zelf met het tekort om te gaan hebben lagere hoeveelheden voedselhulp ontvangen. We zagen ook dat minder gezinnen deelnamen

aan het programma van de graanleningen ten opzichte van het voedsel voor werk programma en dat huishoudens die geen voedselhulp ontvingen een hogere consumptiestatus hadden dan degene die wel voedsel ontvangen hadden. Toch kunnen we niet concluderen dat zelfselectie van boeren volledig geslaagd is. Een behoorlijk gedeelte van de gezinnen die geen voedsellening ontvingen kon niet in haar voedselbehoefte voorzien en er zijn ook veel gezinnen die wel een graanleningen aan hebben gevraagd en ontvangen, terwijl ze daar eigenlijk niet voor in aanmerking kwamen omdat ze in hun eigen voedselbehoefte konden voorzien. Dat wil overigens niet zeggen dat deze gezinnen de graanlening hebben "misbruikt". Het is waarschijnlijk dat het feit dat zij toegang hadden tot de graanlening, ze in staat heeft gesteld om de uitgaven aan voedsel tot een minimum te beperken en op andere uitgaven, zoals schoolgeld, geld voor medische voorzieningen, zaden en kunstmest voor het volgende seizoen etc, zo min mogelijk te bezuinigen.

Het is echter niet waarschijnlijk dat deze beperkte toename in zelfselectie tot een kostenreductie van het programma heeft geleid. Dit heeft vooral te maken met het feit dat er grotere hoeveelheden voedsel gedistribueerd zijn en de terugbetaling van de leningen ver achter bleef. Op nationaal niveau was in 1999 slechts drie procent van de leningen terugbetaald. Dit lage niveau van terugbetaling wordt aan een aantal factoren geweid die variëren van administratieve en logistieke knelpunten tot een beperkte bereidheid van boeren om terug te betalen en het gebrek aan mogelijkheden om terugbetaling op te leggen, of een gebrek aan politieke wil om dat daadwerkelijk te doen. Gezien het mogelijke politieke karakter van de voedselvoorziening zou men zich zelfs af kunnen vragen of kostenreductie en toegenomen zelfselectie wel werkelijk tot de doelen behoorden.

In **hoofdstuk acht**, dat samen is geschreven met Hans Hoogeveen, richten we onze aandacht op een andere vorm van informeel verzekeren die zowel met gezinnen binnen het dorp, als met gezinnen buiten het dorp kan plaatsvinden. We laten zien dat een institutie die niet als verzekeringsmechanisme is opgezet, bruidsprijs betalingen, weldegelijk als zodanig kan functioneren. Dit instituut vertegenwoordigt *aanspraken* en *schulden* die bescherming bieden tegen een verlies aan koeien. Dit wordt onder andere mogelijk gemaakt via verschillende gebruiken, normen en waarden rondom trouwen en bruidsprijs betalingen die door de Shona, de grootste bevolkingsgroep in Zimbabwe, worden nageleefd.

Een belangrijk gegeven is dat de bruidsprijs wordt vastgesteld en (meestal) betaald in levende have: koeien. Het gemiddeld aantal koeien dat gevraagd wordt varieert tussen de acht en negen. Dit vertegenwoordigt een geschatte waarde van twee tot vier keer het bruto jaarinkomen van de boerenhuishoudens. Gegeven deze waarde, de productieve en reproductieve eigenschappen van vee, en haar functie als "spaarbankboekje" vertegenwoordigt de bruidsprijs een toegang tot rijkdom. Dit komt o.a. tot uiting in het Shona spreekwoord dat luidt: *"Wie een dochter baart is verzekerd van toekomstige rijkdom".* Volgens Shona gebruik betaalt de schoonzoon de bruidsprijs aan de vader van zijn vrouw om hem en haar familie te compenseren voor het verlies aan arbeid, de rechten over de kinderen die geboren worden uit het huwelijk en de kosten voor het grootbrengen van de vrouw. De betalingen dragen ook bij aan een bestendiging van de relatie tussen de huwelijkspartners en hun wederzijdse families. Het op deze manier bij elkaar brengen van families zou de mogelijkheid om elkaar tegen inkomensverlies te verzekeren vergroten: zoals we in hoofdstuk zes

zagen kunnen huwelijksrelaties een vorm van sociaal kapitaal zijn die het mogelijk maakt om inkomen te poolen. Echter, we weten ook dat dit onderlinge verzekeren slechts beperkt beschermt tegen fluctuaties in inkomen en dat er ruimte is voor aanvullende verzekeringsmechanismen.

Wij beargumenteren dat de bruidsprijs betalingen nog een andere mogelijkheid bieden om risico's onderling te delen, namelijk via een verzekering tegen het verlies van koeien. Deze stelling is gebaseerd op twee belangrijke observaties. Ten eerste laten we zien dat het niet gebruikelijk is om de bruidsprijs volledig te betalen op het moment van trouwen. Een eerste aanbetaling wordt gedaan en de rest wordt in termijnen afbetaald. Het tijdstip van betaling van de termijnen ligt slechts ten dele vast, bijvoorbeeld bij de geboorte van kinderen, en is voor een groot deel flexibel. De termijnen blijven meestal een behoorlijke periode openstaan en volledige betaling van de bruidsprijs kan een leven lang duren. Dit betekent dat de schoonzoon een schuld heeft bij de vader van zijn vrouw, een positie die wordt aangeduid met het Shona woord *jeredzwa*. Ten tweede wordt de leeftijd, het geslacht en de gezondheid van nog te betalen koeien niet van tevoren vastgelegd. Deze flexibiliteit in het betalen van de bruidsprijs is gunstig voor zowel de schoonzoon als de vader van de bruid. De schoonzoon wordt niet kaalgeplukt op het moment dat hij gaat trouwen en de vader van de bruid heeft een aanspraak (of claim) op koeien van zijn schoonzoon, of diens familie, waar hij flexibel gebruik van kan maken. In een multi-nominale regressie analyse laten we zien dat deze betalingen inderdaad geclaimd kunnen worden wanneer de vader van de bruid een schok meemaakt en dat betalingen ook afhangen van de situatie van het huishouden: uitstaande schulden worden slechts betaald wanneer een gezin de middelen heeft om dat te doen.

Het functioneren van dit verzekeringssysteem wordt versterkt door het feit dat de aanspraak op koeien expliciet is en bekrachtigd kan worden doordat een vader zijn dochter (en eventuele kinderen) terug kan halen, zijn schoonzoon voor de rechter kan dagen of via de spirituele wereld kan straffen. Er zijn ook verschillende regels om de bruidsprijs betalingen af te handelen wanneer een huwelijk eindigt voordat de bruidsprijs volledig betaald is, zoals bij scheiding of overlijden. In zulke gevallen heeft de familie van de vrouw, wanneer zij sterft, de sterkste kaarten in handen door, met verwijzing naar de spirituele straf die volgt op het niet begraven van de overledene, haar pas te begraven wanneer de bruidsprijs volledig is afbetaald of afgehandeld. Onze analyse laat verder zien dat de bruidsprijs die verkregen wordt wanneer een dochter trouwt gebruikt kan worden om de uitstaande betalingen met andere families te vereffenen, een eigenschap die de verzekeringsfunctie van dit instituut ook versterkt. Aangezien de meeste gezinnen zowel aanspraken als schulden zullen hebben, en een culturele restrictie in de keuze van huwelijkspartners het niet mogelijk maakt dat schulden tegen elkaar uitgeruild worden, ontstaat er een keten aan bilaterale aanspraak-schuld relaties waardoor koeien doorgegeven kunnen worden. Wanneer een huishouden zelf niet over voldoende middelen beschikt om aan een vraag van hun schoonfamilie te voldoen, kunnen zij hun eigen aanspraak op een andere familie in zetten om toch toegang te hebben tot koeien en zo hun eigen schuld af te betalen.

De bestudering van het systeem van bruidsprijs betalingen laat zien dat bestaande gebruiken en normen essentieel zijn voor het bestaan van een systeem dat een zekere mate van zekerheid kan bieden aan huishoudens die een onzeker bestaan hebben. We

zagen ook dat gebruiken, normen en waarden en locatie een rol speelden in de keuze van sociale relaties waarmee huishoudens elkaar verzekeren, en dat bepaalde sociale relaties, clan relaties, de toegang tot voedselhulp vergroten. Hieruit concluderen we dat het nut van sociale relaties, of sociaal kapitaal, niet algemeen geldig is, maar juist doel specifiek en veelal locatie specifiek is.

References

Agritex (1993). *Farm Management Handbook*. Harare, Agritex.

Ahmad, E., J. Dreze and Hills, J. (1991). *Social Security in Developing Countries*. Oxford, Clarendon Press.

Alderman, H., J. Hoddinott and B. H. Kinsey (2003). Long Term Consequences of Early Childhood Malnutrition. Paper presented at the conference "Chronic Poverty and Development Policy", Manchester.

Alderman, H. and C. Paxon (1992). Do the Poor Insure? World Bank Working Paper Series 1008, The World Bank, Washington D. C.

Ambec, S. (2000). Income Sharing within Extended Families as a Social Norm. Paper presented at the conference "Opportunities in Africa: Micro-evidence on Firms and Households", Oxford, Centre for the Study of African Economies.

Andersson, J. A. (2002). Going Places, Staying Home. Rural-Urban Connections and the Significance of Land in Buhera District, Zimbabwe. PhD Thesis, Wageningen University. Wageningen.

Arce, A. and N. Long (2000). *Anthropology, Development and Modernities. Exploring Discourses, Counter-Tendencies and Violence*. London, Routledge.

Arrow, K. (2000). Observations on Social Capital. *Social Capital: A Multifaceted Perspective*. P. Dasgupta and I. Serageldin (eds). Washington D.C., The World Bank.

Atkinson, A. B. (1989). *Poverty and Social Security*. New York, Harvester Wheatsheaf.

Baerends, E. A. (1994). The One-Legged Chicken in the Shadow of Indebtedness: Indebtedness and Social Relationships among the Anufom of Northern Togo. PhD Thesis, Rijksuniversiteit Groningen. Groningen.

Barr, A. (2002). From Strangers to Neighbours: Identifying the Pre-Conditions for Social Capital Development. Research Report ESCOR #R7650, Centre for the Study of African Economies, Oxford.

Barr, A. (2003a). Risk Pooling, Commitment and Information. An Experimental Test of Two Fundamental Assumptions. CSAE WPS/2003-05, Centre for the Study of African Economies, University of Oxford, Oxford.

Barr, A. (2003b). Trust and Expected Trustworthiness: Experimental Evidence from Zimbabwean Villages. *The Economic Journal* **113**(489): 614-630.

Barr, A. (2004). Forging Effective New Communities: The Evolution of Civil Society in Zimbabwean Resettled Villages. *World development*: (Forthcoming: Winter) Special issue on land reform in Zimbabwe.

Bebbington, A. (1999). Capitals and Capabilities: A Framework for Analyzing Peasant Viability, Rural Livelihoods and Poverty. *World Development* **27**(12): 2021-2044.

Benda-Beckmann, F. and K. von (1994). Coping with Insecurity. *Focaal* **22/23**: 7-31.

Benda-Beckmann, F. von and R. Kirsch (1999). Informal Security Systems in Southern Africa and Approaches to Strengthen Them through Policy Measures. *Journal of Social Development in Africa* **14**(2): 21-38.
Benson, C. (1998). Drought and the Zimbabwe Economy, 1980-93. *A World without Famine? New Approaches to Aid and Development.* H. O'Neill and J. Toye (eds). Basingstoke, MacMillan.
Besley, T. (1995). Nonmarket Institutions for Credit and Risk Sharing in Low-Income Countries. *Journal of Economic Perspectives* **9**(3): 115-127.
Biezeveld, R. (2002). Between Individualism and Mutual Help. Social Security and Natural Resources in a Minangkabau Village. PhD Thesis, Erasmus University, Rotterdam. Delft: Eburon.
Blaikie, P. and H. Brookfield (1987). *Land Degredation and Society*. London, Longman.
Blaikie, P., T. Cannon, I. Davis and D. Wisner (1994). *At Risk: Natural Hazards, People's Vulnerbility and Disasters*. London, Routledge.
Blarel, B., P. Hazel and J. Quigging (1992). The Economics of Farm Fragmentation: Evidence from Ghana and Rwanda. *World Bank Economic Review* **6**(2): 233-254.
Blomkvist, A. C. and L. Sjoberg (1987). Risk and Accident Reports in the Mass Media. *Risk and Society. Studies of Risk Generation and Reactions to Risk.* L. Sjoberg (ed). London, Allen and Unwin**:** 207-218.
Bohle, H. G., T. E. Downing and M. J. Watts (1994). Climate Change and Social Vulnerability. *Global Environmental Change* **4**(1): 37-48.
Bourdieu, P. (1986). The Forms of Capital. *Handbook of Theory and Research for the Sociology of Education*. J. G. Richardson (ed). New York, Greenwood.
Bourdillon, M. (1976). *The Shona Peoples. An Ethnography of the Contemporary Shona, with Special Reference to Their Religion.* Gweru, Mambo Press.
Bourdillon, M. (1997). *Where Are the Ancestors? Changing Culture in Zimbabwe.* Harare, University of Zimbabwe Publications.
Bourdillon, M., P. Hebinck, J. Hoddinott, B. Kinsey, J. Marondo, N. Mudenge and T. Owens (2002). Assessing the Impact of HYV Maize in Resettlement Areas of Zimbabwe. Impact of Agricultural Research on Poverty Reduction, case study 3, International Food Policy Research Institute, Washington D.C.
Bruijn, M. de and H. van Dijk (1995). *Arid Ways. Cultural Understandings of Insecurity in Fulbe Society, Central Mali*. Amsterdam, Thela Publishers.
Buchanan-Smith, M. and S. Maxwell (1994). Linking Relief and Development: An Introduction and Overview. *IDS Bulletin* **25**(4): 2-16.
Buskens, V. (1999). Social Networks and Trust. PhD Thesis, Utrecht University. ICS Dissertation Series no. 53. Amsterdam: Thela Thesis.
Carney, D. (1998). Implementing the Sustainable Rural Livelihoods Approach. *Sustainable Rural Livelihoods: What Contribution Can We Make?* London, Department of International Development.
Carter, M. R. and J. A. Maluccio (2003). Social Capital and Coping with Economic Shocks: An Analysis of Stunting of South African Children. *World Development* **31**(7): 1147-1163.
Carver, R. (2002). Southern Africa: Effects of the Food Crisis. WRITENET Paper 8/2002, UNHCR, Geneva.
Chambers, R. (1989). Editorial Introduction: Vulnerability, Coping and Policy. *IDS Bulletin* **20**(2): 1-7.

Chambers, R. (1997). *Whose Reality Counts? Putting the First Last.* London, IT Publications.
Chambers, R. and G. Conway (1992). Sustainable Rural Livelihoods: Practical Concepts for the 21st Century. IDS Discussion Paper 296, Institute of Development Studies, Brighton.
Chen, M. A. (1991). *Coping with Seasonality and Drought*. New Delhi, Sage Publishers.
Claval, P. (1976). *Geschiedenis Van De Aardrijkskunde*. Utrecht, Het Spectrum.
Coate, S. and M. Ravallion (1993). Reciprocity without Commitment. Characterization and Performance of Informal Insurance Arrangements. *Journal of Development Economics* **40**(1): 1-24.
Cochrane, J. H. (1991). A Simple Test of Consumption Insurance. *Journal of Political Economy* **99**(5): 957-976.
Coleman, J. S. (1988). Social Capital in the Creation of Human Capital. *American Journal of Sociology* **94**(Suppl.): S95-S120.
Colson, E. (1971). *The Social Consequences of Resettlement.* Manchester, University Press.
Comaroff, J. L. (1980). *The Meaning of Marriage Payments.* London, Academic Press, Studies in Anthropology **7**.
CSO (1995). Demographic and Health Survey 1994. Government Press, Harare.
CSO (1999). Consumer Price Index. *CSO Statsflash* June 1999.
CSO (2001). Consumer Price Index. *CSO Statsflash* March 2001.
Cummings, S., R. Heeks and M. Huysman (2003). Social Capital in Networks and Online Communities: A Development Perspective. Paper presented at the conference "Faces of Poverty. Capabilities, mobilization and institutional transformation", CERES Summerschool 2003, Amsterdam.
Currency Site, The. (2003). www.oanda.com.
Cutshall, C. R. (1991). *Justice for People: Community Courts and Legal Transformation in Zimbabwe*. Harare, University of Zimbabwe Publishers.
Daily News, The. (2003a). Are We Going to Waste Another Growing Season? *The Daily News*. Harare, 21 July 2003.
Daily News, The. (2003b). Runaway Inflation to Worsen Urban Poverty. *The Daily News*. Harare, 21 July 2003.
Dasgupta, P. and I. Serageldin (eds) (2000). *Social Capital. A Multifaceted Perspective*. Washington, The World Bank.
De Weerdt, J. (2002). Risk Sharing and Endogenous Network Formation. Paper presented at the conference "Understanding Poverty and Growth in Sub-Saharan Africa", Centre for the Study of African Economies, Oxford University.
Deaton, A. (1997). *The Analysis of Household Surveys. A Micro-Economic Approach to Development Policy*. Baltimore, Johns Hopkins University Press.
DEG (2003a). *Global Development Briefing, Development Executive Group.* http://www.developmentex.com. 31 August 2003.
DEG (2003b). *Global Development Briefing, Development Executive Group.* http://www.developmentex.com. 5 September 2003.
Deininger, K., H. Hoogeveen and B. H. Kinsey (2002). Benefits and Costs of Land Reform in Zimbabwe, with Implications for Southern Africa. Paper presented at the conference "Understanding Poverty and Growth in Sub-Saharan Africa", Centre for the Studies of African Economies, Oxford University.

Dekker, M. and A. Hoppenbrouwers (1994). The River Became Their Field: Survival Strategies in a Semi-Arid Area in Zimbabwe. MA Thesis, University of Amsterdam. Amsterdam.
Dercon, S. (2000). Income Risk, Coping Strategies and Safety Nets. CSAE Working Paper WPS/2000.26, Centre for the Study of African Economies, Oxford.
Dercon, S. and J. De Weerdt (2002). Risk Sharing Networks and Insurance against Illness. CSAE WPS/2002-16, Centre for the Studies of African Economies, Oxford University, Oxford.
Dercon, S. and P. Krishnan (2000). In Sickness and in Health: Risk Sharing within Households in Rural Ethiopia. *Journal of Political Economy* **108**(4): 688-727.
Dercon, S. and P. Krishnan (2002). Risk Sharing and Public Transfers. *The Economic Journal* **113**(3): C86-C94.
Devereux, S. (1993). *Theories of Famine*. Hemel Hempstead, Harvester Wheatsheaf.
Dhlembeu, N. (1998). Drought Relief Programmes as Instruments for the Social Protection or Rural Households. *Social Security Systems in Rural Zimbabwe*. E. Kaseke (ed). Harare, Friedrich Ebert Stiftung.
Dietz, T., A. van Haastrecht and A. Kruithof (1992). Coping with Semi-Aridity in Endo-Mokoro, Kenya. *Coping with Semi-Aridity. How the Rural Poor Survive in Dry Season Environments.* H. Reitsma *et al.* (eds). Utrecht, Elinkwijk B.V.
Dietz, T., J. Verhagen and R. Ruben (2001). Impact of Climate Change on Drylands with a Focus on West Africa. Global Change: Dutch National Research Programme on Global Airpollution and Climate Change, ICCD/RIVM, Wageningen/Bilthoven.
Dijk, R. van (1999). The Pentecostal Gift: Ghanaian Charismatic Churches and the Moral Innocence of the Global Economy. *Modernity on a Shoestring. Dimensions of Globalization, Consumption and Development in Africa and Beyond.* R. Fardon, R. van Dijk and W. Binsbergen. Londen/Leiden, EIDOS, ASC, CAS.
Douglas, M. (1986). *Risk. Acceptability According to the Social Sciences*. London, Routledge and Kegan Paul.
Duflo, E. and C. Udry (2003). Intrahousehold Resource Allocation in Cote D'ivoire: Social Norms, Separate Accounts and Consumption Choices. MIT Deparment of Economics, mimeo, Cambridge, Mass: http://econwww.mit.edu/faculty/index.htm?prof_id=eduflo,
Duijn, M. A. J. van, T. A. B. Snijders and B. J. H. Zijlstra (2003). P_2: A Random Effects Model with Covariates for Directed Graphs.: mimeo, University of Groningen.
Durlauf, S. N. (2002a). Symposium on Social Capital: Introduction. *The Economic Journal* **112**(483): 417-418.
Durlauf, S. N. (2002b). On the Empirics of Social Capital. *The Economic Journal* **112**(483): 459-479.
Dzingirai, V. (2001). The Culture of Giving and Its Relationship to Saving. Paper presented at the conference "Livelihood, Savings and Debt in a Changing World. Developing Anthropological and Sociological Perspectives", Wageningen.
Elbers, C. and J. W. Gunning (2003). Vulnerability in a Stochastic Dynamic Model. mimeo, Vrije Universiteit, Amsterdam.
Ellis, F. (1998). Household Strategies and Rural Livelihood Diversification. *Journal of Development Studies* **35**(1): 1-38.

Ellis, F. (2000). *Rural Livelihoods and Diversity in Developing Countries*. Oxford, Oxford University Press.
Evans-Pritchard, E. E. (1940). *The Nuer: A Description of the Modes of Livelihood and Political Institutions of a Nilotic People*. Oxford, Clarendon Press.
Everett, M. (2001). Social Network Analysis. Reader 2001 Essex Summer School in SSDA, University of Essex, Essex.
Fafchamps, M. and S. Lund (2003). Risk-Sharing Networks in Rural Philippines. *Journal of Development Economics* **71**(2): 261-287.
FAO (1957). Caloric Requirements. Report of the Second Committee on Calorie Requirements. FAO Nutritional Studies, Food and Agriculture Organization of the United Nations, Rome.
FAO (2003). Zimbabwe: Share of Food Consumption. http://www.fao.org/Waicent/Faoinfo/Economic/Giews/English/Basedocs/Zim/Zimcon2e.Stm.
Fernandez Kelly, M. P. (1995). Social and Cultural Capital in the Urban Ghetto: Implications for the Economic Sociology of Immigration. *The Economic Sociology of Immigration*. A. Portes (ed). New York, Rusell Sage.
FEWS (1997). Zimbabwe Drought Relief Programme Data Archieve. Food and Early Warning Systems Project, Harare.
FEWS (2000). Zimbabwe. Current Vulnerability Assessment for 1999/2000. Food and Early Warning Systems Project, Harare.
Fienberg, S. E. and S. Wasserman (1981). Categorical Data Analysis of Single Sociometric Relations. *Sociological Methodology 1981*. S. Leinhardt (ed). San Francisco, Jossey-Bass.
Financial Gazette, T. (2003). Input Costs Overtake New Producer Prices. *The Financial Gazette*. Harare, 4 September 2003.
Foeken, D. and J. Hoorweg (1988). Seasonality in the Coastal Lowlands of Kenya. Part 2: Introduction to Seasonality. Food and Nutrition Studies Programme report no. 28/1988, African Studies Centre, Leiden and Food and Nutrition Planning Unit, Ministry of Planning and National Development, Nairobi,
Foster, A. D. and M. R. Rosenzweig (2001). Imperfect Commitment, Altruism and the Family: Evidence from Tranfer Behaviour in Low-Income Rural Areas. *The Review of Economics and Statistics* **83**(3): 389-407.
Fukuyama, F. (1995). *Trust. The Social Virtues and the Creation of Prosperity*. London, Penguin.
Geest, K. van der (2002). "We Are Managing!?" Vulnerability and Responses to Climate Variability and Change among Rural Households in Northwest Ghana. M.A. Thesis, University of Amsterdam. Amsterdam.
Ginneken, W. v. (1999). *Social Security for the Excluded Majority. Case Studies of Developing Countries*. Geneva, ILO.
Glaeser, E. L., D. Laibson and B. Sacerdote (2002). An Economic Approach to Social Capital. *The Economic Journal* **112**(11): 437-458.
Gluckman, M. (1960). Tribalism in Modern British Central Africa. *Cahiers d'etudes Africaines* **1**: 55-70.
Goebel, A. (1998). Process, Perception and Power: Notes from Participatory Research in a Zimbabwean Resettlement Area. *Development and Change* **29**(2): 277-305.

Goldstein, M. (2000). Chop Time, No Friends. Intrahousehold and Individual Insurance Mechanisms in Southern Ghana. Paper presented at the conference "Opportunities in Africa: Micro-evidence on firms and households", Oxford, Centre for the Study of African Economies.

Goldstein, M., A. de Janvry and E. Sadoulet (2002). Is a Friend in Need a Friend Indeed? Inclusion and Exclusion in Mutual Insurance Networks in Southern Ghana. Paper presented at the conference "Understanding Poverty and Growth in Sub-Saharan Africa", Centre for the Study of African Economies, Oxford University.

Goody, J. and S. J. Tambiah (1973). *Bride Wealth and Dowry*. Cambridge, Cambridge University Press.

Gore, C., Y. Katerere and S. Moyo (eds) (1992). *The Case for Sustainable Development in Zimbabwe. Conceptual Problems, Conflicts and Contradictions. A Report Prepared from the United Nations Conference on Environment and Development (Unced)*. Harare, ENDA-Zimbabwe and ZERO.

Granovetter, M. (1985). Economic Action and Social Structure: The Problem of Embeddedness. *American Journal of Sociology* **91**: 481-510.

Grimard, F. (1997). Household Consumption Smoothing through Ethnic Ties: Evidence from Cote D'ivoire. *Journal of Development Economics* **53**(2): 391-422.

Grootaert, C. and T. van Bastelaer (eds) (2002). *Understanding and Measuring Social Capital. A Multidisciplinary Tool for Practitioners*. Washington D.C., The World Bank.

Gunning, J. W., J. Hoddinott, B. H. Kinsey and T. Owens (2000). Revisiting Forever Gained: Income Dynamics in the Resettlement Areas of Zimbabwe, 1983-96. *The Journal of Development Studies* **36**(6): 131-154.

Haan, L. de (2000). Livelihood, Locality and Globalisation. Inaugural lecture, Centre for International Development Issues Nijmegen (CEDIN), Nijmegen.

Hamutiyinei, M. A. and A. B. Plangger (1987). *Tsumo-Shumo. Shona Proverbial Lore and Wisdom*. Gweru, Mambo Press.

Harris, J. and P. di Renzio (1997). 'Missing Link' or Analytically Missing? The Concept of Social Capital: An Introductory Bibliographic Essay. *Journal of International Development* **9**(7): 919-937.

Harts-Broekhuis, A. and H. Huisman (2001). Resettlement Revisited: Land Reform Results in Resource Poor Regions in Zimbabwe. *Geoforum* **32**(3): 285-298.

Hicks, D. (1993). An Evaluation of the Zimbabwe Drought Relief Programme 1992/93: The Roles of Household Level Response and Decentralized Decision Making. World Food Programme of the United Nations, Harare.

Hoddinott, J. and B. H. Kinsey (2001). Child Growth in the Time of Drought. *Oxford Bulletin of Economics and Statistics* **63**(4): 409-36.

Holland, P. W. and S. Leinhardt (1981). An Exponential Family of Probability Distributions for Directed Graphs. *Journal of the American Statistical Assocation* **77**: 33-50.

Holleman, J. F. (1951). Some Shona Tribes of Southern Rhodesia. *Seven Tribes of British Central Africa*. E. Colson and M. Gluckman (eds). Manchester, University Press**:** 354-394.

Holleman, J. F. (1952). *Shona Customary Law*. Capetown, Oxford University Press.

Holzmann, R. and S. Jorgensen (2000). Social Risk Management: A New Conceptual Framework for Social Protection and Beyond. Social Protection Discussion Paper 6, The World Bank, Washington.
Hoogeveen, H. (2001). Risk and Insurance in Rural Zimbabwe. PhD Thesis, Vrije Universiteit. Tinbergen Institute Research Series no. 247. Amsterdam: Thela Thesis.
Hoogeveen, H. and B. H. Kinsey (2001). Land Reform, Growth and Equity: Emerging Evidence from Zimbabwe's Resettlement Programme- a Sequel. *Journal of Southern African Studies* **27**(1): 127-136.
Hoogeveen, H., B. van der Klaauw and G. van Lomwel (2003). On the Timing of Marriage, Cattle and Weather Shocks in Rural Zimbabwe. World Bank Policy Research Working Paper 3112, The World Bank, Washington D.C.
Huijsman, A. (1986). *Choice and Uncertainty in a Semi-Subsistence Economy. A Study of Decision Making in a Philippine Village*. Amsterdam, Koninklijk Instituut voor de Tropen.
Hussein, K. (2002). Livelihood Approaches Compared: A Multi-Agency Review of Current Practice. DFID, ODI, London.
Iliffe, J. (1990). *Famine in Zimbabwe 1890-1960*. Gweru, Mambo Press.
ILO (1984). *Introduction to Social Security*. Geneva, ILO.
Jalan, J. and M. Ravallion (1999). Are the Poor Less Well Insured? Evidence on Vulnerability to Income Risk in Rural China. *Journal of Development Economics* **58**(1): 61-81.
Janvry, A. de and E. Sadoulet (1995). Household Modelling for the Design of Poverty Alleviation Strategies. *Revue d'Economie du Developpement* **3**: 3-23.
Janvry, A. de and E. Sadoulet (2001). Income Strategies among Rural Households in Mexico: The Role of Off-Farm Activities. *World Development* **29**(3): 467-480.
Jutting, J. (1999). Strengthening Social Security Systems in Rural Areas of Developing Countries. ZEF Discussion Papers on Development Policy, Zentrum fur Entwicklungsforschung, Bonn.
Kaag, M., R. van Berkel, J. Brons, M. de Bruijn, H. van Dijk, L. de Haan, G. Nooteboom and A. Zoomers (2002). Poverty Is Bad: Ways Forward in Livelihood Research. Livelihood group, CERES Research School, Utrecht.
Kaseke, E. (ed.) (1998). *Social Security Systems in Rural Zimbabwe*. Harare, Friedrich Ebert Stiftung.
Kileff, C. and P. Kileff (eds) (1970). *Shona Customs*. Gweru, Mambo Press.
Kimble, T. (1960). *Tropical Africa. I. Land and Livelihood. Ii Society and Polity*. New York, Twentieth Century Fund.
Kinsey, B. H. (1982). Forever Gained: Resettlement and Land Policy in the Context of National Development in Zimbabwe. *Africa* **52**(3): 92-113.
Kinsey, B. H. (1983). Emerging Policy Issues in Zimbabwe's Land Resettlement Programmes. *Development Policy Review* **1**(2): 163-196.
Kinsey, B. H. (1993). Resettlement, Drought and Household Resilience in Zimbabwe. Nutritional Indicators in Mupfurudzi, Sengezi and Mutanda Resettlement Scheme. Technical Reports, University of Zimbabwe, Department of Rural and Urban Planning, Harare.
Kinsey, B. H. (1998). Determinants of Rural Household Incomes and Their Impact on Poverty and Food Security in Zimbabwe. Resource paper for the Workshop on Rural Household Dynamics, 15-16 June 1998, Harare.

Kinsey, B. H. (2002). Who Benefits from Asset Redistribution in Zimbabwe? Targeting, Beneficiary Selection and Economic Performance. Paper presented at the conference "Understanding Poverty and Growth in Sub-Saharan Africa", Oxford: Centre for the Study of African Economies.

Kinsey, B. H., K. Burger and J. W. Gunning (1998). Coping with Drought in Zimbabwe: Survey Evidence on Responses of Rural Households to Risk. *World Development* **26**(1): 89-110.

Kinsey, B. H. and M. Shambare (2002). Decentralisation of a Sort: Traditional and Modern Local Leadership and Access to State-Owned Commons in Zimbabwe. Paper presented at the conference "9the Biennial Conference of the International Association for the Study of Common Property", Victoria Falls, Zimbabwe.

Knack, S. and P. Keefer (1997). Does Social Capital Have an Economic Payoff? A Crosscountry Investigation. *Quarterly Journal of Economics* **112**(4): 1251-88.

Krackhardt, D. (1988). Predicting with Networks: Nonparametric Multiple Regression Analysis of Dyadic Data. *Social Networks* **10**(4): 359-381.

Kuper, A. (1982). *Wives for Cattle: Bride Wealth and Marriage in Southern Africa*. London, Routledge and Kegan.

Lazega, E. and M. A. J. van Duijn (1997). Formal Structure and Exchanges of Advice in a Law Firm: A Random Effects Model. *Social Networks* **19**: 375-397.

Leliveld, A. (1994). Social Security in Developing Countries: Operation and Dynamics of Social Security Mechanisms in Rural Swaziland. PhD Thesis, Vrije Universiteit Amsterdam. Amsterdam.

Ligon, E. (1998). Risk Sharing and Information in Village Economies. *Review of Economic Studies* **65**(225): 847-864.

Ligon, E. and L. Schechter (2002). Measuring Vulnerability. The Director's Cut. WIDER Discussion Paper No. 2002/86, World Institute of Development Economics Research, Helsinki.

Ligon, E., J. P. Thomas and T. Worrall (2002). Informal Insurance Arrangements with Limited Commitment: Theory and Evidence from Village Economies. *Review of Economic Studies* **69**(238): 209-244.

Lin, N., K. Cook and R. S. Burt (eds) (2001). *Social Capital: Theory and Research*.

Longhurst, R. (1994). Conceptual Frameworks for Linking Relief and Development. *IDS Bulletin* **25**(4): 17-23.

Lucas, R. E. B. and O. Stark (1985). Motivations to Remit: Evidence from Botswana. *Journal of Political Economy* **99**(5): 928-956.

Lyon, F. (2000). Trust, Networks and Norms; the Creation of Social Capital in Agricultural Economies in Ghana. *World Development* **28**(4): 663-681.

Mace, B. J. (1991). Full Insurance in the Presence of Aggregate Uncertainty. *Journal of Political Economy* **99**(5): 928-956.

Madembo, R. C. (1998). The Role of Savings and Credit Schemes in Meeting the Social Security Needs of Communal Farmers. *Social Security Systems in Rural Zimbabwe*. E. Kaseke (ed). Harare, Friedrich Ebert Stiftung.

Mair, L. P. (1977). *Marriage*. London, Penguin Books.

Mangwende, B. (2002). Hunger Fuels Marriage. *The Daily News*. Harare. Thursday 12 December 2002.

Mararike, C. G. (1999). *Survival Strategies in Rural Zimbabwe. The Role of Assets, Indigenous Knowledge and Organisations.* Harare, Mond Books.

Mauss, M. (1967). *The Gift: Forms and Functions of Exchange in Archaic Societies*. New York, Norton.

Mazzucato, V. and D. Niemeijer (1996). A Village Picture Book. *PLA Notes*(26): 29-33.
Meekers, D. (1993). The Noble Custom of Roora: The Marriage Practices of the Shona of Zimbabwe. *Ethnology* **32**: 35-53.
Morgan, R. (1991). Social Security in the SADCC States of Southern Africa: Social Welfare Programmes and the Reduction of Household Vulnerability. *Social Security in Developing Countries*. E. Ahmad, J. Dreze and J. Hills (eds). Oxford, Clarendon Press.
Moser, C. (1998). The Asset Vulnerability Framework: Reassessing Urban Poverty Reduction Strategies. *World Development* **26**(1): 1-19.
Mosse, D. (1994). Authority, Gender and Knowledge: Theoretical Reflections on the Practice of Participatory Rural Appraisal. *Development and Change* **25**(3): 479-526.
Moyo, S. (1998). The Land Acquisition Process in Zimbabwe 1997/8. UNDP, Harare.
MPSLSW (1999). Draft Paper for the Inter-Ministerial Committee of Officials on Drought Management and Drought Relief Programme Review. Ministry of Public Service, Labour and Social Welfare, Harare.
Mukora, C. (1998). The ZFU/ZIMNAT Pension Fund. *Social Security Systems in Rural Zimbabwe*. E. Kaseke (ed). Harare, Friedrich Ebert Stiftung.
Murdoch, J. (1991). Consumption Smoothing across Space: Tests for Village-Level Responses to Risk. Harvard University, Department of Economics, Cambridge, Mass.
Murdoch, J. (1995). Income Smoothing and Consumption Smoothing. *The Journal of Economic Perspectives* **9**(3): 103-114.
Murgai, R., P. Winters, E. Sadoulet and A. de Janvry (2002). Localized and Incomplete Mutual Insurance. *Journal of Development Economics* **67**(2002): 245-274.
Muvirimi, F. and J. Ellis-Jones (1999). A Farming Systems Approach to Improving Draft Animal Power in Sub-Saharan Africa. *Meeting the Challenges of Animal Traction. A Resource Book of the Animal Traction Network for Eastern and Southern Africa*. P. Starkey and P. Kaumbutho (eds). London, Intermediate Technology Productions.
Narayan, D. and L. Pritchett (1997). Cents and Sociability: Income and Social Capital in Rural Tanzania. *Economic Development and Cultural Change* **47**(4): 871-97.
Niemeyer, R., D. Foeken and W. Klaver (1991). Seasonality in the Coastal Lowlands of Kenya. Part 4/5: Food Consumption and Anthropometry. Food and Nutrition Studies Programme 38/1991, Food and Nutrition Planning Unit, Ministry of Planning and National Development, Nairobi/Africa Studies Centre, Leiden,
Nooteboom, G. (2003). Social Security and Livelihood in Upland East Java: A Matter of Style. PhD Thesis, Nijmegen University. Nijmegen.
Ostrom, E. (2000). Collective Action and the Evolution of Social Norms. *Journal of Economic Perspectives* **14**(3): 137-58.
Owens, T. (2004). External Support During the Transition Phase: Roles for Humanitarian Aid and Development Assistance from Villagers' Perspective. *World Development*: (Forthcoming Winter) Special Issue on Land Reform in Zimbabwe.

Parkin, D. (1980). Kind Bride Wealth and Hard Cash; Eventing a Structure. *The Meaning of Marriage Payments*. J. L. Comaroff (ed). London, Academic Press, Studies in Anthropology. **7**.
Peters, E. L. (1980). Aspects of Bedouin Bride Wealth among Camel Herdsmen in Cyrenaica. *The Meaning of Marriage Payments*. J. L. Comaroff (ed). London, Academic Press, Studies in Anthropology. **7**.
Pindyck, R. S. and D. L. Rubinfeld (2001). *Microeconomics*, Prentice Hall International, Inc.
Platteau, J. P. (1997). Mutual Insurance as an Elusive Concept in Traditional Rural Communities. *Journal of Development Studies* **33**(6): 764-796.
Platteau, J. P. (2000). *Institutions, Social Norms and Economic Development*. Singapore, Harwood Academic Publishers.
Polanyi, K. (1977). *The Livelihood of Man*. New York, Academic Press.
Portes, A. (1998). Social Capital: Its Origins and Applications in Modern Sociology. *Annual Review of Sociology* **24**: 1-24.
Portes, A. and P. Landolt (1996). The Downside of Social Capital. *The American Prospect* **26**: 18-21.
Putnam, R., R. Leonardi and R. Y. Nanetti (1993). *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton, Princeton Univesity Press.
Pyle, A. S. and O. A. Gabbar (1993). Household Vulnerability to Famine: Survival and Recovery Strategies among Berti and Zaghawa Migrants in Northern Dafur, Sudan, 1982-89. *GeoJournal* **30**(2): 141-146.
Raftopoulos, B., T. Hawkins and M. Matshalanga (1999). Drought Management, the Economy and Ngo Response in Zimbabwe: The 1997/98 Experience. UNDP, Harare.
Rakodi, C. and T. Lloyd-Jones (2002). *Urban Livelihoods. A People-Centred Approach to Reducing Poverty*. London, Earthscan.
Ravallion, M. and S. Chaudhuri (1997). Risk and Insurance in Village India: Comment. *Econometrica* **65**(1): 171-184.
Ray, D. (1998). *Development Economics*. Princeton, Princeton University Press.
Reardon, T. (1997). Using Evidence of Household Income Diversification to Inform Study of the Rural Nonfarm Labor Market in Africa. *World Development* **25**(5): 735-747.
Reitsma, H., T. Dietz and L. de Haan (eds) (1992). *Coping with Semi-Aridity. How the Rural Poor Survive in Dry-Season Environments.* Utrecht, Elinkwijk BV.
Renn, O. (1992). Concepts of Risk: A Classification. *Social Theories of Risk*. S. Krimsky and D. G. Golding (eds). Westport, Praeger.
Renqvist, U., W. M. van Steenbergen and M. van der Rijst-Kruythoff (1986). *Voeding in De Tropen*. Koninklijk Instituut voor de Tropen, Amsterdam, Kit Publishers.
Robison, L. J., A. A. Schmid and M. E. Siles (2002). Is Social Capital Really Capital? *Review of Social Economy* **60**(1): 1-21.
Rose, R., W. Mishler and C. Haerpfer (1998). *Democracy and Its Alternatives: Understanding Post-Communist Societies*, Cambridge: Polity Press. Baltimore: Johns Hopkins University Press.
Rosenzweig, M. R. (1988). Risk, Implicit Contracts and the Family in Rural Areas of Low Income Countries. *The Economic Journal* **98**(393): 1148-1170.
Rosenzweig, M. R. and O. Stark (1989). Consumption Smoothing, Migration and Marriage: Evidence from Rural India. *Journal of Political Economy* **97**(4): 905-26.

Rosenzweig, M. R. and K. Wolpin (1993). Credit Market Constraints, Consumption Smoothing and the Accumulation of Durable Production Assets in Low Income Countries: Investment in Bullocks in India. *Journal of Political Economy* **101**(2): 223-224.
SALC (1997). Customary Marriages. South African Law Commission Project 90. The Harmonisation of the Common Law and the Indigenous Law. Discussion Paper 74.,
Scoones, I. (1992). The Economic Value of Livestock in the Communal Areas of Southern Zimbabwe. *Agricultural Systems* **39**(3): 339-359.
Scoones, I. (1998). Sustainable Rural Livelihoods: A Framework for Analysis. IDS Working Paper 72, Instititute of Development Studies, Sussex.
Scoones, I., C. Chibudu, S. Chikura, P. Jeranyama, D. Machaka, W. Machanje, B. Mavedzenge, B. Mombeshora, M. Mudhara, C. Mudziwo, F. Murimbarimba and B. Zirereza (1996). *Hazards and Opportunities. Farming Livelihoods in Dryland Africa: Lessons from Zimbabwe*. London, Zed Books Ltd.
Scoones, I. and W. Wolmer (eds) (2002). *Pathways of Change in Africa. Crops, Livestock and Livelihoods in Mali, Ethiopia and Zimbabwe*. Oxford, James Curry.
Scott, J. (1991). *Social Network Analysis. A Handbook*. London, SAGE Publications Ltd.
Serra, R. and B. H. Kinsey (2000). Child Fostering in Rural Zimbabwe. Paper presented at the conference "Opportunities in Africa: Micro-evidence on firms and households", Oxford: Centre for the Studies of African Economies.
Siegel, P. and J. Alwang (1999). An Asset-Based Approach to Social Risk Management: A Conceptual Framework. Social Protection Discussion Paper no.9926, The World Bank., Washington D.C.
Smith, S. S. and J. Kulynych (2002). It May Be Social, but Why Is It Capital? The Social Construction of Social Capital and the Politics of Language. *Politics and Society* **30**(1): 149-186.
Sobel, J. (2002). Can We Trust Social Capital? *Journal of Economic Literature* **40**(1): 139-154.
Soerink, J. (2000). Old Age Provision in Rural Zimbabwe. M.A. Thesis, Vrije Universiteit. Amsterdam.
Spierenburg, M. (1990). Migrants in Dande Communal Land: A Study of Their Origins, the Motives for Migration and Their Agricultural Production. MA Thesis, Utrecht University. Utrecht.
Spierenburg, M. (2003). Strangers, Spirits and Land Reforms. Conflicts About Land in Dande, Northern Zimbabwe. PhD Thesis, University of Amsterdam. Amsterdam.
Stead, W. H. (1946). The Clan Organization and Kinship System of Some Shona Tribes. *African Studies* **5**(1): 1-20.
Strathern, A. J. (1980). The Central and Contingent: Bride Wealth among the Melpha and the Wiru. *The Meaning of Marriage Payments.* J. L. Comaroff (ed). London, Academinc Press, Studies in Anthropology **7**.
Swift, J. (1989a). Why Are Rural People Vulnerable to Famine? *IDS Bulletin* **20**(2): 8-15.
Swift, P. (1989b). Support for the Dying and Bereaved in Zimbabwe: Traditional and New Approaches. *Journal of Social Development in Africa* **4**(1): 25-45.
Tambiah, S. J. (1989). Bride Wealth and Dowry Revisited: The Position of Women in Sub-Saharan Africa and North India. *Current Anthropology* **30**(4): 413-435.

Townsend, R. (1994). Risk and Insurance in Village India. *Econometrica* **62**(3): 539-591.
Turton, D. (1980). The Economics of Mursi Bride Wealth: A Comparative Perspective. *The Meaning of Marriage Payments.* J. L. Comaroff (ed). London, Academic Press, Studies in Anthropology **7**.
Udry, C. (1990). Credit Markets in Northern Nigeria: Credit as Insurance in a Rural Economy. *World Bank Economic Review* **4**(3): 251-271.
Verbeek, M. (2000). *A Guide to Modern Econometrics*. Chichester, J. Wiley & Sons, Ltd.
Vijfhuizen, C. (1998). The People You Live With. Gender Identities and Social Practices, Beliefs and Power in the Livelihoods of Ndau Women and Men in a Village with an Irrigation Scheme in Zimbabwe. PhD Thesis, Wageningen University. Wageningen.
Walker, M. E., S. Wasserman and B. Wellman (1993). Statistical Models for Social Support Networks. *Sociological Methods and Research* **22**(1): 71-98.
Wallman, S. (1984). *Eight London Households*. London, Travistock Publications.
Wasserman, S. and K. Faust (1994). *Social Network Analysis: Methods and Applications*. Cambridge, Cambridge University Press.
Watts, M. J. and H. G. Bohle (1993). The Space of Vulnerability: The Causal Structure of Hunger and Famine. *Progress in Human Geography* **17**(1): 43-67.
Weinberger, K. and J. Jutting (1999). The Role of Local Organisations in Risk Management: Some Evidence from Rural Chad. *Quarterly Journal of International Agriculture* **49**(3): 281-298.
Weinrich, A. K. H. (1979). *Women and Racial Discrimination in Rhodesia*. Paris, UNESCO.
White, J. and E. Robinson (2000). HIV/AIDS and Rural Livelihoods in Sub-Saharan Africa, Policy Series 6. Natural Resource Institute, Chatham, UK.
Wiechen, C. van (1994). An Evaluation of Zimbabwe's Drought Relief Progammes on Household Level in Mberengwa District 1992-1993. Mnene Hospital, mimeo, Mberengwa, Zimbabwe.
WLSA (1997). *Continuity and Change. The Family in Zimbabwe*. Harare, Women and Law in Southern Africa Research Project.
Wolmer, W., B. Sithole and B. Mukamuri (2002). Crops, Livestock and Livelihoods in Zimbabwe. *Pathways of Change in Africa. Crops, Livestock and Livelihoods in Mali, Ethiopia and Zimbabwe*. I. Scoones and W. Wolmer (eds). Oxford, James Curry.
Woolcock, M. (1998). Social Capital and Economic Development: Toward a Theoretical Synthesis and Policy Framework. *Theory and Society* **27**(2): 151-208.
Woolcock, M. and D. Narayan (2000). Social Capital: Implications for Development Theory, Research and Policy. *World Bank Research Observer* **15**(2): 225-249.
World Bank, The (1995). Zimbabwe. Impact of the 1995 Drought. mimeo, The World Bank, Harare.
World Bank, The (1999). Consultations with the Poor: Methodology Guide for the 20 Country Study for the World Development Report 2000/01. Poverty Group, Poverty Reduction and Economic Management Network, The World Bank, Washington.
World Bank, The (2001). Attacking Poverty. World Development Report 2000/2001, Oxford University Press, New York.

Wright, J. P. V., P. Mucavele, S. Gundry and J. Worrall (1998). How Well Targetted Is Drought Relief Compared to a Grain Loan Scheme? Some Evidence from Zimbabwe. Paper presented at the conference "Towards Global Poverty Reduction." Development Studies Association, UK.

Zeggelink, E. (1993). Strangers into Friends. The Evolution of Friendship Networks Using and Individual Oriented Modelling Approach. PhD Thesis, Groningen University. Amsterdam, Thesis Publishers.

Zijlstra, B. J. H. and M. A. J. van Duijn (2003). Manual P2. Version 2.0.0.7. ProGAMMA/University of Groningen, Groningen, http://stat.gamma.rug.nl/stocnet/.

Zimbabwe (nd). National Policy on Drought Management. National Economic Planning Commission of the Office of the President and Cabinet, Harare.

Zimbabwe Meteorological Services, T. (2000). Departure from Average National Rainfall in Zimbabwe: 1901-2000.

Zinyama, L. M., D. J. Campbell and T. Matiza (1991). Coping with Food Deficits in Rural Zimbabwe: The Sequential Adoptions of Indigenous Strategies. *Research in Rural Sociology and Development* **5**: 73-85.

Zuckerman, E. W. (2003). On Networks and Markets by Rauch and Casella, Eds. *Journal of Economic Literature* **41**(2): 545-565.

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