NATURAL RESOURCES SYSTEMS PROGRAMME

PROJECT REPORT[1]

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R7545

Report Title

Coping strategies of poor households in semi-arid Zimbabwe. Scientific report.
Annex A of the Final Technical Report of project R7545.

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NRSP Production System

Semi Arid

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1. Introduction.

1.1. The Research Task

This report is a key output for *'Coping Strategies of Poor Households in Semi-Arid Zimbabwe'* (Ref No:CN99/030), a study commissioned by DFID's Semi-Arid Production System (SAPS) under the Natural Resources System Programme (NRSP). This small study (total cost £56,000) has been undertaken by the International Development Department (IDD) of the School of Public Policy, Birmingham University and the Intermediate Technology Development Group (ITDG) (Zimbabwe and UK). It is a first phase of research, which is designed to lead to a second and larger phase.

The study aims to respond to the terms of reference expressed in the NRSP SAPS call for concept notes reference CN99/SA/. These are summarised and briefly commented upon in Section 1.3 below.

1.2. The Research Team

The core team for this work has been drawn from IDD (Andrew Shepherd[1], sociologist, team leader and Kate Bird[2], agricultural/ micro-economist) and ITDG Zimbabwe (Blessing Butaumocho, agricultural economist, Zimbabwe specialist), with additional input from ITDG UK (Andrew Scott, economist, Zimbabwe specialist), and from David Ingrams a freelance geographer and statistician. Daniel Start[3] (economist) contributed to an early draft of this work.

1.3. Comment on the Terms of Reference.

The Terms of Reference for this project, as laid out in the Call for Concept Notes CNC99/SA/ from DFID's Natural Resources Systems Programme (NRSP) for Semi-Arid Production Systems, stated that the objective of this piece of work was to establish a clear descriptive and analytical model of current livelihood strategies in Zimbabwe's semi-arid areas.

The ToR stated that the model should:

a) Distinguish the livelihood strategies of different communities and/ or social groups
b) Identify which groups form the true poverty focus of the semi-arid zone
c) Identify researchable constraints on the livelihood options open to those groups
d) Assess the effective demand for new livelihood options

The model was to be supported by a concise but clear understanding of the current state of knowledge on issues affecting semi-arid systems, including:

- The potential of the resource base: soils, rainfall etc.

[1] Now a Research Fellow at ODI.
[2] Now a Research Fellow at ODI.
[3] Previously with IDD, now a junior researcher with ODI

- Economic trends
- Population, demographic trends and migration
- Health and education services
- Infrastructure
- Tenure and property rights, including CPR issues where relevant
- Civil society and social structures
- Policy and institutional barriers to livelihood change

The analysis of strategies was to cover all the key management decisions that households face:

- Allocation of family labour
- Management of natural resources, soil fertility in particular
- Technical choices within crop, livestock or other enterprises
- Choices between enterprises, including subsistence vs. commercial production and off-farm work
- Strategies to manage rainfall and other variable factors
- Savings, investment and borrowing decisions
- Management of household consumption
- Community activities and other social action

It was suggested that the household should be the main unit of enquiry, but supported with an understanding of relevant intra-household welfare issues such as the division of labour, income and assets between family members.

DFID NRSP recognised that this was a broad range of issues, and suggested that the research team should prioritise those issues that had greatest importance.

1.4. Structure of the report.

The report is in eight chapters, including this introduction. Chapter 2 examines the dataset, and describes the research methods used. Chapter 3 sketches the context in Zimbabwe during the 1990s. Chapter 4 provides some summary insights into three semi-arid districts covered by the dataset and fieldwork and introduces issues of income disparity. Chapter 5 proceeds to discuss assets, and Chapter 6 presents information concerning the livelihood activities pursued by households in the study districts in 1997-98. Chapter 7 analyses change between 1993 and 1998 based on the same dataset. Chapter 8 concludes with a presentation of the main findings on the livelihoods of the poor in semi-arid areas, an analysis of researchable constraints to livelihood improvement, and a presentation of new options and directions for development and research work on poor people's livelihoods in semi-arid areas of Zimbabwe. There are a number of Annexes in Volume 3.

2. Dataset and Research Methods.

2.1 Analytical framework

The analytical framework of the study is based on the sustainable livelihoods literature. The study has attempted to investigate poverty and wellbeing livelihood outcomes at one moment in time, and as they changed over time, shaped by shocks, risks and opportunities. This framework is schematically represented below. The strength of the dtatset is that it is capable of reflecting on most of the dimensions of the framework.

	Climate **Politics** **Health**	**Governance and Markets** • **Performance of liberalised markets** • **Agricultural extension** • **Retrenchment** • **Grain Loans**	
	Shocks	**Risks**	**Opportunities**
Capital Assets (input) • **Physical** • **Financial** • **Natural** • **Human** • **Social**			
Livelihood strategies (transformation processes across a portfolio of activities) • Livelihood portfolios			
Livelihood outcomes • Assets • Income • Perceived well-being			
Sensitivity and Resilience of livelihood portfolios			

Bullet points relate to content of dataset

2.2. Research Methods.

This study attempts to draw generalisable findings about coping and livelihoods in semi-arid areas of Zimbabwe based on a study of three semi-arid districts and a fourth less arid district[4]. The principal source of primary information is a data-set from a previous survey undertaken by ITDG (Chipika et al, 1999 and Chipika and Chisvo, 1997), which investigated the impact of structural adjustment on the uptake and use of rural technology and on livelihood strategies in rural Zimbabwe.

The analysis of the ITDG data-set provides the core of the analysis presented below. The use of information from the literature has allowed analysis of the data to be contextualised more broadly. In particular, we used several key sources from the

[4] We have included limited reference to the fourth study area – Guruve, due to its non-semi arid nature.

broader literature: a study of Chivi by Scoones (Scoones, 1992a, 1992b, 1996), which focused on Chivi during the early 1990s; and material from a study by Cavendish, which presented livelihood and coping panel data from Shindi ward in Chivi District from 1993-1997 (Cavendish, 1999).

Supplementary field work in Chivi and Gutu districts was undertaken in July 2000. This has informed our use and analysis of information in the dataset, and helped to fill some gaps in the information it contained.

2.2.1 Choice of study areas.

Zimbabwe has zoned its agricultural land into five zones. Much of the total land area in Zimbabwe is poor, with approximately 80% zoned as NR III, IV and V. Due to colonial history, which divided land into communal areas and commercial farming areas, these poorer land areas are densely settled. Communal areas account for 42% of the land area (large scale commercial, 40%; small scale commercial 4%). The majority of communal land holdings are on marginal land (90% of holdings are in NR III, IV and V, and 75% of holdings are in NR IV and V), but despite their unsuitability for intense cultivation these areas support 57% of the population (1982).

The four districts selected for the ITDG study were regarded as representing the major natural regions in which communal areas are located (see Tables 2.1 and 2.2, below).

Table 2.1 Natural Regions I – V, coverage and description.

Region	Area (million ha.)	% of Total	Description
I	0.62	1.6	High annual rainfall of more than 1,000mm. Temperatures under 15° C. Suitable for dairying, forestry, tea, coffee, fruits, maize, beef ranching.
II	7.31	18.8	Annual rainfall is 750-1,000mm. Ideal for maize and tobacco, beef, cotton, winter wheat and vegetables.
III	6.85	17.6	Receives 650-800mm of rainfall, mostly in the form of infrequent heavy showers. Severe mid-season dry spells, marginal for maize, tobacco and cotton. Favours livestock production with fodder. Requires good management to retain moisture during growing season.
IV	12.84	33.0	Annual rainfall is 450-650mm, subject to seasonal droughts and severe dry spells during the rainy season; found in hot, low-lying land; marginal for rainfed maize. Ideal for drought resistant fodder crops.
V	11.28	29.0	Very hot, low-lying region that is suitable for extensive animal husbandry with drought resistant fodder crops under irrigation. Annual rainfall (under 450mm) is too low and erratic for most crops. Below the Zambezi escarpment this region is infested with tsetse fly.

Table 2.2 Percentages of Land Categories in Natural Regions I -V in Zimbabwe

Region	Communal	Commercial		Resettlement	Other
		Large Scale	Small Scale		
I	0.7	3.0	0.5	11.0	8.4
II	8.7	28,6	17.8	33.7	1.3
III	17.1	17.5	37.9	38.1	18.7
IV	47.6	25.2	36.9	15.3	28.8
V	25.9	25.7	6.9	1.9	43.8
	100.0	100.0	100.0	100.0	100.0

There are significant differences between the four study areas. Some indicators of these differences are summarised in the text and table below.

Four districts, namely Chivi, Gutu, Guruve and Matopo, were selected for the study. These districts cover all the major natural regions in which communal areas are located (Table 2.2). The four districts were selected purposively to represent the diverse characteristics of communal areas in Zimbabwe, particularly in terms of their agro-ecological conditions, the mix of off-farm enterprises, the presence of NGO projects, the level of infrastructural development, and ethnic background.

Other reasons for selecting these districts, of less relevance to this study, were the existence of data from before the period of economic reforms and the existence of data on the impact of economic reforms, from other studies conducted in the areas.

For the ITDG study, field surveys were conducted to collect relevant primary data on the nature, direction and magnitude of the impact of economic reforms on technological and natural resource management capabilities of smallholder farmers in four districts of Zimbabwe. The surveys had two components, one focusing on qualitative information and the other on quantitative.

Table 2.3 Information on districts chosen for the study.

District	Natural Region*	Land Area (ha.)	% woodland	% cultivation	Ward studied
Chivi	IV - V	345,582	34	64	Ward 10
Gutu	III - V	708,008	31	51	Ward 8
Guruve	II - IV	765,707	73	25	Souguru
Matopo	IV - V	723,993	73	26	Gulati

** NR I receives the highest rainfall (over 1000mm/yr) and NR V the least (<450mm/yr).*

2.2.2. Participatory Rural Appraisals (PRAs).

The Participatory Rural Appraisals (carried out between July and December 1997) had the objectives to (i) obtain a qualitative appreciation of the nature and direction of the impact of economic reforms on smallholder agriculture; (ii) identify priority issues for investigation during the quantitative phase; and (iii) gain an understanding of the socio-economic characteristics of the study areas, and obtain the data necessary for the selection of appropriate sample sizes and determination of suitable sampling criteria.

The PRA method focused on group discussions. Groups were specifically constituted to represent the different socio-economic groups within the selected districts. These were the young and the elderly farmers, men and women farmers, rich and poor farmers, farmers participating in special projects (e.g., dairy production), informal traders, and other local entrepreneurs and informal sector artisans. Group discussions were guided by a checklist of issues and open-ended questions. From these group discussions, a checklist of major indicators of impact were identified and prioritised for inclusion in the structured questionnaires.

In addition, key informants such as district administrators, councillors, traditional leaders and public sector extension agents were interviewed during the qualitative phase in order to solicit information on how economic reforms were impacting on rural livelihoods especially farming activities.

2.2.3. Structured surveys.

For the quantitative information collection, structured questionnaires were administered (between March and September 1998) to a sample of 798 smallholder communal farmers across the four survey districts (Chivi, Gutu, Matopo and Guruve). The aim of the survey was develop an understanding of structural adjustment on the differential uptake of new technologies amongst farm households in communal farming areas in Zimbabwe.This was examined in the context of the livelihood strategies in these areas.

The composition and distribution of the sample is summarised in Table 2.4. The sample selection used a combination of stratified random and purposive sampling procedures in each of the four districts.

One communal area ward in each district was selected on the basis of proximity to markets; access to basic socio-economic infrastructure (e.g., roads, communication); level of agricultural production and marketing activities and the degree of interaction between farmers and public and private service providers (including agricultural extension, input suppliers and output marketing agents). Complete lists of households were drawn from all the villages in the selected ward to generate sampling frames. Using a random sampling procedure and roughly equal sub-samples across the four districts, 204 farm households were selected in Guruve, 197 households from Gutu, 198 households from Chivi and 199 farm households from Matopo. Both the PRA and quantitative surveys were conducted in the same wards to ensure complementarity between the two approaches.

Two structured questionnaires were designed as instruments for the quantitative data collection from each of the sampled farmers. The survey instruments were tested and

refined during a pilot study conducted in Guruve District. The first questionnaire was to guide collection of background information about the sampled households, including information on: household characteristics; asset ownership; agricultural enterprise mix, and income sources (see 'household' questionnaire, Annex 2b). The second questionnaire focused on agricultural services management and constituted the main questionnaire for quantitative data collection. It covered all relevant information pertaining to reform related to changes in management of technology and natural resources at all stages of the production and marketing chain (see see 'management of agricultural activities' questionnaire, Annex 2b).

Table 2.4: Survey sample sizes by district.

District	Natural Region	Household Head		Total
		Male	Female	
Guruve	II, III, IV	158	46	204
Gutu	III, IV, V	140	57	197
Chivi	IV, V	149	49	198
Matopo	IV, V	162	37	199
Total		*609*	*189*	*798*

Source: Chipika et al, 1997.

2.4 District characteristics.

Guruve, north of Harare, in Mashonaland Central Province, is (largely) in Natural Region III, and receives good quantities of reliable rainfall. It is a 'high potential' agricultural area, and has been excluded from this study. From here on, the analysis refers only to the semi-arid districts, except where specifically mentioned.

Chivi and Gutu, both in Masvingo Province in southern Zimbabwe, are in semi-arid regions where cropping is risky; while Matopo which is in the south-west is in Natural Region V with even less and more unreliable rainfall. Three of the four districts are far from a large city, but Matopo is only 50km from Bulawayo, Zimbabwe's second largest city.

Chivi and Gutu lie in a zone where there is not only very little rainfall but, another key determinant of agricultural productivity, the soil, is very poor. Broadly speaking the soils in the southern part of Zimbabwe are very low nutrient granite-derived sands, loams and clays (Anderson *et al* 1993). Despite their low agricultural potential these two districts are the most heavily populated of the four covered by the study (45 and 28 per km^2 respectively), and they have the largest area under cultivation and the least under natural forest. This is in contrast to Matopo which has large areas of woodland used by livestock and wildlife (Chipika et al, 1999:3).

Chivi has the largest median field sizes (5 acres) and Matopo has the worst grazing, mainly because of its mountainous topography. Matopo is a traditional livestock area, but median herd size is only four, which is twice the median size of herds in Chivi and Gutu.

Matopo's proximity to Bulawayo provides it with special opportunities in the marketing of crops, and in terms of access to goods and services. However, Chivi and Gutu are much more isolated areas with very weak non-farm economies and urban links.

The table below (Table 2.5) presents data on the study districts drawn from the dataset, Chipika et al, 1999, and ITDG 1997a,b and c. (Guruve is included by way of contrast)

Additional background information about the Districts, covering a range of issues including contraints to agriculture, marketing channels, and the impact of economic reforms, is shown in Annex 2a.

Table 2.5: Differences between study districts (1997).

District	Chivi	Gutu	Matopo	Guruve
Province[5]	Masvingo Province	Masvingo Province	Matebeleland South Province	Mashonaland Central Province
Ward Studied	Ward 10	Ward 8	Gulati Communal Lands	Souguru Ward
Natural Region	IV-V 33% in region IV 66% in region V	III-V 17% in region III 70% in region IV 13% in region V	IV-V	IIb-IV
Semi-Arid?	Yes Low potential.	Yes Low-to-medium potential.	Yes Low potential.	No Highest potential of the four districts
Distance from major city	Fairly inaccessible. Harare 350km Masvingo 1 hr. drive	Fairly inaccessible Masvingo (100km) (c.1 hr) Harare (228km)	Very accessible. Buluwayo 50km	Accessible Harare 150km
Population	157,428[6]	195,364[7]	89,139[8]	135,637[9]
Population density (person/km^2)[10]	45 – High	28 – Medium	12 - Low	17 - Low
Household size (median)	7	5	7.5	6
Age of house head (median)	49	48	56	49
Education score[11] **(men)**	1.63	1.61	1.61	1.37
Extension coverage	High	High	High	Poor

[5] Zimbabwe has ten provinces, of which two are cities: Harare and Bulawayo

[6] From 27,397 households, based on the CSO population census of 1992 (Chipika et. al., 1999:22)

[7] From 37,933 households, based on the CSO population census of 1992 (Chipika et. al., 1999:21)

[8] From 15,625 households. The District has a very young population (62% under 20), which is apparently typical of Matebeleland.

[9] From 26,904 households (CSO, 1992, cited in Chipika et al, 1999:19). The district has 33,159 cultivators. Out-migration occurring (push = poor soil, land shortage) to Dande Communal Lands in Lower Gurve (pull = plentiful fertile land)

[10] CSO, 1992 and CSO, 1993, cited in Chipika et al, 1999.

[11] This is a simple mean score, in which no education = 0, primary = 1, O-levels = 2, etc

Development projects	Gardening	Tree crops, Poultry	Dams; dairying; small scale forestry	Horticulture, dairying
% members of clubs, groups or societies	28%	21%	25%	16%
Existing (new) markets:	(Chibuku: Red Sorghum)	--	Bulawayo	(Zimtrade: Paprika), GMB
Significant nearby employment	--	--	Bulawayo	Commercial farms (seasonal)
% new settlers (<10 years)	11%	13%	8%	16%
Natural Woodland (%)	34	31	73	73 (but very little natural vegetation in study area)
Grazing quality	Fair	Fair	Poor	Fair
Soils	Poor: Sands, sandy loams	Poor: Sands, sandy loams	Medium: clays, red, sands	Medium: clays
Land Area (ha.)	345,582	708,008	723,993	765,707
Proportion of land cultivated (%)	High - 64	Medium - 51	Low - 26	Low – 25
Average % fallow	20%	20%	20%	5-10%
Field size (median)	5	4	4.5	3
Cattle ownership (median)	2	2	4	4

Source: Range of sources, as footnoted, and Chipika et al, 1999, and ITDG 1997a,b and c.

2.5. Research questions and hypothese.

We attempted to respond to the following research questions and hypotheses.

Research Question 1:What are the livelihood strategies of different communities and socio-economic categories of household in liberalising communal areas in Semi-Arid Zimbabwe? (ToR)

1. Poor households are likely to have lower access to wage income sources than non-poor households.

2. Households are likely to diversify away from activities with covariant risk following a drought.

3. During an adjustment process we would expect households to experience reductions in remittances and wage income.

4. People will use whatever combinations of capitals and assets available to them to construct diverse and robust livelihoods. Therefore, having experienced a shock in which assets have been reduced we would expect:
   - significant out-migration, especially in large low asset households
   - lower-age involvement in productive work
   - reduction in the gender-based division of labour
   - fewer households reporting no income earning occupations

- households to report a greater number of productive activities
- to see evidence of an attempt to move out of the NR-based economy by investment in post-primary education and the development of non-agricultural skills

5. Households with higher human capital (years of schooling and mortality) gain better access to activities with higher returns to labour and capital than most semi-arid households.

6. Households with low levels of dependence on natural resources were more likely to experience increases in well-being in the post drought period.

7. Household well-being/ recovery from drought depends on having or developing key risk-mitigating assets, which include livestock, social capital (indicator: livestock loans, borrowing and lending labour) and human capital (especially non-agricultural skills and post-primary education).

8. Human capital becomes an increasingly important for poor households after drought and following liberalisation. Household size and especially household structure (low dependency) will be associated with greater well-being and higher levels of investment and diversification (income, assets, food security, etc.) at low levels of income.

Research Question 2: What are the characteristics and experiences of the poor in semi-arid Zimbabwe? (ToR)

1. Where formal social protection programmes exist this can make a substantial contribution to income, security and possibilities for investment.

2. Poor households are less likely to have enough household labour and are less likely to solve that problem.

3. Poor households are unable to insure themselves against risk through diversification and ownership of livestock and are less able to recover from drought than richer households.

4. Poorer households have high dependency ratios constraining diversification and potentially constraining labour availability for key productive activities.

5. Poor households have limited access to formal organisations.

6. Where risk is high and markets are thin and poorly integrated, the poor are particularly likely to partially withdraw from markets.

7. Well-being for the poor depends on production for subsistence.

8. High levels of deep and persistent poverty are likely in Zimbabwe's semi-arid areas, as they are 'low potential' and the economy is largely dependent on agriculture.

9. De facto and de jure women headed households are more likely to be poor than male headed households (due to difficulties in dealing with socially constructed rigidities in labour allocation, lower access to male household labour, reduced access to certain forms of social and human capital and reduced access to land).

10. Households with access to wage income, remittances and other non-NR based livelihoods are likely to encounter lower levels of covariant risk and therefore to have higher levels of well-being[12]

Research Question 3: What are the researchable constraints on the livelihood options open to the poor in semi-arid Zimbabwe? (ToR)

1. Agricultural extension focused on increasing production for the market and producers' involvement in input as well as output markets, can make very little difference to household well-being or local economic growth where production for subsistence dominates the economy.

2. In a largely subsistence economy greater gains can be achieved through developing market linkages and vertical integration opportunities than by focusing on enhancing production.

3. A lack of access to financial capital (through sizable flows of cash income, savings or credit) inhibits many of the poorer households from moving from low input low return activities to those with higher returns

4. Markets are thin and poorly integrated, limiting livelihood options for all income groups.

5. A liberalised market will reduce post-harvest constraints and transmit price incentives to producers to increase levels of production and move to higher value products. Farmers are looking for reliable and assured markets to justify taking risks, but in relatively remote semi-arid areas the private sector will be slow to establish effective marketing channels.

Research Question 4: What is the effective demand for new livelihood options? (ToR)

1. If markets are easier to establish in densely populated areas, one would expect to see more occupational diversity and market opportunities in Chivi than in Gutu or Motopo. However, proximity of a nearby urban concentration (Motopo) should generate a different range of livelihood opportunities.

2. Non-poor households will be better able to take up new opportunities created by market liberalisation because they have the resources that enable them to take the risk (e.g. access to working and investment capital, access to marketing

[12] indicators of well-being: school enrolment, income, assets, mortality. Indicators of recovery from drought: income change in Matopo, accumulation/ decrease in livestock, increased school enrolment, year when assets acquired, marriage of sons [through additions to hh through marriage].(see Section 2.9

institutions). Poorer households without such resources would only benefit from systems which obviated the need for such resources (e.g. vertical integration). [indicators, increased cotton or sorghum production]

3. Demand is likely to be higher for non-NR based livelihood activities.

4. The demand for irrigated horticulture (gardening) is substantial. The constraints are: low water availability requiring hand irrigation of small patches and limited market development, resulting in product saturation in geographically confined areas. Within NR-based activities the demand will be for drought-resistant crops and varieties and water harvesting technologies.

2.6. Organisation of variables in the dataset.

We have differentiated households in the dataset by:

- their level of income poverty (see section 2.7 below)
- livelihood portfolios (the top five household livelihood activities listed by respondents, and placed into a summarising typology, (see section 2.8 below, for list of livelihood portfolios)
- their location (in Gutu, Chivi or Matopo)
- their experience of change between 1993 and 1998
- the level of asset ownership (productive and household)
- their ownership of oxen, ploughs and scotch carts (key productive assets)
- the sex of their household head (*de facto* and *de jure*)
- household size
- their dependency ratios
- the level of education of the head of household
- their access to Government Grain Loans
- their access to credit

2.7. Calculation of Income Groupings.

We placed households in one of five income categories (income groups 1-5). Household income was calculated in a three stages:

a. Adult Equivalent Household Size (AE)

This was calculated by counting household members over 15 years. Children under 15 were counted as being equivalent to 0.5 adults.

b. Grand Total Household Income (GTHI)

This was calculated as the sum of:

- total wage income
- total remittances (cash and kind)
- other non-farm income
- total income from livestock sales
- total income from sold agricultural output
- total value of retained output

c. GTHI/ AE

We divided Grand Total Household Income for each household by the 'adult equivalent units' within the household, and used the 'Adult Equivalent Income' to place each household into an Adult Equivalent Income Group (known throughout the report as the income group or IG)

Table 2.6 Income groups and poverty lines

Income Groups	Range (Z$)	Poverty lines
1	0 – 500	
2	501 – 1,180	Z$ 1180 'food poverty line'
3	1,181 – 1,925	Z$ 1925 'total consumption poverty line'
4	1,925 – 5,000	
5	5,001 +	

These categories were designed to coincide with key Zimbabwean national poverty lines, as indicated above. The food poverty line is considered to be a measure of extreme poverty. The total consumption poverty line is the basic national poverty line.

Table 2.7 Major Income Streams / Components By Household

Income Stream	No of Households with this Income	Percent of Total h'hs (591)	Mean % of Total h'h Income[13]
Retained Output	587	99.32	45.39
Sold Livestock	87	14.72	27.51
Sold Output	294	49.75	19.75
Livestock Loaned Out	76	12.86	6.08
Implements Loaned Out	156	26.40	4.54
Wage Income	107	18.10	59.72
Other Income Sources	323	54.65	33.60

[13] For those households (h'hs) with this income stream

Remittances	196	33.16	33.39

Eight Income streams were recognised in the data base. The values of several streams appear to have been taken directly from answers to specific questions in the questionnaire. Other values were calculated using either or both – answers to questions or local knowledge of values. The quality of this data certainly relied heavily on the ability of the enumerators to calculate accurately with the respondents the resulting income values.

The data almost certainly records gross income rather than net income from agriculture. However, very few households used significant amounts of purchased inputs (agro-chemicals or large amounts of labour), so the results are not reckoned to be severely distorted.

Not all households had income from each of the eight sources. The most common income stream is 'Retained Output', all but four of the 591 households had this as one of their income sources. Additional to this non-cash income stream were various agricultural and non agricultural cash streams. Although the sale of (crop) output was an income stream for almost fifty per cent of households, its share (19.75%) of the Grand Total Household Income for the relevant households was less than the contribution of Livestock sales to those 87 households that sold livestock. The loaning out of Livestock and Implements created relatively small income streams for those households involved.

The most important non-agricultural income stream, which affected over half the households, was that of 'Other Income Sources'; derived from a wide variety of activities (see section 2.8 on livelihood portfolios below). 'Wage Income' was a component for eighteen percent of all households but, for such households it accounted, on average, for almost sixty per cent of total household income. One third of the total number of households relied on remittances for approximately one third of their total income.

2.8 Livelihood portfolios.

Households (interviewed in 1998 as part of the data collection process for the dataset used in this study) were asked to rank the five most important income-earning activities for the household, including farming for home consumption for 1993 and 1998. Many households listed only one or two activities; others claimed not to have any income earning activities (listed in the tables below as 'None').

We selected the first three activities listed by households for 1998 and used these to construct livelihood clusters. We found 24 types of livelihood activity (plus some additional activities which were (openly) followed by only one or two individuals in the sample, e.g. prostitution. These and other less widely followed activities were generally found in combination with other livelihood activities and so became subsumed into broader portfolios.

Table 2.8: Livelihood Activities

	Livelihood Activity	Category		Livelihood Activity	Category
1	building/brick-making	*Construction*	13	carpentry/ welding	*Construction*
2	poultry raising	*Poult*	14	painting	*Construction*
3	casual labour	*Casual Labour*	15	traditional healer	*Services*
4	driving	*Wage*	16	electrical repairs	*Services*
5	remittances	*Remittances*	17	wage income	*Wage*
6	shoe repair	*Services*	18	farming	*Farm*
7	honey making	--	19	gardening	*Garden*
8	tailoring/ sewing	*Services*	20	beer brewing	*Beer Brewing*
9	knitting/ doily crocheting	*Knitting*	21	miscellaneous trading	*Trading*
10	general dealing	*Trading*	22	rental income	--
11	carving/ sculpture	--	23	none	*None*
12	gold panning	--	24	well sinking	--

Household livelihood portfolios generally involved a combination of livelihood categories. Where a single activity is listed, this indicates that the households had a single-stranded livelihood e.g. Farm - they depended entirely on farming. Agric + is a composite including farming, and/ or gardening and and/ or poultry keeping (used below in combination with other livelihood activities, e.g. Agric + Remit). 'Services', includes activities such as tailoring; 'construction' includes carpentry and welding, and brick making; 'beer brewing +' and 'knitting +' includes households which have listed beer brewing or knitting as their *sole or primary* income earning activity.

The left hand side of Table 2.9, below, shows a simplified list of the livelihood activities listed by households. These have been clustered to form six main categories:

Table 2.9: Simplified description of livelihood portfolios listed by dataset households

Farm Garden Farm + Poult Farm + Gard Farm + Gard + Poult	**NR**
Agric + Remit Agric + Construction Agric + Trade Wage + Agric Casual + Agric Agric + Services	**Mixed (NR & Non-NR)**
Wage only	**Wage only**
Constr + Trade Construction Wage + Trade Beer Brewing + Knitting + Trading	**Non-Farm**
Remittances Casual Labour Remit + Casual	**Other**
None	**None**

2.8.1. An explanation of the livelihood category 'None'.

Now we return to the 92 households claiming to have no income earning occupations (11 households in Gutu, 23 in Chivi and 58 [29.3% of sample households] in Matopo). These appear in the tables and diagrams above under the heading of 'none'. These respondents often gave inconsistent responses, and despite claiming to have no source of income in fact had various sources. Although none of these households contained individuals earning wage income, they all obtained some non-farm income. Twenty-eight households received remittances, 5 obtained income from livestock sales, 29 sold agricultural output (23 of these in Matopo), 91 out of 92 retained agricultural output for home consumption – although the value of this ranged from Z$71/ annum to Z$ 5,292/ annum.

When all sources of income (including retained output) are aggregated to produce *grand total household income* (not divided by adult equivalence to produce per capita incomes) we find that these households obtain a significant range in income, as shown in the table below.

Table 2.10: Numbers of h'hs Claiming No Occupation, Hh by Income and District.

Income (Z$)	Gutu	Chivi	Matopo	Total
0-500	2	3	8	**13**
501-1180	3	10	13	**26**
1181-1925	3	0	11	**14**
1926-5000	3	10	15	**28**
5001+	0	0	11	**11**
Totals	**11**	**23**	**58**	**92**

This shows that we need to treat the category of 'none' in the livelihood portfolio analysis with care. 'None' may represent 'none stated' rather than no occupation. In addition, the table shows a significant difference between the districts, with 58 of the 198 households in Matopo (29%) claiming no source of income. This may affect any attempt to draw conclusions as to the 'true' occupational structure of the District.

2.9. Sources of change information.

The dataset contains five sets of change indicators:

- 2 responses to questions of whether you are better or worse off[14]
- income change data for 58 households in Matopo district only
- 'question 34' in the household questionnaire, which asked respondents for changes in a number of variables: however, it is ambiguous as to whether answers were for the respondent's household or for the community as a whole (this study assumes that the respondents were answering primarily on the experiences of their household)
- a variety of questions on changes in the organization and productivity of household farming in the agricultural questionnaire.

These are all based on respondents comparing the situation in 1998 with that of 1993, either qualitatively or quantitatively. Since 1993 was soon after the worst effects of the 1991 drought, it can be assumed that most households reached a low point on most indicators around this time. *Change is thus perceived and measured from a low base*.

Unfortunately Matopo is the only district where the dataset allows comparison of income in 1993 and 1998.

Livelihood and wellbeing changes in the study areas are explored in Chapter 5 of this report.

[14] There is a reasonable degree of correspondence between the responses to these two questions. One was asked at the very end of the interview together with other questions about the Economic Structural Adjustment Programme.

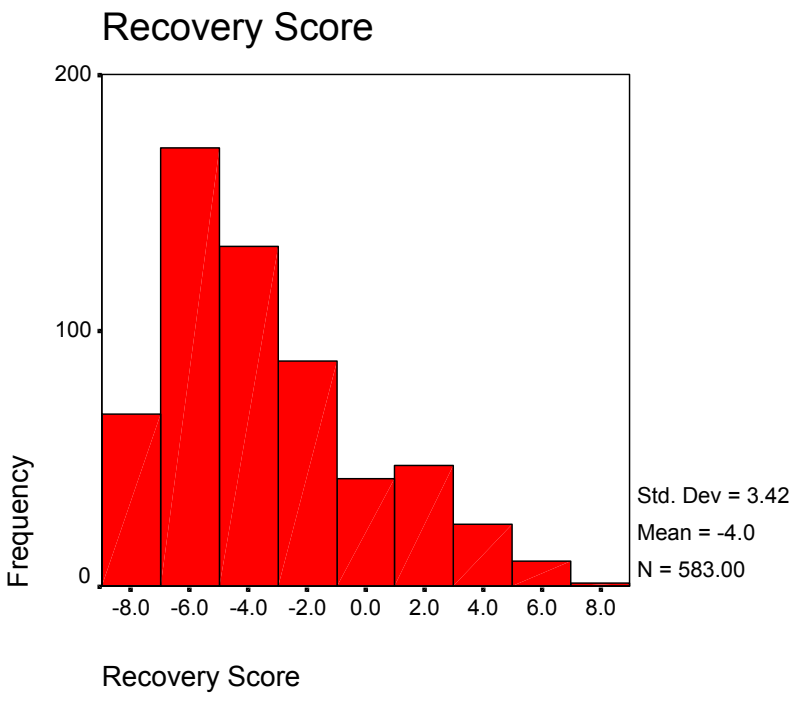
2.10. Recovery Index.

An index variable – Recovery score was calculated from eight components of Question 34 in the household questionnaire, which asked respondents to indicate whether a number of variables had improved/increased, declined/reduced, or remained unchanged in the last five years. These were: access to farmland, total crop output, household food security, livestock holdings, total crop sales, draught power availability, affordability of children's education and of health services. These were all thought to be indicators of recovery and a composite was considered a good way to represent the multi-dimensional nature of recovery.

The original codes were recoded as –1 decline/reduced, 0 unchanged and don't know, and + 1 increase/improved; the resultant values were summed to give a score with minimum value of –8 and maximum value of +8.

There were 583 valid scores that covered the whole of the potential range of the recovery score index. The arithmetic mean score was – 3.98 and the median value was –5. The distribution is skewed with only 14.1 per cent of the scores being positive values.

Figure 2.1



Statistics

Recovery Score

N	Valid	583
	Missing	10
Mean		-3.9863
Median		-5.0000
Std. Deviation		3.4161

The results are analysed in Chapter 5 (Sections 5.6 to 5.9).

2.11. Data quality.

The ITDG dataset was designed for a previous study, as outlined above. As a result it has weaknesses, in terms of its content and configuration, for its current use. Its strengths are its ample sample size enabling statistical significance to be achieved for many associations; its relatively comprehensive character, concerning households, general livelihood information, income streams, and calculation of gross household income. Non response to questions was generally limited. The survey was administered after the growing season (March – September), allowing respondents to reflect back on the recent past season.

The dataset contained a lot of data on people's perceptions of change, some of which could be compared for consistency as the same or similar questions were asked at different points in the survey. The recall period related to the post 1991 drought period (1993-98), and was therefore fairly easy for respondents to relate to. However, the recall is unlikely to have referred to an exact 5 year period.

Its weaknesses for our purposes were the absence of:

- pre-drought data on livelihood strategies, assets or incomes
- data on short term coping
- seasonality data – so we are unable to gauge how important some activities might be in lean seasons, or to protect from risk rather than to generate income and food security
- information concerning the use of CPRs for coping (e.g. the collection of wild fruits, the trapping of mice for food, the digging soil from anthills for fertiliser as a form of casual labour for non-poor farmers)

In addition the ITDG dataset is of variable quality. Data on some topic areas appears to be reliable, while other data have had to be discounted as triangulated analysis has resulted in divergent results. None of the current research team were present during questionnaire design, data collection, data coding or cleaning. We are therefore taking on trust the quality of the bulk of the data.

The data for measuring change is limited in several ways. Much of it is based on the perceptions of change of the respondent, and they specify only the direction of change rather than the direction and magnitude of such change. Nevertheless, there is a lot of

change data throughout the dataset, and where there was internal consistency between results on related questions we have used the data.

We have been unable to assess the importance of the education of *all* household members on livelihood outcomes, as the construction of the dataset means that it would have had to have been significantly reconfigured for questions about the education of household *members* (as opposed to household heads) to be posed. We have taken the education of the household head as a proxy for education of the household, based on examining a small number of households. Considerably more work on this dimension is possible and would be fruitful. The same limitation occurred for analysis of other intra-household dimensions of income and expenditure.

In addition, information was not passed to this research team concerning the definition of 'household' used in this study. This has a significant bearing on the results, as we have assumed (perhaps wrongly) that the household has been conceptualised as being kin, (and others, contributing to or dependent on, pooled household income and in-kind goods and services) who are normally present during any 12 month period, and who live under the same roof, or in contiguous dwellings.

Despite the shortcomings involved in using another research team's data, we feel that the results we present here are robust enough to justify the effort.

2.12. Additional Field Work.

Additional field work was undertaken by this research team in July 2000. Unfortunately, the limited data analysis completed prior to the visit, combined with post-election political unrest and both petrol and diesel shortages to limit the effectiveness of the visit for data collection. Nevertheless, the team was able to collect useful case studies in Chivi, which are presented in boxes in this report.

3. Background to Zimbabwe: National Shocks and Trends

3.1. Introduction.

Livelihoods in Zimbabwe have evolved within an environment determined by compounded shocks and trends. Key trends can be summarised as:

- Population growth
- Economic decline, formal sector job-losses, and inflation
- Restructuring of services and prices brought by structural adjustment programme
- HIV and AIDS
- Environmental degradation

A number of the key shocks facing Zimbabwe's rural producers are exogenous in nature and generate covariant risk for rural households (see the first three points below):

- Droughts of varying intensities
- Floods
- International and domestic price fluctuations
- Personal calamities that may strike individuals or household

These shocks have combined with the trends (above) to shape livelihoods in Zimbabwe.

The section below presents an historical account of the key trends and shocks in Zimbabwe since independence in 1980.

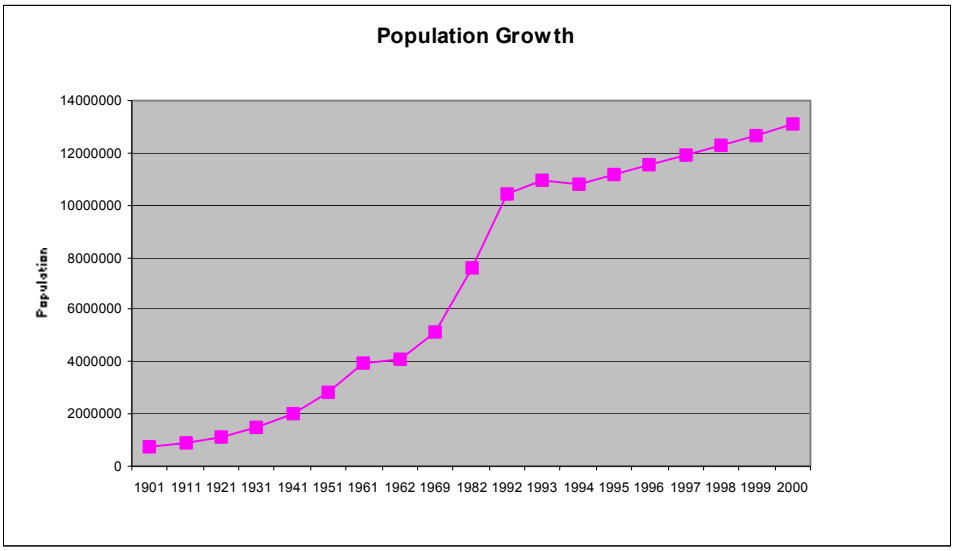
3.2. Population.

3.2.1. Population Growth Rates.

The population of Zimbabwe increased from 7.6 million in 1982 to 10.4 million in 1992 (51% female), an average annual increase of 3.1 per cent. This was slightly higher than the average annual growth rate between 1969 and 1985, which was 3.0 per cent (Moyo, 1991). However, Zimbabwe's population growth rate has been falling in recent years, as a result of family planning programmes and the effects of HIV/ AIDS. It is currently estimated (2000) at around 2.7 per cent, on a total population of 11.3 million. The growth rate is expected to be constant beyond 2000, and to be declining by 2003. One projection expects an annual population reduction of 1.0 per cent by 2010, due to the effects of AIDS (HIV InSite, 2001).

Figure 3.1 below illustrates the rapid population growth experienced during the first decade following independence in 1980, and the subsequent falling rate of growth during the second decade.

Figure 3.1: Population Growth in Zimbabwe.



3.2.2. Population Density.

Population density increased from 19 to 27 persons per square kilometre (Poverty in Zimbabwe, 1997). Recent population density estimates by province (CSO, 1997b) (see Table 3.1), show that the higher potential provinces, except Mashonaland West, have population densities higher than the current (2000) national average of 34.5 per square kilometre.

Table 3.1: Population Densities by Province, 1997.

Province	Population	Area (sq.km)	Density
Harare	1,871,943	872	2,146.7
Bulawayo	671,024	479	1,400.8
Manicaland	1,814,764	36,459	49.8
Mashonaland Central	1,019,627	28,347	36.0
Mashonaland East	1,109,547	32,320	34.3
Midlands	1,510,150	49,166	30.7
Mashonaland West	1,255,716	57,441	21.9
Masvingo	1,219,655	56,566	21.6
Matebeleland South	632,930	54,172	11.7
Matebeleland North	683,917	75,025	9.1
Zimbabwe	***11,789,274***	***390,757***	***30.2***

Source: The Central Statistical Office (1997) Inter-Censal Demography Survey.

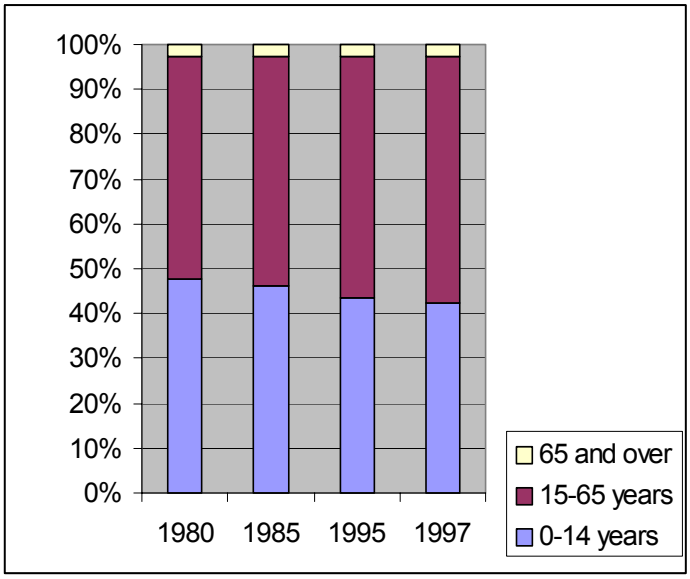
In the communal areas, which contain 57% of the population, the average density was 25.2/ km^2, but much higher in some areas. The population densities of the three semi-arid areas investigated in this study are: Chivi, 45/ km^2 , Gutu 28/ km^2, and Matopo (hilly, and traditionally a cattle rearing area) 12.35/ km^2. This compares with population densities of 9.4/ km^2 in commercial farming areas.

The increased population and population densities, coupled with declining urban employment opportunities driving the urban population back to rural areas, have been increasing pressure on the rural natural resource base. Increased land fragmentation in communal areas and the opening up of more marginal lands for agriculture are the most visible evidence of these population pressures.

3.2.3. Life Expectancy and Demographics.

Life expectancy rose slightly from 59 in 1987 to 59.6 in 1990 (UNDP, 1992). Since then it has fallen to 49.0 in 1994 (UNDP, 1997) and 43.5 in 1998 (UNDP, 2000). The population age structure has, to date, remained relatively stable (see Figure 3.2), with an increasing proportion of the population in the economically active (15-65 years) age-group. In 1982, nearly half (47.7%) of the population were under 15 years of age and just 3 per cent were aged 65 years and above. This, made for a dependency ratio of 1.03 (i.e. for every 100 working-age people there were 103 dependents).

Figure 3.2: Zimbabwe Population Structure (1980-1997)



3.2.4. Economic decline and the implications for poverty.

If the economy was performing well the demographic trends would have led to increased per capita incomes and enhanced the capacity of the active productive population to provide for its dependents. Unfortunately, economic decline has undermined this position, and poverty is increasing.

3.3. Economic trends.

3.3.1 Macro-economy.

Zimbabwe has a per capita Gross Domestic Product (GDP) of US$703 (1998[15]), higher than in most sub-Saharan countries. However, GNP per capita has been very erratic over the last two decades, oscillating around US$640 per year. It peaked in 1981, 1985 and 1991, and plunging to an all time low of US$611 in 1993, following which it started an uneasy climb to US$655 in 1997. Approximately 75% of the population is directly dependent on the land, and Zimbabwe's dependence on dryland agriculture is highlighted by the fact that changes in income per capita track the rainfall pattern and the performance of the agricultural sector (compare Table 3.3 with Fig. 3.4) (see Annex 3 for a table showing employment by sector).

From 1980 to 1994 GDP grew at 2.5 per cent a year. In 1983 it declined by 4 per cent. Between 1985 and 1990 the average growth rate was 4.5 per cent, which was high by regional standards. However, the 1980s for the most part were characterised by increasing economic gloom and growing uncertainty about the thrust of economic policy. The six years from 1982 to 1987 in particular, were characterised by low and volatile growth, stagnant employment, foreign exchange shortages, inadequate investment, and a large and rising structural budget deficit.

At independence in 1980 Zimbabwe appeared to have strong economic potential. However, restrictions in place during the colonial period limited the commercial activities that black Zimbabwean's could engage in. Although the investment in rural infrastructure appeared impressive, roads had been planned largely in order to serve the commercial farming interests. Planning restrictions and the structure of land ownership had limited the move of black farmers into high-value cash crops and constrained the construction of road-fringe enterprises, especially through commercial farming areas. The long-term impact of these factors may be reflected in the low levels of entrepreneurial activity and economic diversification in the rural areas, and may have combined with structural distortions in the economy to prevent economic growth keeping pace with the post-colonial government's spending.

However, the constrained environment for enterprise occurred alongside the post-colonial government's commitment to social welfare. It introduced a number of policies that aimed to reduce differentials in the country, and attempted to build human capital through rapidly increasing access to schools and hospitals. In addition, it attempted to increase rural households access to productive assets by embarking on a programme of land resettlement and rural investment. The government also supported smallholder

[15] UNDP, Human Development Report, 2000.

hybrid maize agriculture through heavily subsidised marketing, extension, credit, inputs and producer prices. Many of these policies ultimately became unsustainable, and led to worsening macro economic performance.

Table 3.2: GDP and GNP between 1980-1998.

Year	GNP(Z$) per capita	GDP growth (% annual)	GDP (Z$) per capita	per capita growth
1980	637.93	14.42	--	--
1981	683.11	12.52	--	--
1982	663.98	2.63	--	--
1983	648.97	1.59	--	--
1984	629.24	-1.91	--	--
1985	650.52	6.94	1,085	--
1986	637.46	2.09	1,198	-1
1987	626.02	1.15	1,255	-2
1988	652.93	7.55	1,533	4.3
1989	666.91	5.22	1,845	2
1990	685.49	6.98	2,196	3.7
1991	700.99	5.53	2,934	2.3
1992	614.97	-9.03	3,303	-11.8
1993	611.00	1.33	3,941	-2.4
1994	634.35	6.84	5,037	3.6
1995	618.55	-0.65	5,346	-3.8
1996	655.06	7.30	7,118	5.2
1997	655.77	3.23	8,303	0.5
1998	--	--	10,700	-0.7

Source: Quarterly Digest of Statistics (1999).

The results during the first decade after independence appeared impressive. Communal area marketed surplus output quadrupled and Zimbabwe was heralded as Africa's Green Revolution (Eicher, 1995). However, in reality total per capita agricultural output was falling and 80% of the increase was being produced by 10% of the households, mainly those in higher potential areas with the capital to invest in fertilisers (Jayne and Chisvo, 1991). For the rest, many of whom were net food buyers, the inflated maize prices and inefficient marketing and milling infrastructure created an effective tax, which may have accounted for up to 30% of the expenditure of some of the poorest households.

Zimbabwe's balance of payment position has continued to worsen during the last two decades. This trend has been fostered by a decline in the country's export performance,

resulting from depressed major mineral prices on the world market, coupled with the depreciation of the Zimbabwean dollar against major currencies such as sterling and the US dollar. The partial failure of the structural adjustment programme has been compounded by the damage done by the poorly conceived policies of the Reserve Bank of Zimbabwe; the poor export performance, and the loss of investor confidence in the Zimbabwean economy.

This has exacted tremendous pressure on the Zimbabwean dollar, which yielded to the pressure and plummeted from Z$18 to £1.00 to Z$55 to £1.00 between 1995 and 1999. The decline continued and the Zimbabwe dollar was devalued from Z$37.95 to the US dollar in July 2000 to Z$55 to the US dollar in October 2000 (Finhold, 2000).

These currency devaluations during the first half of the 1990s had a profound impact. The cost of transport increased, making trade and communication with remote areas more costly, and they caused the real price of inorganic fertiliser to quadruple between 1990 and 1993, and the producer price of maize to quadruple between 1990 and 1991 (Potts and Mutambirwa 1998). Though the majority of farmers rarely used fertiliser (they could not afford them), few farmers could reap the benefits of the increased farm-gate prices – many of the poorest were net consumers of maize. However, the impacts of devaluation were not all negative; for instance, growth and employment opportunities were stimulated in some export sectors, including commercial agriculture.

3.3.2 Structural adjustment.

The mixed economic performance for the most part of the 1980s led finally to a recognition of the need to dismantle the extensive system of controls, to stimulate the economy by making it more responsive to market forces and thus achieve higher levels of growth.

Although the *Framework for Economic Reform* blueprint of February 1991 described the initial launching of the reforms, in practice the reform programme from 1992 through 1995 was defined by the much more stringent Enhanced Structural Adjustment Facility of the IMF. Under this agreement, eligible countries are required to draw up Policy Framework Papers in co-operation with the Fund and the World Bank. These contain quarterly benchmarks and performance criteria and are updated annually to form the basis for coordinated assistance from both institutions while acting as a catalyst to attract finance from bilateral donors.

The most important achievements in the implementation of the structural adjustment programme have been: (i) the implementation of appropriately restrictive monetary policies which resulted in a substantial decline in the rate of inflation (although in 2002 it is now back up to more than 100%), a greater than expected reduction in the current account deficit and a substantial increase in foreign reserves, (ii) the expansion, beyond the original schedule, of the trade and payments system, thus effectively eliminating the import allocation system and exchange controls for current transactions, (iv) investment promotion measures including the liberalisation of restrictions on capital and dividend remittances for foreign investors and the introduction of portfolio investment on Zimbabwe Stock Exchange, and (v) wide ranging reforms in agricultural pricing and marketing.

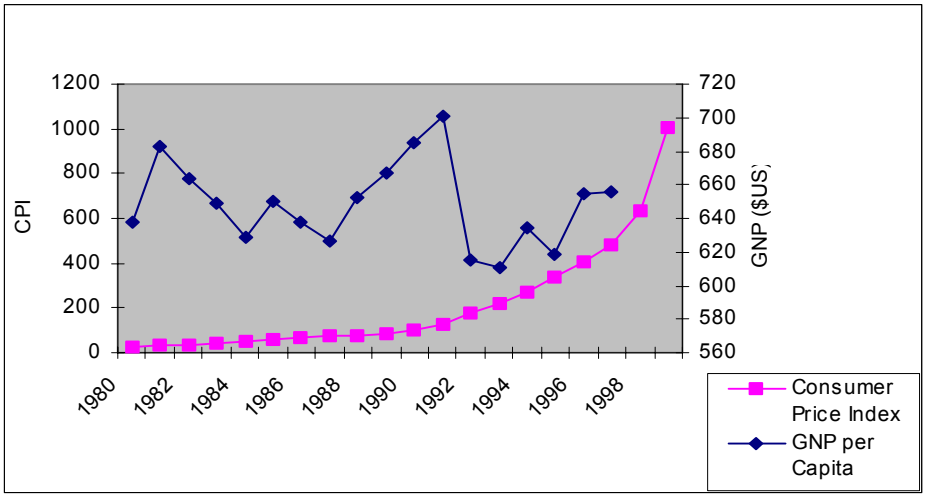
The most notable failure in implementation of the economic reform programme is in fiscal policy. The continuing high budget deficit (23.6 per cent of GDP in 2000) and the associated large demand for domestic financing have put strong pressure on financial markets, leading to high real interest rates and some crowding out of credit to the private sector. The improvement of public sector financial policies remains crucial for shoring up the sustainability of the reforms already in place and achieving the economy's full response to the new incentives.

3.3.3 Real incomes and wages.

Real wages have fallen sharply in recent years. Average non-farm wages in 1999-2000 were 50% below their peak of 1982 and have fallen by 40% since 1990. The fall in unit labour costs (10% per year since 1990) has significantly improved the environment for investment.

During a period of national income instability (as measured by US $ GNP) inflation rose from 7.3% (1980) to 58.5% (1999) (trend: 9.2% in 1985, 7.1% in 1988 18.8% in 1997). This was fuelled by the high budget deficit, which has run at double figures from the late 1980s and through the 1990s, with a profound impact on the *real* incomes of the general population. This remained the case in 2000. The year-on-year rate of inflation, as measured by changes in the consumer price index (CPI), fell by 80 basis points from 57.2% in the second quarter of 2000 to 56.4% in the third quarter (Finhold, 2000), and the year-on-year rate of inflation declined from 62% in September to 60.8% in October, 2000. Unfortunately, inflation was expected to resume its upward trend in November and December, 2000 rising to 63.1% and 67.9% (Finhold, 2000)

Figure 3.4: GNP and Consumer Price



3.3.4 Employment.

Annex 3 shows the change in employment by sector. This indicates growth in the 1990s especially in services, somewhat in manufacturing and agriculture. Nevertheless the rates of growth were not enough to absorb the numbers entering the labour market. How this situation will change with the advance of AIDS remains to be seen.

Zimbabwe's unemployment problem has been well publicised. There are about 200,000 able-bodied school leavers entering the labour market each year, but only about 80,000 formal sector job openings each year - 40,000 from new jobs being created and about 40,000 from existing employees leaving formal sector employment. The excess is accounted for by the urban informal sector, the peasant farming sector and open unemployment - which is estimated to be in excess of 30 percent. This has resulted in chronic unemployment, with national averages reaching 50% (2000).

3.4 Rural Poverty.

Zimbabwe has developed poverty lines which subdivide the population not just into the poor and non-poor, but into seven categories (1995/96 Poverty Assessment Study Survey (PASS) of the Ministry of Public Service, Labour and Social Welfare):

1. Upper non-poor > Z$ 3,420/ annum
2. Lower non-poor < Z$ 3,420/ annum
3. Upper poor < Z$ 2,280/ annum
4. Lower poor < Z$ 1,398/ annum
5. Upper very poor < Z$ 1,026/ annum
6. Middle very poor < Z$ 684/ annum
7. Lower very poor < Z$ 342/ annum

These categories are based on minimum food consumption compared with total consumption per person per annum for a household of six.

Simplified measures are provided by the the Food Poverty line (FPL) and the Total Consumption Poverty Line (TCPL). There are wide variations in poverty lines at the provincial level, but the aggregated poverty lines (which are the poverty lines used in this study) are:

Rural FPL: Z$ 1180.49 per capita (year 2000)
TCPL: Z$ 1924.20 per capita (year 2000)

Poverty in Zimbabwe is high, with an estimated 75% of the rural population living below the poverty line (PASS, 1995). Zimbabwe ranked 130 out of 174 countries on the Human Development Index in 2000[16]. Inequality is amongst the worst in the world, as measured by the gini co-efficient (= 0.626) (Piesee et al 1998, DFID 1999, CSO 1998). This inequality coupled with unemployment and the impacts of macro economic instability on the farm and non-farm sectors resulted in the prevalence of extreme poverty increasing from around 17% to 37% of households during the 1990s (DFID 1999). These aggregate figures mask regional disparities, and poverty is widespread amongst rural households

[16] Zimbabwe's position in the Human Development Index (HDI) rank has dropped from 52 in 1990 to 108 in 1992, 129 in 1997 and 130 in 2000 (UNDP, 1990, 1992, 1997 and 2000).

living in semi-arid communal areas. Over 80% of the households in the three semi-arid areas surveyed for this study were poor, and 70% very poor.

The Government's 1995 Poverty Assessment Survey found that 46% of the people did not have access to minimum food requirements, and 61% fell below a Government-defined poverty line defined by access to basic needs including food, water, education and clothing.

Zimbabwe is predominantly rural, with 70% of the population living in rural areas, mainly in low-rainfall regions. Poverty in Zimbabwe is disproportionately rural, with around 81% of the poor and very poor living in communal areas. In the communal areas, 84% fall below the Government's poverty line, as do 70% of people in the resettlement areas. Poverty is also prevalent among the families of workers on commercial farms. Rural poverty is correlated with land quality (low rainfall and lack of irrigation), poor education and large families.

Table 3.3: Breakdown of sample households by poverty levels.

	No. of sample hhs.	**Very Poor** (%) (IG 1 & 2)	**Poor** (%) (IG 1, 2, 3)	**Non-Poor** (%) (IG 4 & 5)
Matopo	198	70.7	85.9	14.1
Chivi	199	66.3	81.9	18.1
Gutu	196	67.9	83.7	16.3

Source: Dataset analysis.

3.5 Climate.

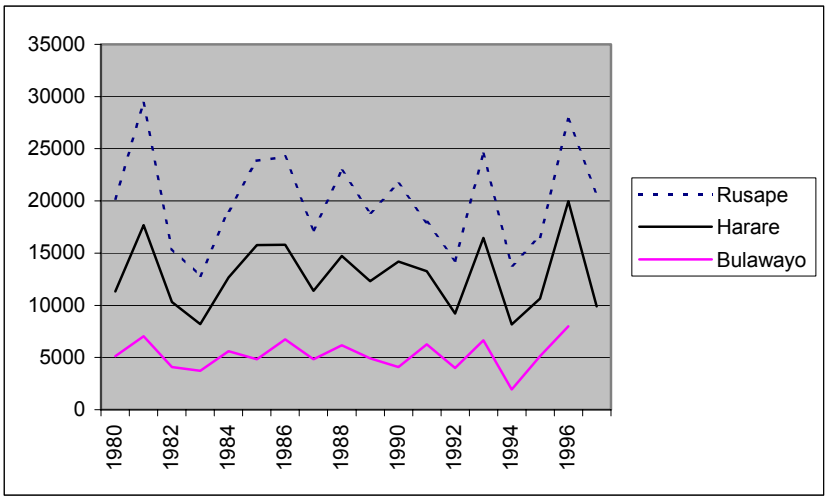
The historian, Beach (1977) suggests that drought and disaster (*shangwa* or *nzara*) are key to understanding Zimbabwe's history. Certainly, pre-colonial Zimbabwe experienced frequent droughts and food shortages, but famine and mortality were experienced only during times of violence (Iliffe, 1990). Rainfall statistics suggest that the Shona suffered drought in roughly one year in five (Iliffe 1990:13). Periodic drought is thus a feature of the climate of Zimbabwe, for which traditional coping mechanisms had been adequate up to the early decades of the twentieth century. Social and economic changes during the colonial period, including particularly population growth and land distribution, reduced the effectiveness of these coping mechanisms. In the 1930s and 1940s colonial relief systems overlaid the traditional mechanisms, but it was only in the 1960s when direct government drought relief was provided for the first time (Iliffe, 1990).

Since independence, periodic droughts have continued to be experienced. Figure 4.7 shows the total annual rainfall from selected rainfall stations in Zimbabwe from 1980 to 1997.

Average annual rainfall of 538 mm was recorded over the fourteen years to 1995. This is more than 10 percent below the "normal" long term average of 603 mm. In six of the fourteen years - the drought years - average rainfall fell more than 20 percent below the long term average. In 1991/92, the worst year ever, average rainfall was 45 percent

lower than the long term average. In 1994/95, average rainfall was about 30 percent below the long term average.

Figure 3.5: Rainfall from Selected Rainfall Stations in Zimbabwe



The 1991-92 drought was one of the worst experienced in Zimbabwe during the twentieth century, and struck just as structural adjustment was beginning to bite. Most areas produced no crop and livestock populations were wiped out. The economy reeled as commercial agriculture (normally contributing 40% to exports) and water dependent industries shut down (Benson and Clay 1998). The drought was widespread, affecting not only sub-Saharan Africa, but grain producing economies as far away as the Ukraine. This sent the price of imported grain up, and the bill for drought relief and food import soared. The subsequent recovery of agriculture was slowed by a lack of manure and draft power (Cavendish 1998).

Table 3.4: Zimbabwe's drought years.

Planting / Harvest Year	% Deviation from mean	Severity
1981/82	-21.6	☼☼
1982/83	-74.6	☼☼☼☼☼
1983/84	-30.1	☼☼☼
1985/86	-19.6	☼☼
1988/89	-10.1	☼
1990/91	-31.0	☼☼☼
1991/92	-72.6	☼☼☼☼☼
1995/96	n/a	☼☼

Source: Scoones 1996:165.

It should be noted that the drought of 1982-3 was just as severe as that of 1991/2. It may be that impacts of that earlier drought linger on in the study areas. Indeed, the question of whether the population studied has recovered from the impact of the 1991/2 drought may be misplaced: it may rather be a question of whether, under conditions of recurrent drought, people are able to raise their standard and quality of life. It certainly does not appear that drought is becoming more frequent or severe from this limited evidence.

The rain failure prevalent in the 1980s and '90s was reversed in 1999-2000 when the El Niño brought Cyclone Eline and devastating floods to the region. In Zimbabwe the cyclone and floods damaged buildings, destroyed crops and increased the incidence of certain livestock diseases. This series of shocks has wiped out savings and productive assets, increased peoples' vulnerability and reduced their productivity. The long-run effect has been to create a shift of investment and resource allocation out of high risk, extensive dryland agriculture, towards more secure, intensive, sometimes irrigated farming (Scoones 1997).

However, the recent experience of climatic change around the world (with climatic variations tending toward the extremes) suggests that it may be more appropriate to assume that the Zimbabwe economy will continue to experience frequent weather related exogenous shocks. Zimbabwe will have to cope with substantial water constraints in the years ahead.

3.6. Health.

3.6.1 General Health.

Looking at data from the Chivi District Hospital (2000) we find that (reported) disease load varied signficantly from year to year. The data is broken into three age-group categories, the under fives, the five to fifteen year olds, and adults (over 15s). If we graph the data we find *similar* patterns for each of the age groups[17], so we present the graph only for the adults, below. The quality of this data and how it relates to overall disease patterns is uncertain, so we have not made much of it in subsequent analysis.

We can see from the graph below (Figure 3.6) that illness rates declined from 1994, but that 1997 was a bad year, for acute respiratory infections, in particular (statistics for eye diseases were not available for 1994 – 1996, or for diarrhoea for 1997-1999). This illustrates the variability of health conditions in the study areas.

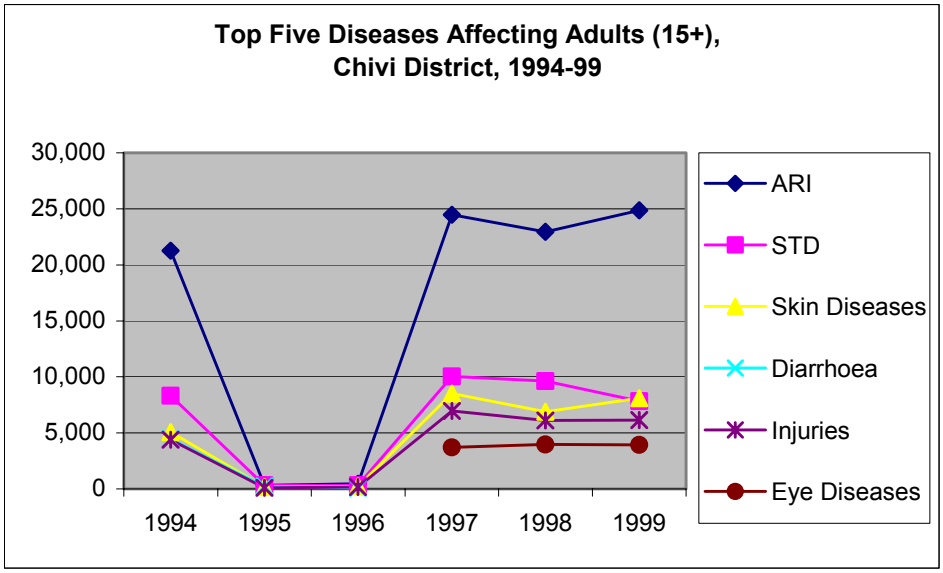
3.6.2 Malnutrition.

Data for malnutrition related illnesses, kwashiorkor and pellagra is presented below for the under fives, 5-14 year olds and over 15s. We see again, that problems were declining away from a high in 1994, presumably belated recovery from the 1991-92

[17] There are differences in ranked importance of the different diseases. Under 5s: ARI (acute respiratory infection); skin diseases, diarrhoea; injuries; nutritional deficiencies; eye disease. 5-14s: ARI; skin diseases, diarrhoea; injuries; bilharzia (schistosomiasis); eye disease. Adults (15+): ARI; STDs (sexually transmitted diseases), skin diseases; diarrhoea; injuries; eye disease.

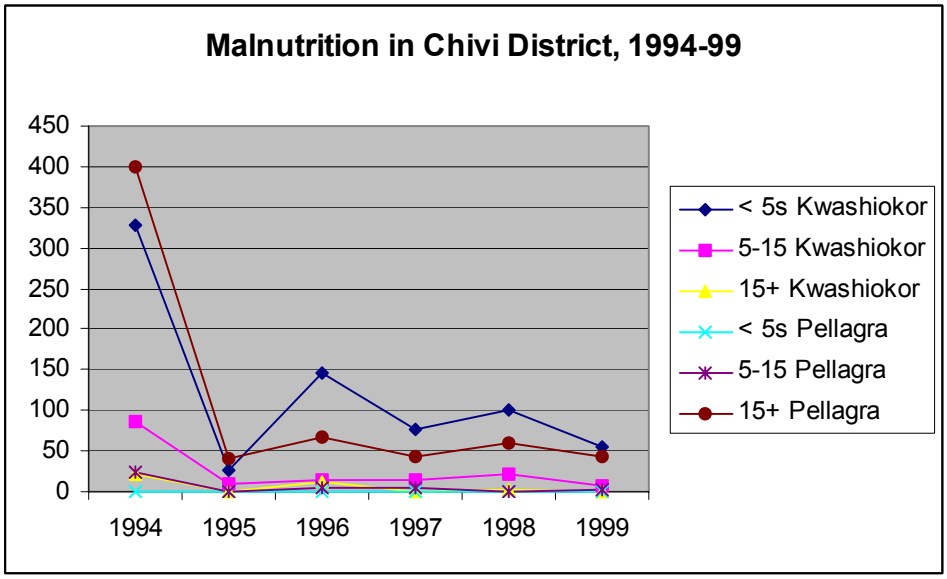
drought, but that there was a slight climb in 1996. There do not appear to have been widespread problems with food security in 1997.

Figure 3.6



Source: Chivi District Hospital, 2000.

Fig 3.7



Source: Chivi District Hospital, 2000.

3.6.3. HIV/ AIDS.

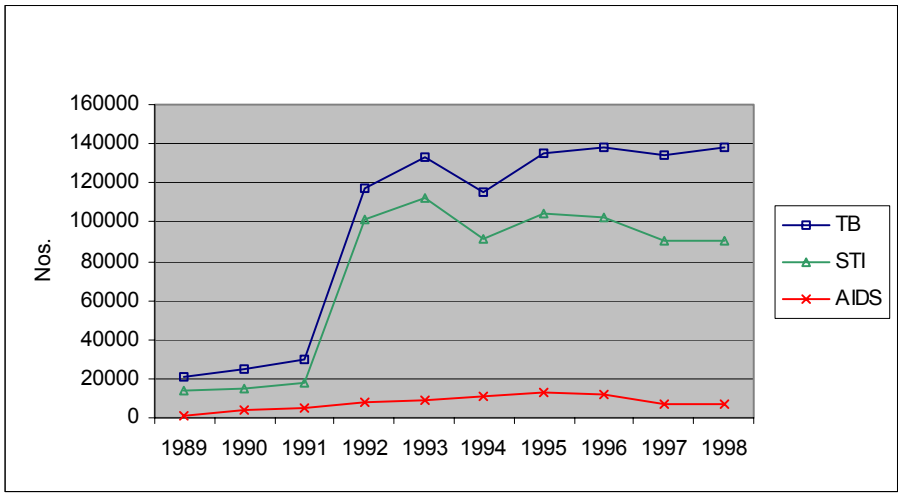
Zimbabwe has one of the highest HIV infection rates in the world (over 25% of adults aged 15-45 are infected). At the end of 1999, between 1.2 and 1.8 million adults and children in Zimbabwe were living with HIV/AIDS, and the cumulative number of AIDS orphans had reached 900,000.

The distribution of cases is bimodal affecting sexually active adults (age 20-39) and the very young (age 0-4) in a 1:1 male: female ratio. Among adolescents (age 15-19), however, the incidence among young women is six times higher than amongst their male counterparts (Munodawafa and Gwede 1996).

Each week, there are now an estimated 2,400 AIDS deaths (HIV InSite, 2001). AIDS is now resulting in considerable proportion of the deaths amongst the productive age-group (15 to 64 years) in Zimbabwe. A phenomenal 73% of the deaths each year will be due to AIDS and AIDS related diseases (UNDP, 1999).

The figure below (Fig. 3.7) shows the available statistics for AIDS and related disease such as TB. Instances of TB can be regarded as a *rough* proxy for AIDS infection rates, and STI infection rates indicate both the prevalence of unsafe sexual practices and the increased exposure of those with STIs to the HIV virus. Due to the stigma surrounding HIV and AIDS there is widespread under-reporting, so the figures here are unlikely to represent the true scale of the problem.

Figure 3.8: AIDS and Related Diseases in Zimbabwe.



source: CSO, 1999.

The segment of the population most affected by HIV/AIDS is the 15-35 years age group. This is the most economically active group constituting the bread- winners for most families. Many in this group are married with one to three children. They look after their families and their elderly parents. The steady loss of this section of the population has resulted in many families becoming near destitute. Before too long the surviving spouse succumbs to the disease and dies leaving the children with no one to look after them. In

commercial farming areas children form child-headed households and join the labour force to try and feed the rest of the siblings.

In communal areas relatives, commonly the grandparents, absorb the orphans into their household. These elderly people often need to be taken care of themselves, but now see a future of hard physical labour in order to secure the food security of the household and pay for the children's medical and school fees. The demand on children's labour for domestic chores and income generation to meet treatment and funeral costs is very high (ITDG, 2001), and some of the children, frequently girl children drop out of from school to participate actively in looking after the other children. Where orphans are absorbed into large households they may find that they do not receive the same level of resources (spending on education, health and nutrition) as other children in the household. This intra-household differentiation can lead to hidden cases of extreme poverty, and is an indication of the extended family network becoming overburdened and failing to cope.

Women bear the brunt of taking care of the sick along with other reproductive tasks. Traditionally, women in Zimbabwe also carry out activities to augment family incomes. Illness in the home places new demands on household resources and reduces the time available to spend on income generating activities further reducing household income (ITDG, 2001).

The most immediate problem of AIDS-affected households is not necessarily medical treatment and drugs but food and malnutrition. The Commercial Farmer's Union (CFU) estimates that the HIV/AIDS epidemic contributed to a 61% fall in maize output 47% in cotton and 49% in the 1998/99 season.

Zimbabwe has yet to tackle the AIDS pandemic head-on, and neither politicians nor the general public are comfortable discussing either the causes of AIDS or the social and economic impacts. For the families involved, AIDS-related illnesses are already causing profound misery. AIDS not only removes an active worker from the household, but absorbs a huge amount of household labour caring for the long-term sick and has additional healthcare, funeral and childcare costs which can bankrupt a family and those left to care for the dependants. The asset-stripping of widows and orphans[18], and the overburdening of kinship networks, are signs of social capital being overwhelmed, and the economic and emotional losses of the affected households are immeasurable. Unfortunately, there are indications that the worst is still to come.

3.7. Environment.

3.7.1. Land degradation

Natural resource (NR) based activities provide the foundation of livelihoods for the majority of rural households in Zimbabwe. As we have seen, 75% of Zimbabweans are directly dependent on the land, and the linkages into the rural economy mean that declines in the productivity of agricultural and other NR-based livelihoods will have

[18] Where relatives descend on the recently bereaved widow or children and evict them from their home and land, often taking all the assets accumulated over the lifetime of the household, including cooking pots and implements.

negative up and downsteam impacts. As a result the environmental degradation occuring in Zimbabwe is of great concern.

The main processes of land degradation in Zimbabwe are deforestation, overgrazing and soil erosion.

Some of the soil erosion is due to population pressure, partly due to natural increase and partly due to the pressure caused by return migrants, retrenched from urban sector employment. 'The increasing number of [rural] households has resulted in arable land being parcelled into smaller and smaller units. Farmers are inevitably forced to cultivate on slopes prone to soil erosion. Many of the peasant farmers in communal areas do not have adequate resources and/or knowledge and skills to manage arable lands that have been cultivated over many generations and have progressively deteriorated' (ODA, 1992: 5).

Poor quality herds, overstocking, the deterioration of grazing lands and the development of gullies in grazing areas has resulted from failures in the management of common tenure systems of grazing lands, and the importance attached to animals for savings and other uses.

3.7.2. Soil erosion.

In 1985, it was estimated that 4.7% of Zimbabwe's land was eroded. "(P)opulation pressure on marginal lands was so intense that up to 50% of the country's fragile ecological regions had suffered irreversible erosion damage" (ODA, 1992).

Table 3.5: The Extent of Soil Erosion.

Erosion Class	Communal (%)	Commercial (%)	Other (%)	Total (%)
No erosion	7.2%	14.7%	55.4%	17.2%
Very little	29.7	64.7	40.5	45.7
Little	20.3	15.9	3.2	16.0
Moderate	19.6	3.4	0.6	10.2
Extensive	11.3	1.2	0.3	5.6
Very extensive	11.9	0.1	0.0	5.3

source: Moyo 1991: 75.

3.7.3. Deforestation.

Woodland cover in Zimbabwe is reduced annually by 1.5%. Woodland stocks in communal areas declined by 50% over the 15 years from 1963 to 1978, and have probably declined at the same rate since (ODA, 1992). Land clearance for agriculture is the primary cause of deforestation, claiming 70,000 to 100,000 hectares a year. Secondary is fuelwood.

Table 3.6: Forest Resources (1980-1995).

Total Forest ('000s hectares)		Annual Change (%)		*Natural* Forest ('000s hectares)		Annual Change (%)	
1990	**1995**	**1980-90**	**1990-95**	**1990**	**1995**	**1980-90**	**1990-95**
8,960	8,710	-0.7	-0.6	8,876	8,626	-0.7	-0.6

Source: African Development Indicator (World Bank).

3.8 Socio-political issues.

Zimbabwe's involvement in the war in the Democratic Republic of Congo and the highly emotional and unsystematic way the 'Land Question' is being addressed has worsened macro-economic performance and led to serious governance issues.

Economic deterioration as a result of continued government deficits, unscheduled payments to war veterans and the cost of military involvement in the Democratic Republic of Congo has undermined many of the hard won gains of the first half of the decade. Nevertheless, the negative impacts of structural adjustment need to be placed into context alongside other shocks in Zimbabwe, and some researchers claim that negative long run effects of the 1991-92 drought have been much more profound (Cavendish, 1999).

[19] Zimbabwe's position in the Human Development Index (HDI) rank has dropped from 52 in 1990 to 108 in 1992, 129 in 1997 and 130 in 2000 (UNDP, 1990, 1992, 1997 and 2000).
[20] Where relatives descend on the recently bereaved widow or children and evict them from their home and land, often taking all the assets accumulated over the lifetime of the household, including cooking pots and implements.

4. Correlates of poverty in semi-arid areas (1997-98): income.

The static analysis of correlates of poverty in the semi-arid study districts in 1997-98 is split between three chapters. Chapter 4 provides some summary insights into the study districts and introduces issues of income disparity. Chapter 5 proceeds to discuss assets, and Chapter 6 presents information concerning the livelihood activities pursued by households in the study districts in 1997-98.

4.1. Differences between the study districts.

This section provides a summary of our findings from the static analysis of 1998 regarding the differences between the semi-arid districts in this study, Chivi, Gutu and Matopo.

- Mean **income** figures in 1998 showed Matopo to be the poorest of the three districts, despite its proximity to Bulawayo. Gutu is the richest, but there was substantial income differentiation in all three districts.
- 86% of households in Matopo were **below the poverty line** in 1998, 84% in Gutu and 83% in Chivi. Matopo had more very poor households (97 households were in IG 1, compared with 61 in Chivi and 46 in Gutu) and fewer non poor (28 households in IGs 4 and 5, compared with 36 in Chivi and 32 in Gutu).
- Matopo's mean income figures were dragged down by the high numbers of households in IG 1. Despite this, households in Matopo obtained **higher mean incomes** in all income groups than those in Chivi or Gutu. This was particularly true in IG 5, where the mean income was Z$ 65,777.
- There are more **women headed households** in Chivi and Gutu than in Matopo. This is possibly due to the proximity of Bulawayo to Matopo, and the higher effectiveness of markets reducing the need for migration for work by male heads of household.
- In terms of **household size**, there are more small households (1-3 members) in Gutu, and more large households (9-13, and 14+) in Matopo.
- More households in Gutu are reliant on **wage income** than in either Matopo or Chivi.
- More households in Matopo obtain **remittances** than in Chivi or Gutu, and they tend to receive larger amounts.
- **Subsistence** appears to have been slightly less important in Matopo, where households sold a higher proportion of their agricultural output.
- The **value of retained output** was highest in Chivi and lowest in Gutu.
- Households in Matopo appear to be more **linked into markets**.
- Households in Matopo obtained higher mean incomes from **sold crop output** than households in the other two districts, but **livestock sales** appeared to be of less importance (interestingly, as Matopo is traditionally a cattle herding area)
- **Labour constraints in agriculture** were more severe in Matopo, caused predominantly by outmigration.
- **Illness** was the primary cause of labour constraint in Chivi.
- Use of **child labour** (< 12s) in agriculture was more widespread in Matopo (72% of households) than in the other two districts (Chivi, 52%, and Gutu, 42%).

- Heads of household in Matopo were slightly less likely to have no **education** and were more likely to have obtained their Junior Certificate.
- Households in Chivi were more likely to have received **formal agricultural training**, but informal agricultural training was more common in Matopo.
- In terms of **social capital**, many more households in Matopo had membership of the ZFU (Zimbabwe Farmer's Union) and Farmer's Groups, but membership of traditional associations (humwe, dhara and ndomba) were more common in Chivi.
- **In-kind payments for labour** were least common in Chivi and most common in Matopo, which is interesting considering other indicators showing better development of markets in Matopo.
- **Hiring livestock** was more common in Matopo (42 households) than in Chivi (4) and Gutu (30)
- **Hiring implements** was less common in Matopo (120 households), than in Chivi (138) and Gutu (151).
- Matopo appears to have a more developed **wage economy**, as more households gain their livelihoods from wage income alone. The district also has fewer households claiming **farming** as their main livelihood activity, but above average numbers involved in **construction**. Gutu is a predominantly agricultural district.
- **Enterprise development** in Matopo was being stimulated by **investment** both by 'outsiders' and also 'ordinary people'. This is in comparison to investments in enterprise in Gutu which were made by wealthy local households.
- Fewer households in Matopo received **government grain loans** than in Gutu or Chivi. The grain loans were larger in Chivi and fewer were repaid.

4.2. Income.

Analysis of the dataset shows that household incomes in the three semi arid study areas (in Gutu, Chivi and Matopo) are low, and that poverty is widespread. The mean per capita income (adjusted for adult equivalence) for the sample as a whole for 1998 was Z$ 1,235. The mean income figures for in each of the three districts are below the Zimbabwe poverty line of Z$ 1,924[21]. Gutu had a mean per capita income of Z$ 1,343; Chivi, Z$ 1,353 and Matopo, Z$ 1,011[22]. Median values showed Matopo to be the poorest of the three districts, despite its proximity to Bulawayo, and Gutu the richest, but there was substantial income differentiation in all three areas, and the mean figures masked the depth of poverty experienced by many households.

In order to understand the differentiation within districts better we have divided the households in the dataset into five income groups, based on per capita (adult equivalent) income, as described in Section 2.9 above.

Only the households in Income Groups (IGs) 4 and 5 were above the poverty line in 1998. These amounted to just over 16% of households in the sample. Households are

[21] The Total Consumption (TC) poverty line is Z$1,924 and the food poverty line is Z$ 1,180.
[22] See above for a presentation of the method used for calculating household income, and for presenting per capita income, by adult equivalence. Note that income figures include agricultural produce retained for home consumption.

predominantly very poor, with nearly 70% in the bottom two income groups.

Looking for differences between the three districts we find that comparable proportions of households are below the poverty line in each of the districts (Gutu, 84%; Chivi 83% and Matopo 86%), but that higher proportion of households in Matopo were in IG 1 (49%) and fewer were in IG 5 (1.5%). Gutu appeared to be slightly better off, with proportionately more households in IGs 2 and 3 (see Table 4.1, below).

Table 4.1: Adult Equivalent Income Groups, by District.

			district			
			Gutu	Chivi	Matopo	Total
Adult Equivalent Income Group	1.00	Count	46	61	97	204
		Row %	22.5%	29.9%	47.5%	100.0%
		Col %	23.5%	30.7%	49.0%	34.4%
	2.00	Count	87	71	43	201
		Row %	43.3%	35.3%	21.4%	100.0%
		Col %	44.4%	35.7%	21.7%	33.9%
	3.00	Count	31	31	30	92
		Row %	33.7%	33.7%	32.6%	100.0%
		Col %	15.8%	15.6%	15.2%	15.5%
	4.00	Count	24	27	25	76
		Row %	31.6%	35.5%	32.9%	100.0%
		Col %	12.2%	13.6%	12.6%	12.8%
	5.00	Count	8	9	3	20
		Row %	40.0%	45.0%	15.0%	100.0%
		Col %	4.1%	4.5%	1.5%	3.4%
Total	Count		196	199	198	593
	Row %		33.1%	33.6%	33.4%	100.0%
	Col %		100.0%	100.0%	100.0%	100.0%

4.2.2. Sources of Income.

As we showed in Section 2.9, *Grand Total Household Income* is derived from the eight income streams recognised in the database[23]:

i. Retained output
ii. Sold output
iii. Sold livestock
iv. Livestock loaned out
v. Implements loaned out
vi. Wage income
vii. Other income sources[24]
viii. Remittances

[23] The values of several streams were taken directly from answers to specific questions in the questionnaire. Other values are calculated using either or both answers to questions or local knowledge of values.
[24] E.g. trading, construction, non-farm income.

Table 4.2: Contribution of key income components to household income, by District (%).

Component (as % of total income)	District	Mean	Median	Average (Top 5 hhs)[25]	Average (Bottom 5 hhs)[26]
Wage Income	Gutu	16.23	0	89.56	0
	Chivi	11.46	0	89.48	0
	Matopo	16.61	0	89.94	0
Remittances	Gutu	5.62	0	41.19	0
	Chivi	6.94	0	60.66	0
	Matopo	12.28	0	83.61	0
Non-Farm income	Gutu	31.77	28.29	87.32	0
	Chivi	28.11	20.45	89.13	0
	Matopo	28.80	14.84	90.23	0
Sold Livestock	Gutu	3.60	0	51.01	0
	Chivi	5.41	0	59.95	0
	Matopo	3.03	0	40.46	0
Sold Ag. Output	Gutu	6.10	2.41	32.05	0
	Chivi	8.07	1.47	43.15	0
	Matopo	10.78	0	65.75	0
Retained Ag. Output*	Gutu	35.05	31.61	80.81	5.24
	Chivi	39.38	38.64	87.34	4.47
	Matopo	25.56	21.92	71.60	0.70

(*See commentary on Retained Agricultural Output in section 4.2 for a discussion of the 'extreme values' shown in this table.)

Not all households had income from each of the eight sources in 1998. Looking at the charts below we see that the most common income stream was 'Retained Output': all but four of the 591 households for whom we have income data have this as one of their income sources. Additional to this non-cash income stream were various agricultural and non-agricultural cash streams. Although the sale of (crop) output provided a stream of income for almost 50% of households, its average share of the Grand Total Household Income (20%) for the relevant households is less than the contribution of livestock sales to those 87 households that sell livestock. The loaning out of Livestock and Implements creates relatively small income streams for those households involved.

Over half the households in the sample obtained 'other non-farm income' in 1998. This was derived from a wide variety of activities (see Livelihood Portfolios in Chapter 6). 'Wage Income' was obtained by 18% of all households but for such households it made up a significant portion of their total household income (almost 60%). One third of the total number of households relied on remittances for approximately one third of their total income.

[25] These figures the average of *'extreme values'* within the dataset. The *top* five entries of household income derived *from each income source* have been averaged, and are presented here.

[26] These figures the average of *'extreme values'* within the dataset. The *bottom* five entries of household income derived *from each income source* have been averaged, and are presented here.

Fig 4.1

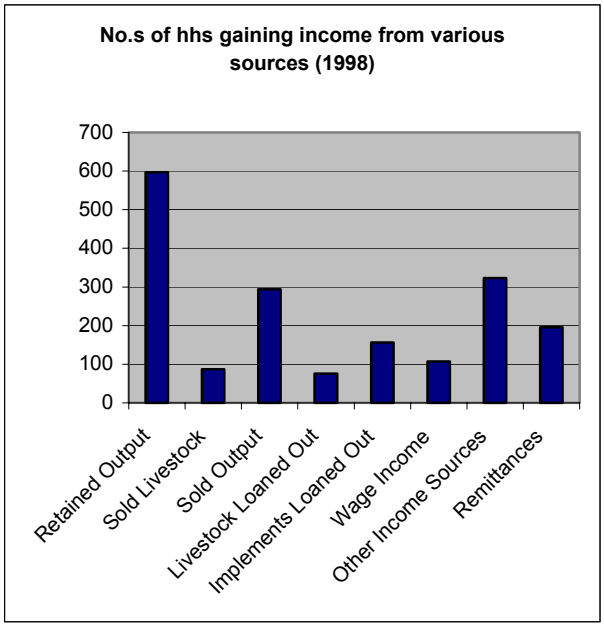
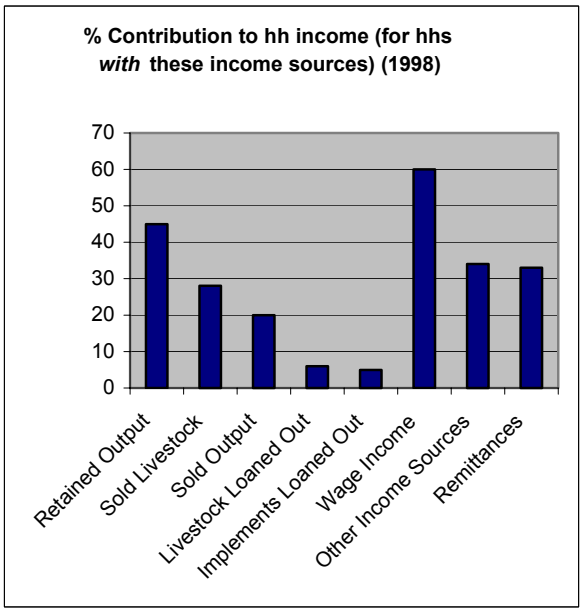


Fig 4.2



4.2.3. Income Differentials.

We found a striking degree of income differential (see Table 4.3). On average, households in IG 1 are more than 20 times poorer than households in IG 5. Households in Matopo obtained higher mean incomes in all income groups, and a noticeably higher mean income for IG 5 of Z$ 65,777, but the district contains the highest number of very poor households (97 in IG 1, compared with 61 in Chivi and 46 in Gutu) and the lowest number of non-poor households (28 in IG 4 and 5, compared with 36 in Chivi and 32 in Gutu).

Table 4.3: Mean Grand Total Household Income in 1998, by IG and District.

Income Group		Gutu	Chivi	Matopo	Total
1	*Count*	46	61	97	204
	Mean	1,584	1,811	1,659	1,688
2	*Count*	87	71	43	201
	Mean	3,791	4,273	4,797	4,176
3	*Count*	31	31	30	92
	Mean	6,205	7,960	8,091	7,310
4	*Count*	24	27	25	76
	Mean	14,835	11,527	17,143	14,419
5	*Count*	8	9	3	20
	Mean	32,061	39,235	65,777	40
Total	*Count*	196	199	198	593
	Mean	6,161	6,611	6,242	6,339

Fig 4.3

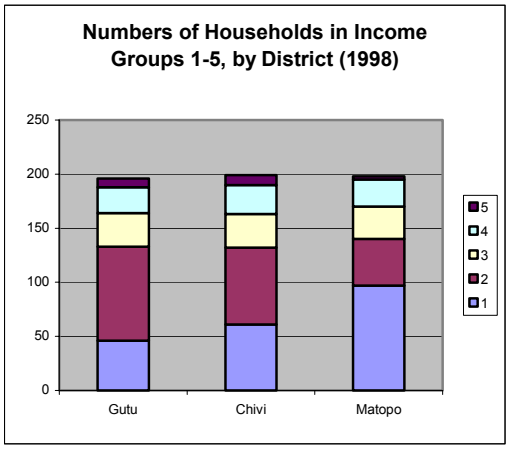
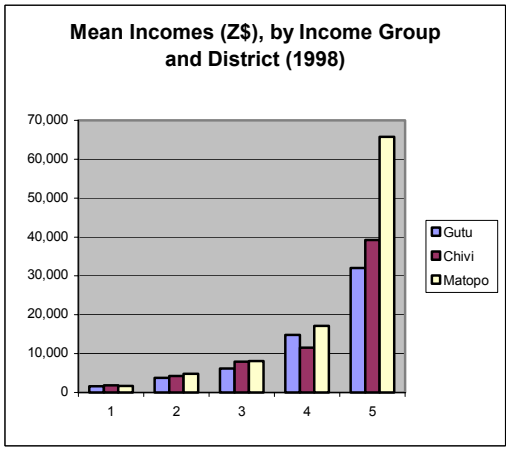


Fig 4.4.



4.2.4. Analysis of Income Sources by Income Group and District.

In this section we present data on the income sources of households, differentiated by income group and district.

Table 4.4, below, shows:

- the number of households in each income group
- the mean total household income for that income group
- the number of households gaining income from the *most important* of the six (of eight) sources
- the mean household income derived from that source, and
- the % contribution of that source to total household income (for households with a value >0).

In the sections below, we present analysis for each of the six income sources shown in the table above.

4.2.5. Wage Income.

The more wealthy a household, the more likely it was to earn substantial amounts of wage income, and for that income to make a significant contribution to total household income. While only 3% of the poorest households earned wage income, this rose to nearly half of all households in IG 4 and 95% of households in IG 5 (see Table 4.4 below). There is a striking variation in mean income derived from wages, a larger proportion of households in income groups 4 and 5 earn substantial amounts of wage income, and it makes up a larger share of their total household income. Larger numbers of households in Gutu are reliant on wage income than in either Chivi or Matopo, but mean incomes are lower (see Fig 4.6, below).

Table 4.4: Households reporting income from a range of sources.

	IG 1	IG 2	IG 3	IG 4	IG 5	Average
H'hs (numbers)	204	201	92	76	20	--
Mean total h'h income (Z$)	1,688	4,176	7,310	14,419	40,346	6,339
Non –farm income sources						
Wage Income (%)	**3**	**8**		**49**	**95**	**37**
% contribution to total hh income (mean)	43	45	57	60	83	60
Mean income (Z$)	1,057	2,461	4,649	10,614	35,069	11,531
Remittances (cash and in kind) (%)	**21**	**35**	**50**	**45**	**20**	**34**
% contribution to total hh income (mean)	35	30	30	26	10	30
Mean income (Z$)	757	1,232	2,026	2,909	6,638	1,713
Other non-farm income (%)		**67**	**67**	**61**	**30**	**52**
% contribution to total hh income (mean)	43	34	31	28	10	34
Mean income (Z$)	756	1,315	2,087	4,075	2,702	1,759
Natural Resource/ Farm Based Income Sources						
Retained Ag. Output	**99**	**100**	**100**	**99**	**100**	**100**
% contribution to total hh income (mean)	66	44	29	22	8	45
Mean income (Z$)	1,013	1,733	2,021	2,517	2,506	1,658
Sold Ag. Output	**24**	**59**	**65**	**68**	**70**	**57**
% contribution to total hh income (mean)	25	20	19	19	17	20
Mean income (Z$)	546	951	1,408	2,971	2,666	1414
Livestock Sales	**4**	**19**	**21**	**25**	**10**	**16**
% contribution to total hh income (mean)	33	27	29	24	14	28
Mean income (Z$)	860	1,585	2,416	3,157	3,885	2,096

Fig 4.5

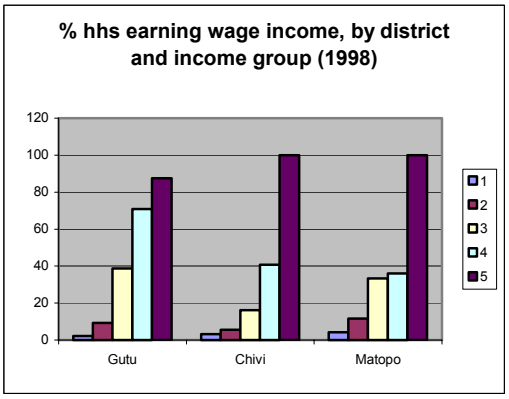
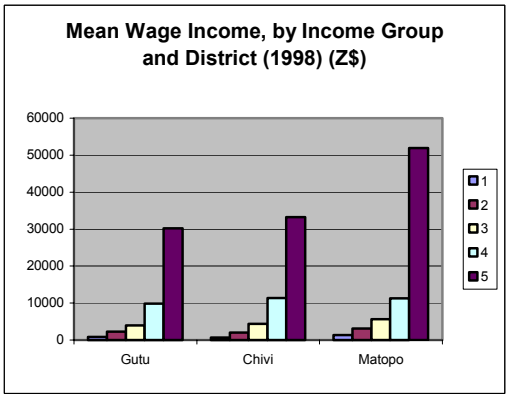


Fig 4.6



4.2.6. Remittances.

Mean incomes from remittances are higher for households in higher income groups. Members of non-poor households are likely to have better social and human capital and so more able to access well paid urban employment. More households from Matopo, close to Bulawayo, obtain remittances (other than in Income Group 2) than those in either Chivi or Gutu, and they tend to receive larger amounts – strikingly more so in Income Groups 4 and 5 (see Figs 4.7 and 4.8 below). Remittances also make up a more significant proportion of household income.

Fig 4.7

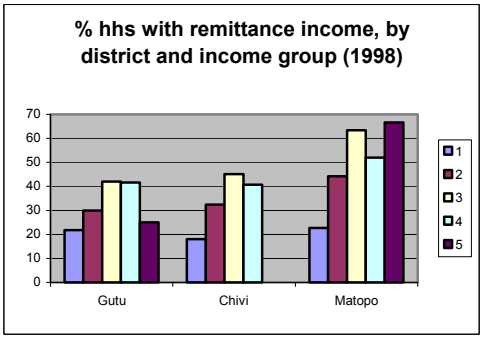
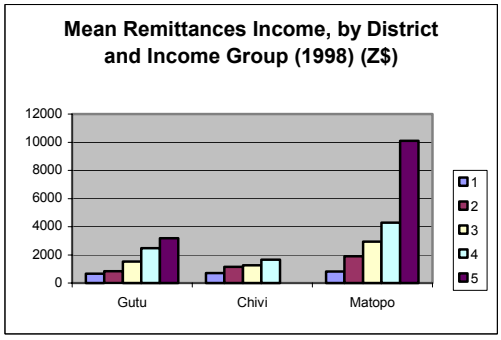


Fig 4.8



4.2.7. Other non-farm income.

We see from the chart below (Fig 4.9) that IGs 2, 3 and 4 commonly gained income from 'other non-farm' sources in all three districts. Fewer IG 1 households had access to this source – which is a combination of remittances and casual labour[27].

[27] Casual labour and/ or remittances were combined together because there were few households with only casual labour or only remittances as a source of income, but several with both (see Table 2.9 for an indication of other combined livelihoods).

Fig 4.9.

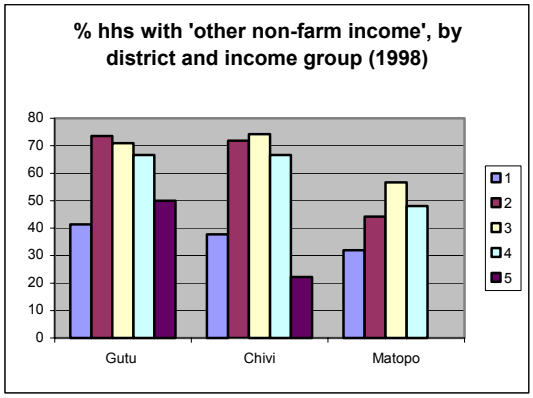


Fig 4.10.

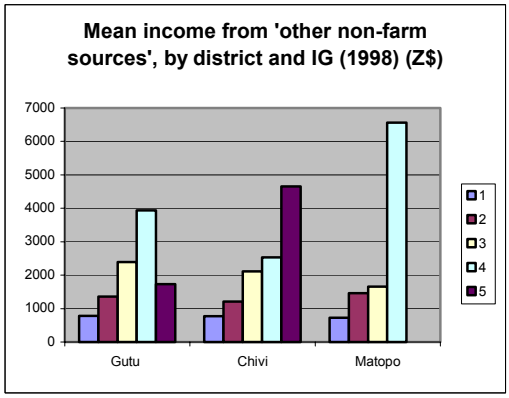


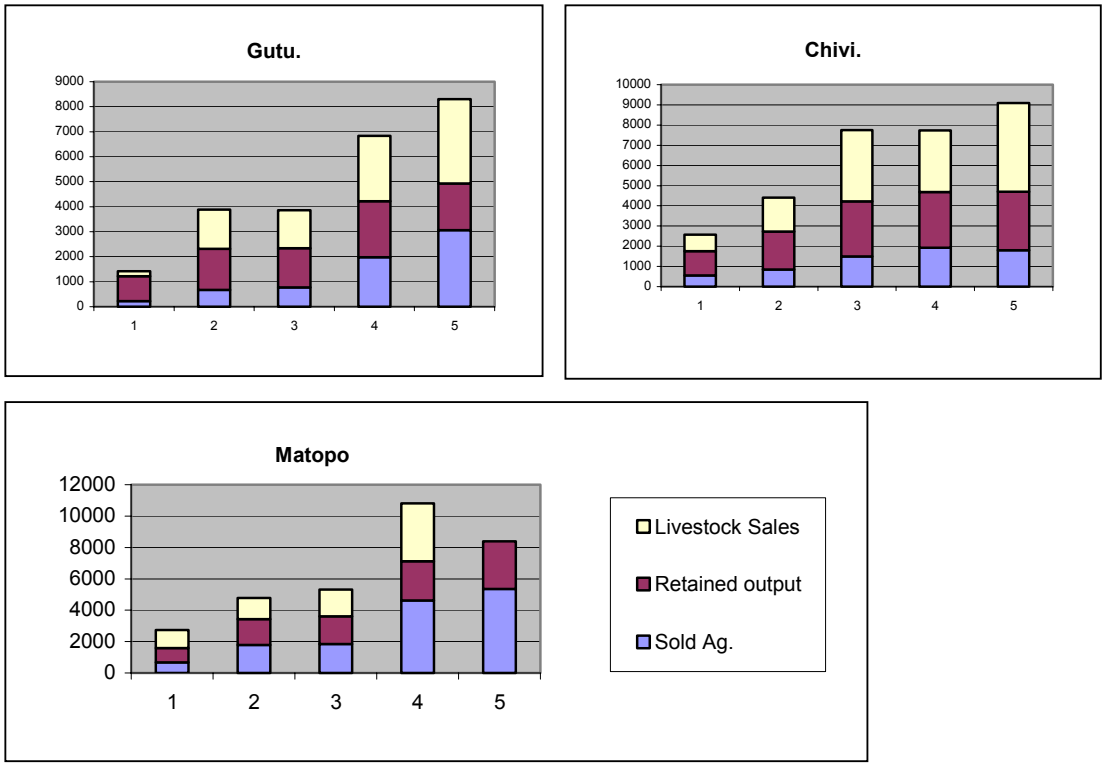
Fig 4.10 above shows that mean income derived from 'other non-farm' sources was higher for IG 4 in Gutu and Matopo and IG 5 in Chivi.

If we take a closer look at remittances we find more households across all income groups in Matopo received remittances in 1998. All income groups in Matopo also obtained higher mean incomes from remittances, perhaps due to their close proximity to Bulawayo.

4.2.8. Agricultural Incomes.

We can see from the charts below (Fig 4.11) that higher income households obtain higher incomes from agriculture, whichever of the three study districts they live in. Sold agricultural output is more important in Matopo, and livestock sales are more significant in Chivi (note different scales).

Fig 4.11: Composition of Ag. Incomes by Income Group and District, 1998.



4.2.8.1. Retained Output.

Markets appear to be weak and thin in the semi-arid communal areas in Zimbabwe. Almost all households, across all three districts and in all income groups retain agricultural produce for home consumption.

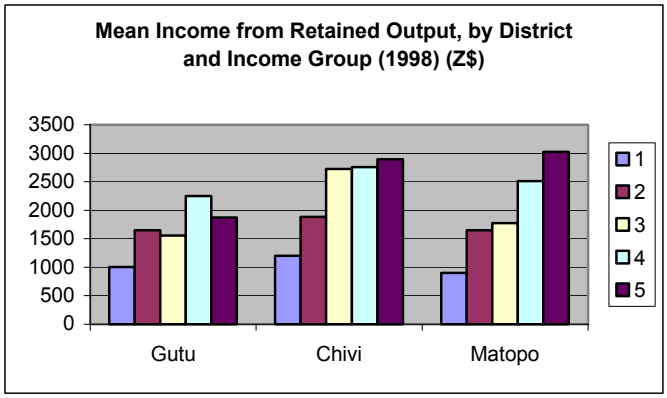
If we look at extreme values in the dataset (see Table 4.2), the five households in each district who derive both the highest and the lowest proportions of their income from retained output, we find that only 3 out of 600 households had no subsistence component to their income. The *minimum* contribution that retained agricultural output made to other households tended to be around 3.5% of total income. At the other extreme, the five households for whom subsistence is most important derive over 70% of their income through subsistence (81% Gutu, 87%, Chivi, and 72% Matopo).

The value of the produce retained does not vary as widely across income groups as for some other income sources, but its importance does vary. When retained agricultural output is converted into a cash income figure, and when the data is disaggregating by district, we find that mean incomes from retained agricultural output were highest in Chivi (except for Income Group 5) and lowest in Gutu. Households in Matopo sold a higher proportion of their agricultural output. In addition, the *value* of the produce retained by higher income groups is greater for the high-income households suggesting, not surprisingly, that they are able to achieve greater food security and consume a higher value diet. The proportion of household income derived from retained output was much

higher for poorer households, with 66% of household income for households in IG 1 derived from retained output dropping to 8% for IG 5. Retained output appears to have been *slightly* less important for households in Matopo than in the other two districts.

These patterns suggest that households in Matopo were more linked into markets than either Chivi or Gutu; that poorer households in all three districts were generally disengaged from agricultural markets, and that the non-poor have diversified livelihoods, including more non-NR activities. This assumption is borne out by the findings presented below.

Fig 4.12:



As we can saw in the charts above (Fig 4.11), sold crop output forms only a part of the farm-related incomes in the study area. Households in Matopo obtained higher mean incomes from sold crop output and it appears that livestock sales were of lesser importance. Even poor households were gaining a higher income.

4.2.8.2. Sold Agricultural Output.

Differentiation between the poor and non-poor households is clear in terms of income from sold agricultural output. Less than a quarter of IG 1 households obtained income from selling their agricultural output, and they gained a mean income of only Z$ 546. This contrasts with the 70% of IG 5 households selling agricultural output, gaining a mean revenue of Z$ 2,666. Clearly richer households are more engaged with markets, and they produce more or higher value agricultural produce. Non-poor households appear to have a greater dependency on livestock than poor households. However, there is no clear pattern across income groups or districts in terms of the proportional share of total household income derived from sold agricultural output. Although wealthier households earn more from their farms, they are not more dependent on this source of income than poorer households.

4.2.8.3. Livestock Sales.

We see that livestock sales are important (in terms of proportions of households in those income groups reliant on this enterprise) for IG 2 in Chivi, IG 3 in Gutu, and IG 4 in

Matopo. Mean income, however, tends to be higher for the non-poor in each of the districts.

Fig 4.13.

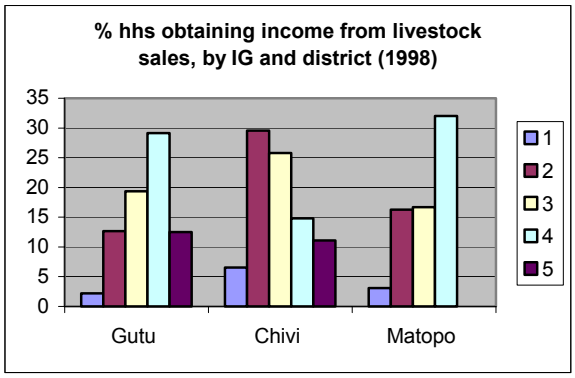
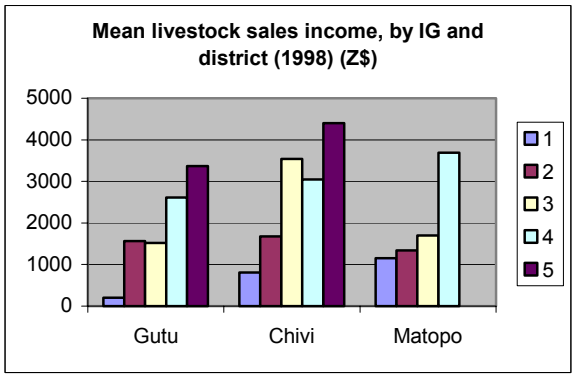


Fig 4.14.



5. Correlates of poverty in semi-arid areas (1997-98): assets and markets.

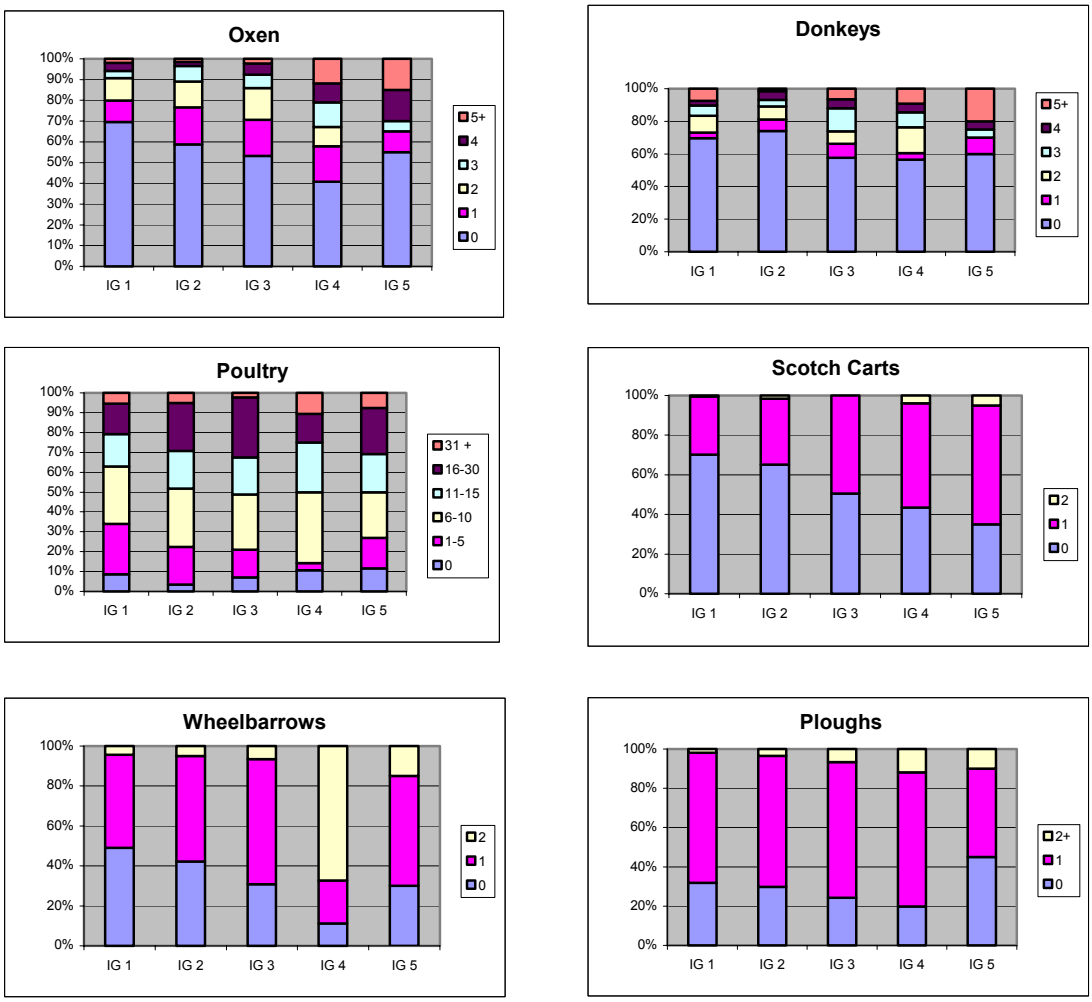
There are various methodological problems with the use of income data for households which are substantially dependent on agriculture, especially where barter and retention of production for home consumption are important. Data on assets therefore provide a useful check on the accuracy of our income groupings.

This chapte reports on agricultural assets, human, social and natural capital by income group, sex of household head and, in places, by livelihood portfolios.

5.2. Agricultural Assets.

The figures below show ownership of key agricultural assets in 1998, by income group. The text below draws out the key issues related to the distribution of these assets. (Asset ownership broken down by sex of household head and livelihood activity is shown below in Figure 5.14, in Section 5.2.2.3.)

Fig 5.1: Key Agricultural Asset Variables, by Income Group (1998).



5.1.1. Oxen Ownership.

Oxen are the most important type of cattle in the study area, as they are crucial for timely draught power, especially ploughing. As we show in Chapter 7 the lack of draught power was a more significant binding constraint in agricultural production than even labour shortages, and could result in households failing to cultivate land that they had control of. Owning oxen is significant in terms of being successful in agriculture and in being able to bounce back from drought (see Chapter 7). In an area where almost no households owned or had access to mechanised ploughs, an astonishing 59% of households in 1998 did not have any oxen and less than a third of households had a viable ploughing unit of two or more oxen.

The patterns of livestock ownership were starkly different between income groups. Less than a third of households in the poorest income group owned any oxen in 1998, compared to nearly half of the richest, and only one in five of the poorest households had a viable ploughing unit (Fig 5.1, 5.2 and 5.3).

Fig 5.2

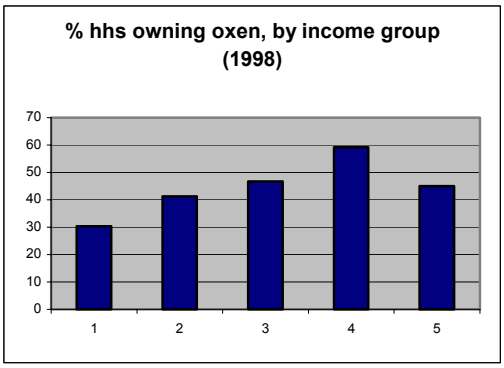
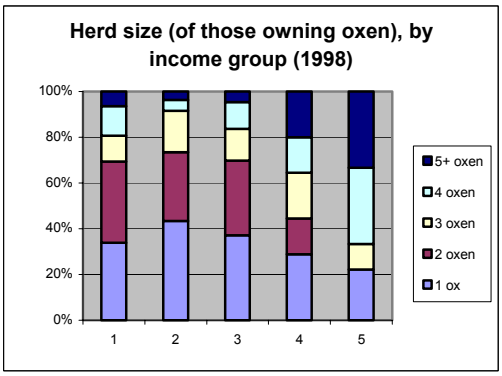


Fig 5.3



Using figures differentiated by district we find that Chivi had the highest number of non-oxen owning households (75%), and Matopo the lowest number (48%). Chivi also had smaller numbers of large livestock owners, with only 4 households owning more than three oxen – compared with 16 households in Gutu and 28 in Matopo.

5.1.2. Donkey Ownership.

Some households may have compensated for a lack of oxen by using donkeys. Donkeys are low status animals, unlike cattle and oxen. They are beasts of burden, and are not culturally associated with saving or the payment of bride-price.

We can see from the table below that donkey ownership was not that common, with 67% of households not owning any donkeys. The relationship between the pattern of ownership and income group is not as clear. IGs 3, 4 and 5 are more likely to own donkeys but of those who own donkeys, their herd size is not strongly related to income group.

Fig 5.4

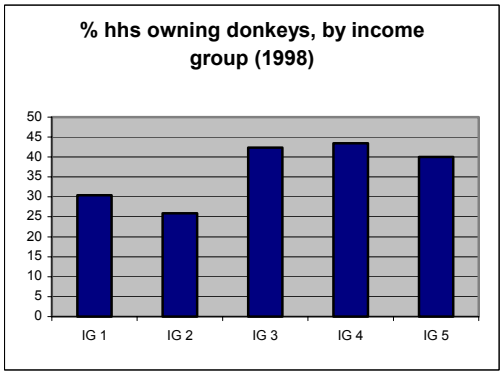
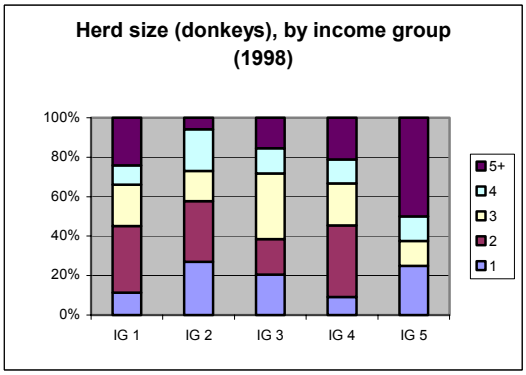


Fig 5.5



5.1.3. Poultry Ownership.

Poultry is important in both household subsistence and in accumulation, as they can be seen as the first step on the ladder of livestock ownership for the poorest families. Poultry ownership in the study areas was widespread in 1998 with only 8% of households having no poultry at all. As we see from the figures below, non-poor households were not more likely to own poultry than the poor. Flock size was also not related to income levels.

Poultry are regarded as being the responsibility of women[28], making it likely that women will be able to control income derived from poultry, and women with access to financial capital may feel able to move into larger scale poultry rearing. However a surprisingly small 3% of semi arid households were found to generate cash income from poultry (but, for some, they were earning significant amounts). So, poultry rearing is largely a subsistence activity.

Fig 5.6

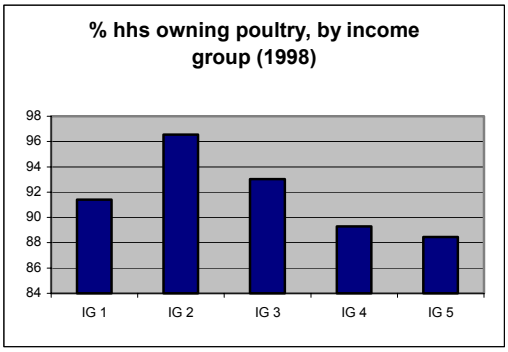
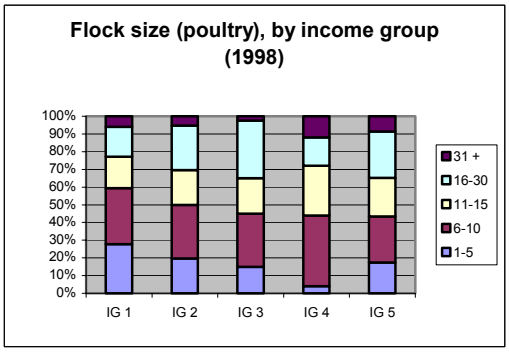


Fig 5.7



5.1.4. Scotch Carts.

Scotch carts are made of either metal or wood, with two small rubber tyres, and are designed to be pulled behind a donkey or ox. Farm households use the carts to fetch and carry both inputs and outputs from farm and non-farm enterprises (e.g. carrying household and non-household labour from place to place; transporting ant hill soil (dug from termite mounds on communal lands), firewood and raw materials for artisan and craft activities; taking maize and other outputs to market etc.). Households without a scotch cart are clearly at a significant disadvantage.

We found that scotch cart ownership is clearly associated with income group (see Fig 5.1 above). The higher the income group a household is in, the more likely they are to own a scotch cart. Over 60% of households in IG 1 and 2 do not own a scotch cart, compared with less than 40% of IG 4 and 5 (some of whom own two).

[28] Male respondents (78% of all respondents) may not have an accurate picture of their household's poultry ownership, so these figures are subject to some error.

Households without a scotch cart will have difficulty accessing markets and obtaining resources from *common properties* and if they cannot borrow a scotch cart or come to a cooperative arrangement with an owner, individuals may have to walk long distances with headloads or carry small volumes of inputs and produce in a wheelbarrow, if they have one.

5.1.5. Wheelbarrows

Over 40% of households in IG 1 and 2 do not own a wheelbarrow. This contrasts with over 60% of IG 4 households owning two. Wheelbarrows are important for transporting goods for households without access to scotch carts.

5.1.6. Ploughs.

Despite the importance of agriculture in the study areas large numbers of households did not own their own plough (IG 1 32%; IG 2 30%; IG 3 24%; IG 4 20% and IG 5 45%). As nearly all households had some involvement in agriculture (although IG 5 households tend to have diversified so that agricultural production is of less importance to them), those without ploughs must have borrowed or hired a plough (and possibly also draught animals and labour) from their neighbours.

5.2. Human Capital

The dataset used in this study has information on a number of dimensions of human capital. It contains quite detailed information on

- labour use and labour shortages
- household structure
- education

However, the configuration of the dataset has made it difficult to analyse the structure of the household or the educational level of household members (other than the household head). The dataset contains some information on morbidity and mortality, but it is quite limited for our purposes.

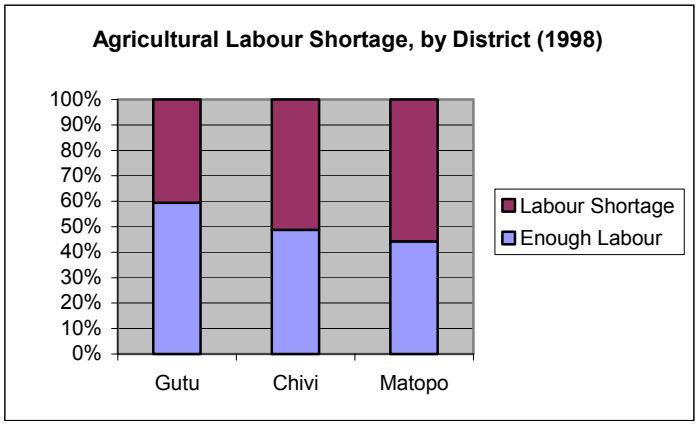
5.2.1. Labour availability and shortage.

The findings presented in this section relate to those presented under *Dependency Ratios* and *Women Headed Households.*

There was clearly a greater labour constraint in Matopo in 1998 for agricultural activity than in the other two districts. This was possibly because there was more diversification into the non-farm sector in Matopo, which drew active labour away from agricultural activities. There was also more use of child labour (under 12) in Matopo, with 72% of households reporting child involvement in productive activities compared with 52% in Chivi and 42% in Gutu. Gutu is a more stagnant economy, with fewer opportunities. It is possible that households have lower expectations and they perceive fewer labour

constraints as a result.

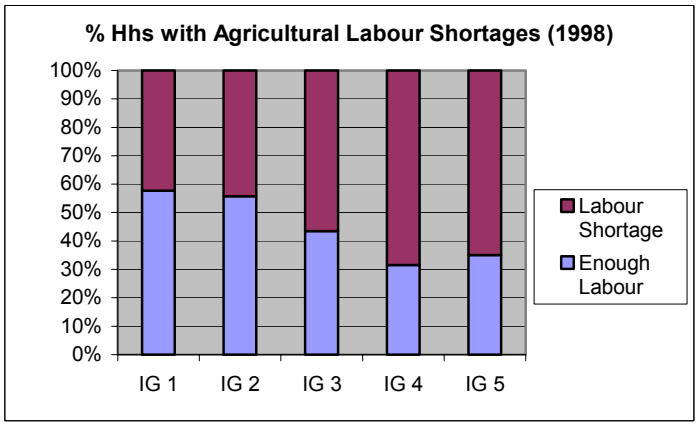
Fig 5.8



Small family size caused problems of labour shortage in all three districts. Out-migration resulted in significant constraints in Matopo and illness caused more problems in Chivi than in the other districts.

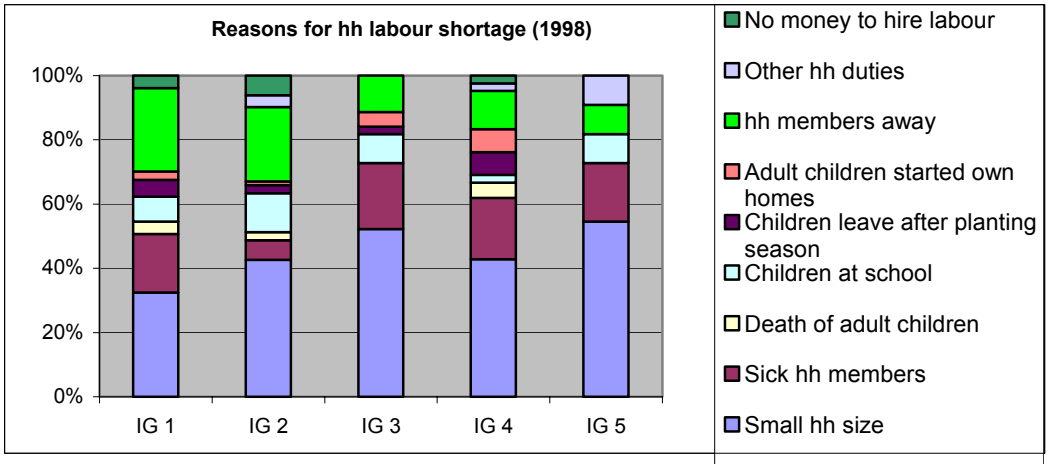
Higher income groups experience a greater household agricultural labour shortage (see Fig 5.9, below). Their households tended to be smaller, explaining the greater perceived shortage, but households in IG 5 were less dependent on agriculture than the poorer households, explaining why the figure of 65% is not even higher.

Fig 5.9.



When we look at the stated causes of these labour constraints we see how important adult children were to households. We also see that, with only 9 households explaining the shortage as being due to limited funds to hire labour, how few households even looked to the market.

Fig. 5.10



Households responded to the problem differently by income group. All of the richest households (IG 5) hired in labour rather than relying on the labour exchange system.

Having your children live long enough to be healthily productive workers is a key determinant of well-being. HIV/AIDS is likely to have a significant impact over time. It will affect the economically active young adults and draw others into caring roles.

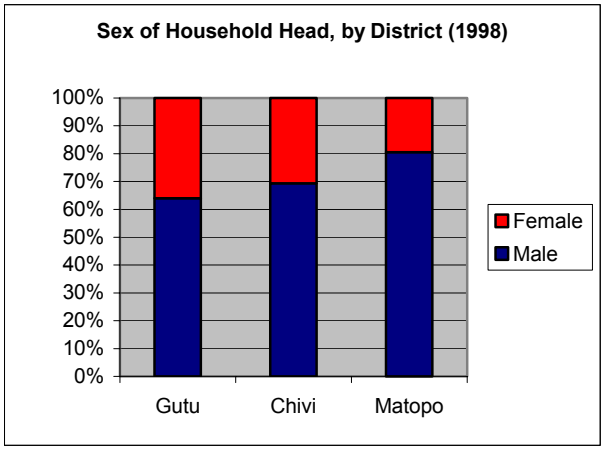
(See Section 5.6.2 and Fig. 5.26 and 5.27, to see the importance of borrowing labour in order to solve labour shortages.)

5.2.2. Household Structure

5.2.2.1. Sex of Household Head.

Our analysis has shown that in 1998 over 30% of households in Gutu and Chivi were *de jure* women-headed, but in Matopo the incidence was much lower. A further 9% of households are *de facto* women-headed.

Fig 5.11



Marriage in rural Zimbabwe is patrilocal, so a woman moves to her husband's area on marriage. This has implications for families' interest to invest in their daughters' education, as they are likely to lose the long-term benefits of that investment. Newly married women, having just moved to her husband's village, must build up the social networks (capital) that are important sources of support for agricultural production and other activities.

Women in Zimbabwe do not traditionally inherit land or property. They generally access land for agricultural production through their father or husband. If a woman is widowed, and she does not have an adult son clearly in line to inherit, she is in danger of losing the land (and other assets) to her husband's family, and being forced to return to her father's house (see Box 5.1, below). If this 'asset stripping' happens she is likely to be allocated - at best - a marginal holding for cultivation. Widow-headed households and other women headed households are therefore more likely to have low incomes (see Fig. 5.13, below), and are likely to be in low return high drudgery activities. However, women without their own fields may be involved in horticulture (gardening) through access to communal garden plots, and if they are able to buy grain inputs, may be able to move into small-scale commercial poultry production. Depending on the human capital in their household, they may also have access to formal sector wage employment.

As in many parts of the world, agricultural tasks in semi-arid Zimbabwe are normally distributed by gender. Fencing, the building kraals, manure collection and livestock care is generally undertaken by men, while water collection, weeding and reproductive tasks are predominantly undertaken by women (see Fig 5.12, below).

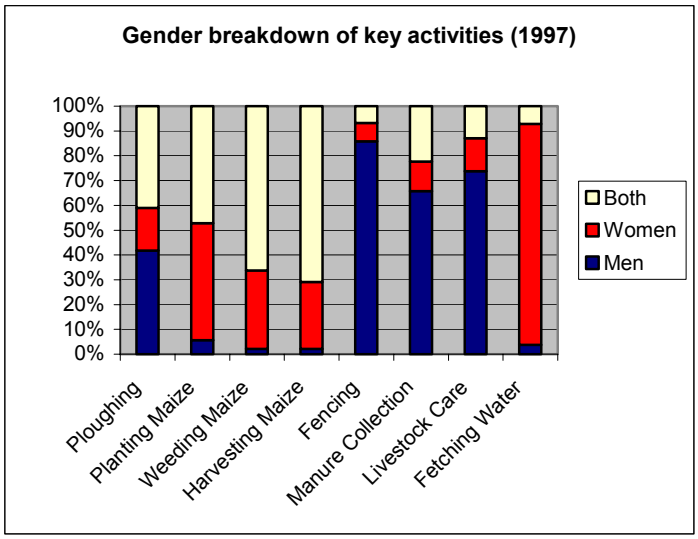
Box 5.1: Death and poverty: the asset stripping of widows.

The death of the male head of household has a significant impact on the household. It can reduce crucial labour inputs making diversification impossible and shifting dependency ratios, it can also result in widows losing access to land and other assets.

In Chivi a young pregnant widow with two young children was stripped of her assets by her husband's family. They 'sent her back to her parents' with the excuse that only part of the labolo (bride price) had been paid and her parents might cause trouble for her in-laws. However, paying only part of the labolo is customary, and is used to symbolise the long-term link and trust between the two families. The young woman lost her house, land and all her livestock, pots, pans, tools and other assets. She returned to her parent's house, where she had her third child. Her father allocated a small portion of his land to her, so she now scratches a living and faces a very uncertain future.

Source: Gap-filling fieldwork, July 2000.

Fig 5.12

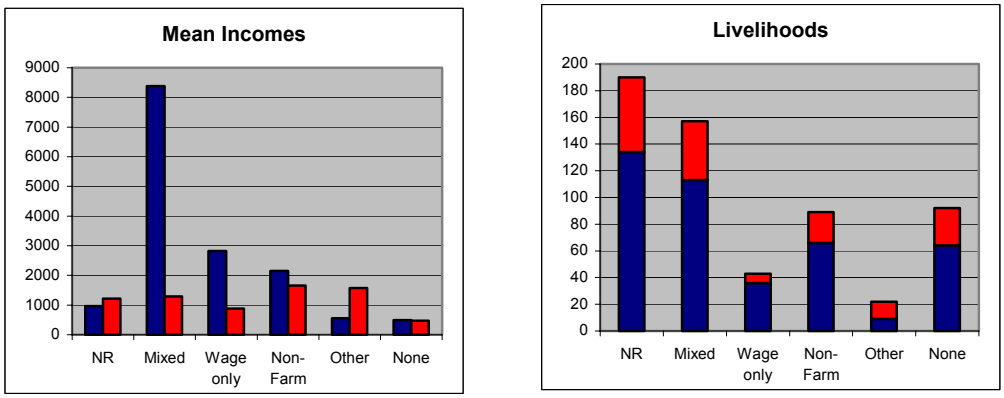


Although many tasks are undertaken jointly, responsibility for household food security seems to rest largely on women. In Chivi we found that key subsistence food crops such as groundnuts, sweet potatoes and the millets are regarded as women's crops and are generally planted, weeded and harvested by women alone (fieldwork interviews, July 2000). And although maize planting, weeding and harvesting are likely to be shared tasks, many women clearly cultivate maize without input from men. Thus, women headed households who have managed to hold onto their land, but contain few adult men, may have better levels of food self sufficiency than households with few productively active adult women (households with few women aged 15-65, or with several small children per adult woman).

A hypothesis for later research is that households without male labour may be more likely to be stuck in subsistence production (unable to harvest more due to labour constraints, less cash for investment in high value ag. production e.g. cotton)

When we differentiate male-headed from female-headed households we see a different pattern. Female-headed households were likely to earn lower incomes than male-headed households if they had mixed livelihood portfolios and if they engaged solely in wage work or non-farm enterprise, but they did better than male-headed households in natural resource based livelihoods and where the household was dependent on remittances or casual labour. [Households which claimed to have no occupation (the 'none' category) clearly have a low income, but they are not necessarily the households with the lowest income.] Male wages tend to be higher, and male household heads tend to be better educated than female household heads.

Fig 5.13: The Livelihoods and Mean Incomes of Male and Female Headed hhs[29].



In most *clusters* of livelihood activities male-headed households had a greater income than women-headed households. However, if we look within these clusters we see that households headed by women tend to do better in all NR-based activities except for households dependent solely on farming (i.e. not mixing crop growing with poultry keeping or gardening). Beer brewing, knitting and petty trade are generally female activities in SSA and, although more male-headed households than women-headed households in the sample claim these activities as their main income source, women-headed households gain higher incomes. Male-headed households depending on remittances and remittances in combination with casual labour do worse than women-

[29] It is possible that the much higher mean incomes for male headed households involved in 'mixed' and 'wage only' activities may be biased by the inclusion of a few high earning graduates, who are probably all male.

headed households, but better in the non-casual wage economy, where education is more of an asset.

5.2.2.2. Asset Ownership and Sex of Household Head.

The charts below show that in 1998, male-headed households generally exceeded female-headed households in the ownership of oxen – a key productive asset. Only female-headed households gaining their livelihoods solely from remittances or casual labour or from a combination of the two (shown in the chart as 'Other') had higher levels of asset ownership across all categories.

Female-headed households in many livelihood activities were more likely than male-headed households to own scotch-carts, and female-headed households gaining wages and, remittance and casual labour were more likely to own ploughs and wheelbarrows. For donkey ownership, female-headed households gaining remittances, casual labour ('Other') or wages were more likely to own more donkeys than their male-headed counterparts.

This suggests the willingness of female heads of households ot build NR related productive assets and the importance of having regular access to cash income, in order to build them.

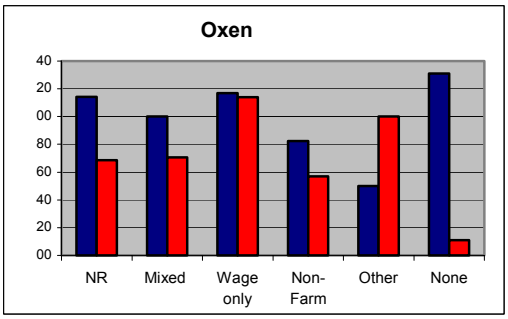
5.2.2.3. Household Size.

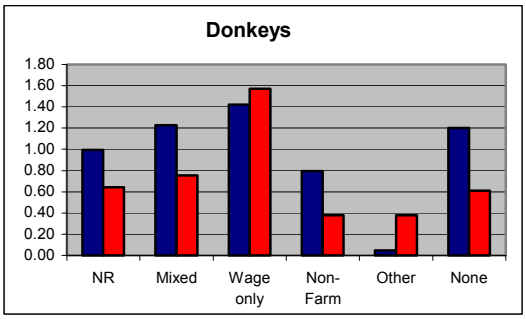
Our analysis showed that smaller households are better off (see Fig 5.15, below). However, due to the importance of agricultural production we would expect larger households – especially those with low dependency ratios – to be better off.

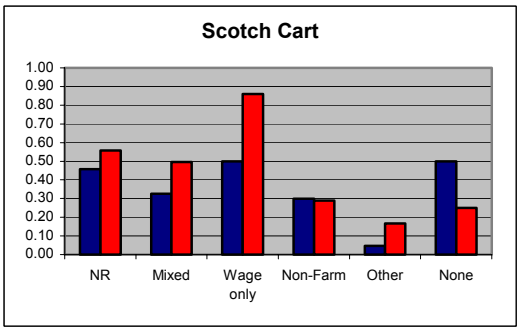
Within the sample of 593 households there are very few single (8) or 2 member (18) households. 61% of households have between 4 and 8 members, but Gutu has more small households (1–3 members) and Matopo more large households (9–13 and 14+)[30]. 74% of households have 2–5 economically active adults, and a third of households in the poorest income group have more than 6 economically active adults. Household structure is not constant across the five income groups: the poorest households tend to be larger but also to have higher proportions of children.

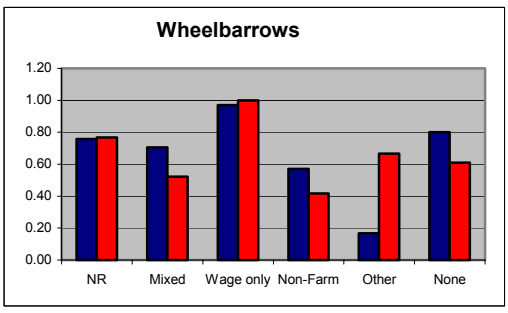
[30] There is a statistically significant association between household size and District, at 95% confidence.

Fig 5.14. Mean Asset Ownership by Main Livelihood Activity and Sex of hh Head (1998).









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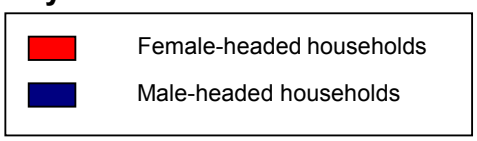
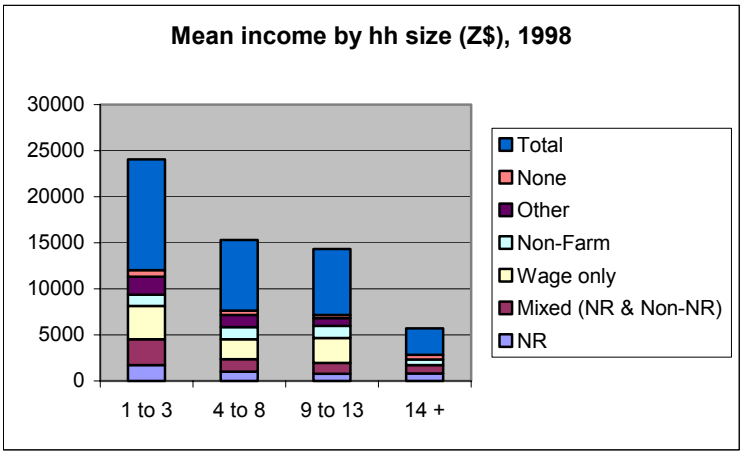


Fig 5.15:



There is an apparent association between the number of economically active adults in a household and income; this association is probably mediated by opportunities and other factors. However, overall there is an inverse relationship between household size and per capita income. In a normal distribution of households, by size and income group, we might expect to see more small low-income households and fewer small high-income households than there are.

Large households, with 15 or more members, are much more likely to be very poor than non-poor (86% of 14+ households are in IG 1 and 2)[31]. Furthermore, all twenty households in IG 5 have 12 members or less, and all IG 4 households have 14 or fewer members. This shows our initial hypothesis to have been incorrect (see Annex 5, for supporting tables 5.4 and 5.5)

5.2.2.4. Dependency Ratios.

We did not find strongly significant relationships between dependency ratios and livelihood activity. However poorer households do tend to have higher dependency ratios. The only statistically significant finding is that high dependency ratios are associated with a lower likelihood of increases in the (critical) non-farm income which drives changes in income and wellbeing change (see Chapter 7).

5.2.3. Formal Education.

We found education to be *highly* valued in the study areas (gap filling field work, July 2000). Cost sharing for even primary education meant that households which are otherwise highly dependent on subsistence-based livelihoods strive to find some source

[31] Income groups have been calculated using gross household income divided by adult equivalence. Therefore, there is an element of auto-correlation involved in associating household size with income group.

of cash income to enable them to pay their children's school fees. These lumpy expenditures were clearly a source of anxiety.

Box 5.2: Women Earning Cash.

Esther, a young married woman in Chivi has access to cash. She uses small amounts to generate a higher cash return. She travels to the nearest trading centre and buys soap, which she brings back to her village to barters it for maize. She uses the maize to make beer which she sells locally. With the value-added income she buys soap – or other items she knows her neighbours are short of. She gains as much as a 500% mark-up on the items she barters, and a further 200% on the sale of beer.

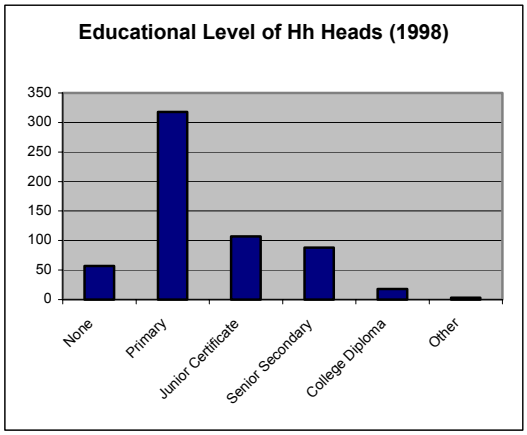
This illustrates the extraordinary lengths to which young mothers are prepared to go to generate cash to fund their children's education.

Source: Gap-filling fieldwork, July 2000.

The chart below illustrates the educational attainment of household heads many of whom failed to complete primary school (375 or 63%). Not surprisingly we find that level of education of household head and household income were closely related. Households headed by individuals with primary level education or less were much more likely to be found in the poorest two income categories, and conversely households in IG 5 were much more likely to be headed by individuals with 'senior secondary' or college level education.

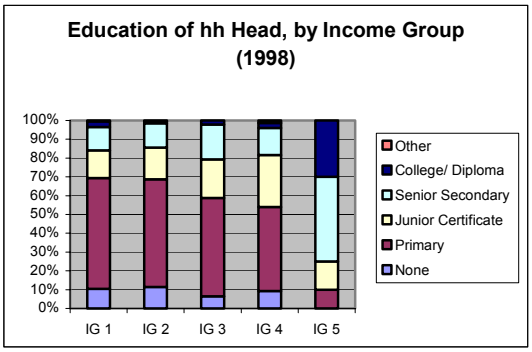
When we break the figures down by district we find that they have very similar patterns of education. However, heads of household in Matopo were slightly less likely to have no education and were more likely to have obtained their Junior Certificate[32]. Although they were less likely to have completed Senior Secondary, there was slightly more likelihood of their having obtained a college education.

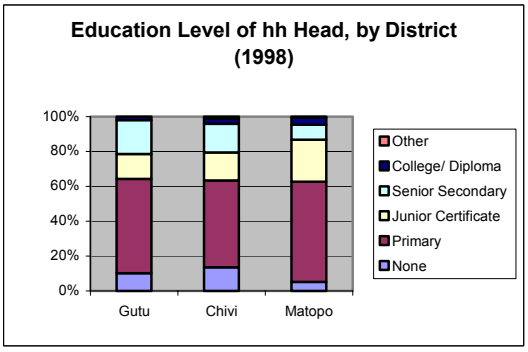
Fig. 5.16(a)



[32] The Junior Certificate is awarded to students who complete their primary education. 'Senior Secondary' is the equivalent of 'O' Levels/ GCSEs, and 'Other' is assumed to be technical training e.g. in tailoring.

Fig. 5.16 (b)





The chart below (Fig 5.17) indicates that the more education a household head had, the less likely it was for retained agricultural output to make up a large proportion of grand total household income in 1998. Wages contributed more to household income the more educated the household head (ignoring the 'None' category, which is based on a single household)[33]. Those with wage income were over-represented in those households where the head of household was educated to senior secondary and college/ diploma level. Only one of the households headed by someone without education had a member earning wage income. Although the wage earner may not be the household head it may be argued that the education of the Head of Household is a reasonable proxy for the education level of household members.

Remittance receiving households have heads with low levels of education (none/ primary)[34], conversely the more educated the household head the less significant the contribution made by remittances.[35]

Another interesting finding is that households with better educated heads gain a greater share of their income from lending out implements. This would tend to suggest that they have more assets.

The sex of household head is correlated with the level of education of that person. Women heads of household are less likely to be educated beyond a basic level – with implications for other members of the household.

[33] Chi-square value is 25.12 with 4df; statistically significant at the 95% level of confidence.
[34] The distribution of households receiving remittances is significantly different from the distribution of all households against the level of education of the household head
[35] The Chi square value is 80.83 with 4 df.

Fig 5.17

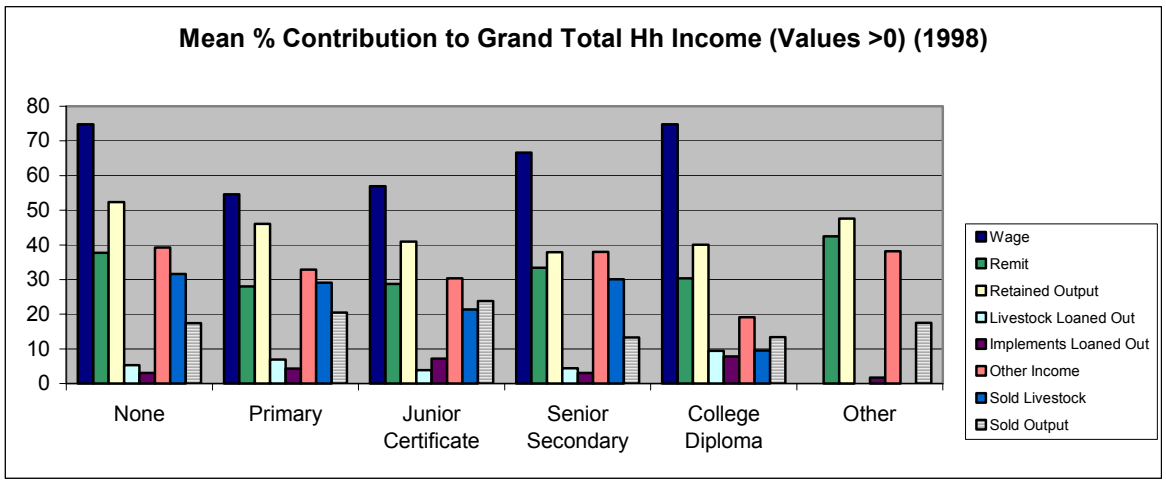
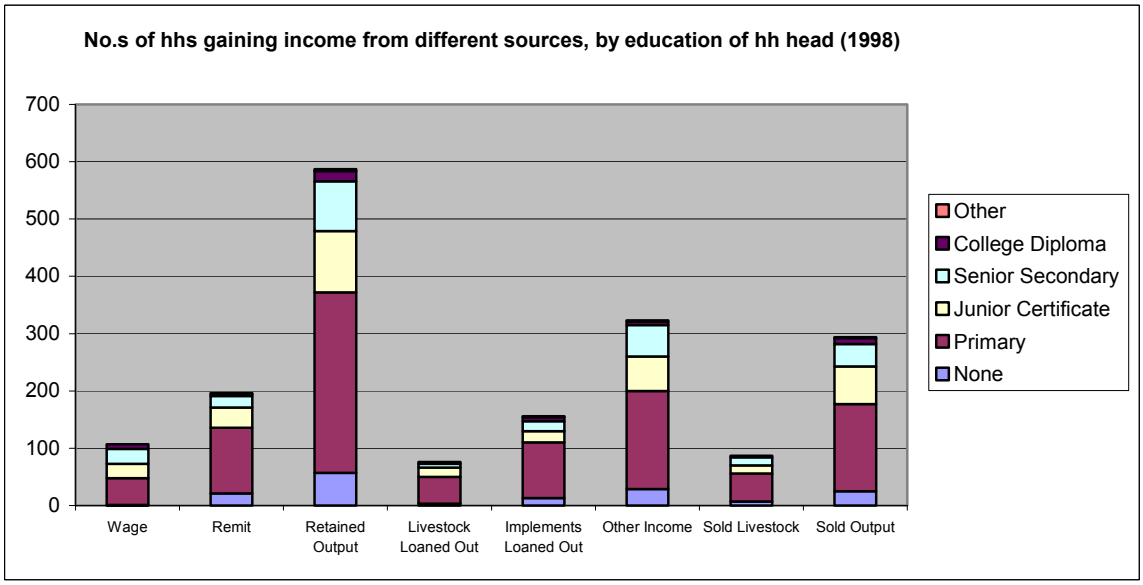


Fig 5.18



5.2.4. Technical Training.

If we look at households that have members trained as Master Farmers or have received formal training, we see a pattern contrary to expectations. Although the proportion of trained low income households is low, analysis of the dataset shows that it is high in absolute numbers.

Households which received formal agricultural training had obtained training in a range of activities including: Master Farming, Poultry, Animal Husbandry and Agritex. Households who received informal training listed building, forestry training, training in newly introduced crops, cotton cultivation, horticulture, animal husbandry and cash till operating.

Fig 5.18

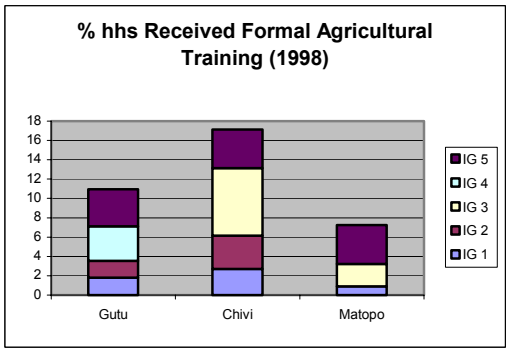
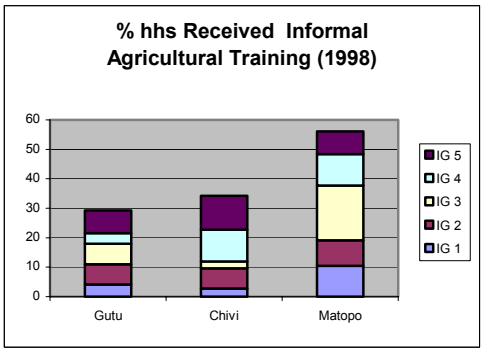


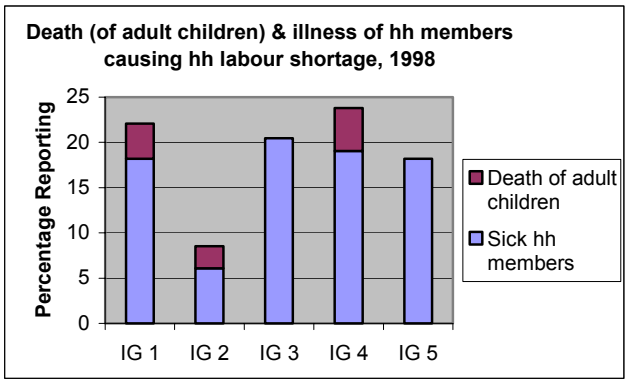
Fig 5.19



5.2.5. Health.

The dataset had very limited information on household morbidity or mortality. Information from secondary sources is presented above in Section 3. However, information on household labour shortages provides some insights. It appears that illness is widespread and disruptive. Illness is the cause of labour shortage in over 15% of cases in all income groups, except IG 2.

Fig 5.20



5.3. Social Capital.

5.3.1. Social Capital.

In Zimbabwe, the prevalence social capital related exchange is determined by the settlement patterns of the area. Those that have a strong tradition of lineage-based production around a central kraal head ('patron') may have more patron-client relations. Those areas that are structured in family clusters but are more recently settled may have few households who have accumulated enough to loan out, thus there may be a higher proportion of exchange relations. Those areas with few original settlers and many recent

nuclear family immigrants – parts of Chivi are in this category - may have more 'loners'. Other forms of labour sharing also include beer 'work parties' in which beer and food is provided in exchange for help with large agricultural tasks.

Such relations have many advantages. They allow a more optimal and flexible response to spatial and temporal variation. For instance, a cluster may have fields with varying soil types that require ploughing at different times after the first rains, or households may grow varied crops which mature for harvest at different times. Pooling resources allows labour and/ or draft power applications to be both efficient and timely. Such network-based relations are also important in facilitating in-kind assistance to elderly or poorer relatives, those with limited labour or draught power, and thus in reducing vulnerability. Thus "without effective social networks, farming can be a major struggle, and vulnerability to risks can rise" (Scoones et al 1996:83-4).

Such relations and networks, while a 'good thing' at the community level, can also have their disadvantages at an individual level. Claims on labour or livestock may be called upon at inopportune times, wealth and stores may need to be hidden in order to keep them from prying eyes, or patron-client relations may become distinctly exploitative, or even abusive (Davies 1996, CARE 1999:10). And, while these networks may mitigate risk and improve returns when they functioning well, any breakdown in social relations may leave the household highly vulnerable.

5.3.2. Social Capital and Access to Oxen

Three types of draught and labour sharing arrangement appear to exist which explain how ploughing cattle were made available to non-owners.

Patron – Client: Older or richer household *loaned* to younger or invalid kin or neighbours in exchange for labour on specific tasks

Exchange: Two households with only one cattle, plough and no cattle or span and no labour come together to *share* resources to form a span for ploughing both sets of fields.

Loner: One household generally works alone, but *hires* in labour and draught when needed.

The first represents vertical patron-client relations; the second represents horizontal relations (see Devereux 1999:13) while the third represents a purer form of market exchange and commoditisation. Such resource sharing and exchanging networks and relationships are conceptually related to theories of moral economy (Scott 1976), claims (Swift 1993) and social capital (Putnam 1993).

5.3.3. Information on social capital in the dataset.

The dataset provides information concerning a number of variables which can be taken as proxies for social capital:

- the membership of clubs and societies
- the borrowing and lending of labour
- the borrowing and lending of livestock
- the borrowing and lending of implements, and

- the borrowing and lending of cash

Information on the membership of clubs and societies is presented below; information on the borrowing and lending of labour (Section 5.5.2), livestock (Section 5.5.3), implements (Section 5.5.4), and cash (Section 5.5.5).

5.3.4. Membership of clubs and societies.

More households in Chivi (79%) were involved in clubs and societies than in Matopo (47%) or Gutu (63%). The charts below show that the districts had very different patterns of membership, with a substantial proportion of Matopo households being members of the ZFU (Zimbabwe Farmer's Union), but having much lower membership of Agricultural Cooperatives and Savings Clubs and much lower participation in traditional societies (humwe, dhara and ndomba). Chivi stands out in terms of the proportion of households involved in Agricultural Cooperatives and the farmer's groups, agricultural co-operatives and traditional socieities.

Fig 5.21

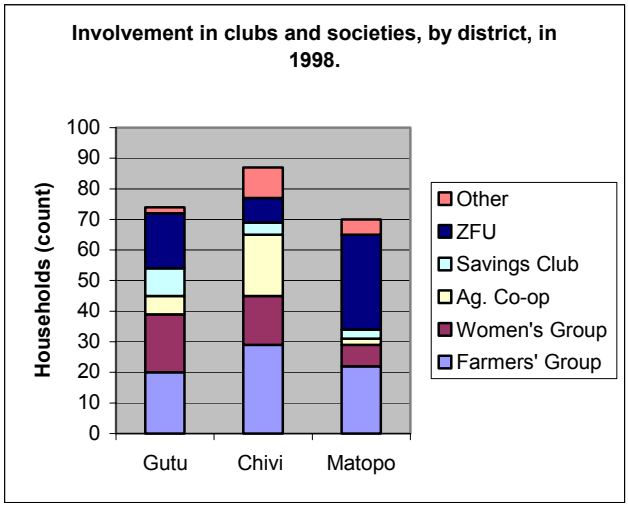


Fig 5.22

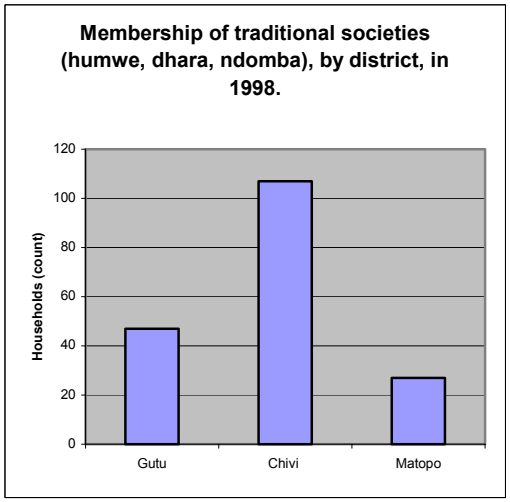
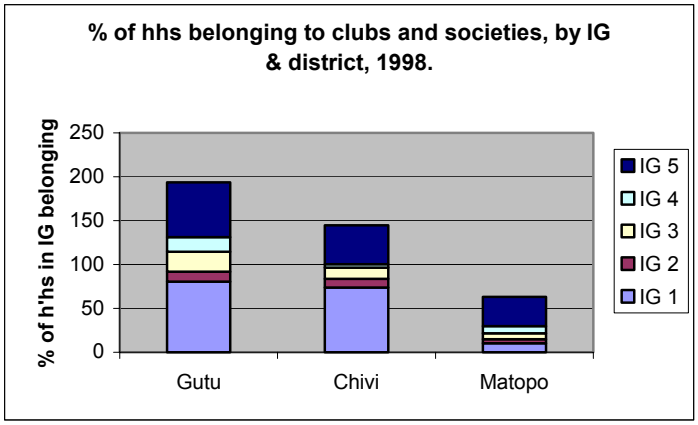


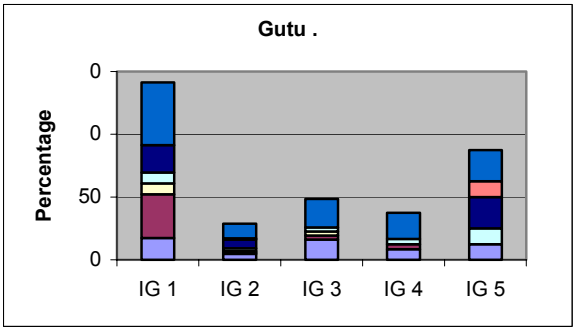
Fig 5.23

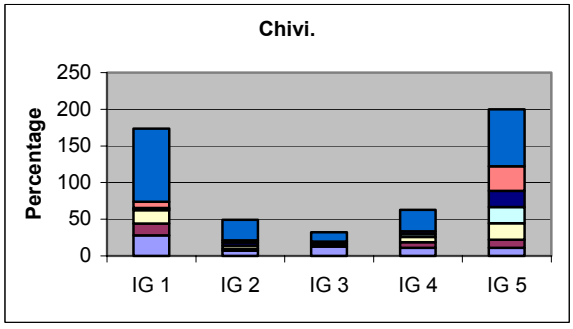


The chart above, Fig 5.23, shows that a high percentage of very poor (IG 1) households in Gutu (80%) and Chivi (74%) belonged to some form of club or society (compared with only 10% of the very poor in Matopo). There is no clear evidence of the pattern we might expect: higher income households having more social capital than poorer households. However, the formal membership of clubs and societies poorly captures the real world of networks and interconnections, and miss vital functions (more likely amongst higher income households) such as those provided by urban dwelling extended family members (providing a base for trading activities and for looking for urban employment).

We can see from the charts below, that in both Chivi and Gutu group membership is bi-modal, with large numbers of IG 1 and 5 being involved. In Gutu a high proportion of this involvement, for the poorest households, was in traditional societies and women's clubs. Chivi sees high membership of traditional societies by the poorest, but also surprisingly high membership of Farmer's Clubs. In Matopo, we see the graph dominated by IG 5, but this distorts our understanding of group belonging as Matopo has low absolute numbers of membership - only 3 households are in IG 5.

Fig 5.24 (a): % hhs with membership of clubs and societies, by district and income group.





5.24 (b)

5.3.5. Borrowing and lending Labour.

As we see from Section 5.5.2 and Figs. 5.26 and 5.27, lower income households were less able to hire labour in response to labour shortages, and were more likely to either not solve the problem or to borrow non-household labour. For poorer households, good linkages with neighbours was important, as without it they were less able to borrow labour. However, as Box 4.3 above indicates, very poor households without surplus grain for brewing beer or goats to slaughter and feed labour parties feel themselves to be excluded from these arrangements.

5.3.6. Borrowing and lending Livestock.

Section 5.7.3 shows livestock borrowing to be widespread. Over 50% of IG 1 households, and over 35% of IG 5 households borrowed oxen or cows. Of those borrowing livestock, over 60% borrowed from kin (see Tables 5.13 and 5.14 in Annex 5). It is likely that livestock borrowing within kinship networks is unpaid, and represents an important form of social capital. It appears that the majority of households in the study areas are intricately linked by economic exchange supported by social interaction.

5.3.7. Borrowing and lending Implements.

The borrowing and lending of farm implements appeared to be monetised, and was less widespread than the borrowing of either labour or livestock. See Section 5.5.4.

5.3.8. Borrowing and lending Cash.

Poor financial services markets are a very real constraint for poor rural households in the study areas, and around 13% of households in IG 1 and 2 used loans from kin to invest in agriculture (see Section 5.5.5, and Annex 5). It is likely that a higher proportion relied on the extended family network for dealing with contingencies.

5.3.9. Urban/ Rural Linkages.

We found that rural households diversifying income sources through trading enterprise or urban employment depended to a substantial degree on urban based relatives. 'Youth' seeking urban employment would go and stay for extended periods with relatives until they either found employment or gave up and returned to their 'rural home'. Women adding value to their groundnuts by producing peanut butter would take jars of produce to their urban relatives who would sell them on their behalf. Others, involved in 'shuttle trade' or selling locally produced craft produce would use urban relatives as a stopping off point on their way to market.

In addition, over 30% of households in the sample depended on remittances for part of their livelihood.

Households without these urban linkages had fewer buffers against contingencies and were less able to start trading or urban based livelihood activities.

5.4. Natural Capital

5.4.1. Access to Land.

Households in communal Zimbabwe traditionally access land through the Kraal Head. Households with long term residence in an area are likely to have kinship links with the Kraal Head and other members of the Kraal, and are likely to have been allocated land many years ago. Land is sub-divided amongst sons, and when land sub-division makes holdings marginal, the heads of newly formed households will lobby the Kraal Head for additional land. In many areas cultivable land is fully allocated and communal grazing land (often inappropriate for cultivation and important for grazing and other common uses) is sacrificed. Migrants and other new comers are provided with land at the discretion of the Kraal Head. Their holdings may be both small and marginal.

5.4.2. Common Property Resources (CPRs).

The dataset contained no information on CPRs. All the analysis below is based on secondary sources or gap-filling field work (undertaken in July 2000) Environmental goods or common property resources (CPRs)[36] provide a wide variety of household entitlement yet are often unvalued in household surveys[37]. Goods include: water for small-scale irrigation, livestock and domestic use[38]; browse and grazing material; wild foods (fruits, leaves, insects, mice and larger hunted animals); wood (for construction,

[36] Environmental goods here mean those goods which households do not expend labour on resources management. In most cases this equates to goods under common property management.

[37] In fact the authors know only two pieces of work which have attempted to rigorously value to role of environmental resources in household budgets and income portfolios. One is the pioneering work by Jodha (1986) the other, based in semi-arid Chivi, Zimbabwe, Cavendish 1998.

[38] Some households in Gutu have artesian wells, but this did not appear common in Chivi (Gap-filling research, July-August 2000).

fuel, agricultural and household implements, furniture and carving; fibres [including barks, grasses, rushes, and reeds]; natural fertilisers (termitaria and leaf litter); clay for pottery and brick-making; gold from gold panning in river banks and beds, and a range of indirect values (shade, windbreaks, soil erosion protection and locations of spiritual importance). These goods are used directly for consumption, often substituting for purchased products, some of particular importance during food security crises (e.g. mice) and so buffering users from market price increases. Some are sold unprocessed (e.g. fish) and others are used as inputs for enterprises such as cropping or livestock, or used for conversion into goods and services for home consumption or sale (e.g. baskets and pottery).

Box 5.3. New Comers: the impact of low natural, social and financial capital.

Nathan and Mary are a young couple, with no children, who migrated to Chivi about five years ago. They joined Nathan's father's village, but because Nathan is illegitimate and did not grow up in the area he has had difficulty accessing adequate land. The Icoal Kraal Head allocated him and his wife a small plot of land, but they are finding it almost impossible to meet their needs through agriculture.

They do not produce a grain surplus and do not own any goats so feel that it is impossible for them to take part in any of the reciprocal work parties. They do not have oxen or a plough, so must hand cultivate their land with a hoe. As a result they are trapped in a low level of production. However, both of them are doing all they can to bring in an income.

Mary collects old jumpers and unpicks them. She washes the wall and rewinds it, before knitting it into new items. She barters these in the surrounding area for things she and her husband need. Recently she bartered a jumper for a chicken. Unfortunately one of their chickens was stolen, so they only have two left. They have no goats, cattle or donkeys.

Nathan walks to where neighbours are sitting eating fruit. He collects the seeds that they spit on the floor and germinates them. Through this labour intensive and humiliating process he has established his own orchard. He also sells seedlings in pots to other gardeners.

Both Nathan and Mary work together to trap and roast field-mice, which are a local delicacy. They belong to a strict local apostolic church which forbids the consumption of rodents (amongst other things) so they sell them to other local households.

Through a combination of enterprise and hardwork the couple hope to survive.

Source: Gap-filling fieldwork, July 2000.

The commons are widely perceived as being in decline, with biodiversity reducing, stocking numbers increasing and deforestation deepening. The overuse of both renewable (firewood) and non-renewable resources (clay) is resulting in increased scarcity and collection times for a wide range of CPR goods. The permanent decline in cattle numbers after the 1991-92 drought may have relieved pressure on grazing lands (Cavendish, pers. comm.), but increasing rural populations and return-migration is placing stresses on common resources through an increase in the number of users and the allocation of common land to new settlers for cultivation.

Rural households in Chivi feel that all CPR goods are suffering from decline. Deforestation was regarded as severe, as were declines in the biodiversity of for and flora (indicated by reduced numbers of mushrooms and wild animals) (see Table 4.5, below).

Table 5.1: Index of Change in Natural Resources.

Resource	1945	1965	1985	2000	Comment
Trees	6	4	2	1	High human population
Wild animals	10	7	2	1	High human population
Grass	8	4	3	6	Inadequate rainfall
Mushrooms	5	3	1	0	High human population
Rainfall	7	4	2	6	Nature
Reeds	6	4	1	5	Inadequate rainfall

Source: RRA Exercises, Agritex Officers, Chivi District. (1 = low)

The matrix below (Table 5.2) presents information from on a number of CPRs drawn from our gap-filling research in Chivi and Gutu. It highlights that there are numerous conflicts of use (and therefore users), and that despite being 'common resources' the use of CPRs is differentiated. A lack of transport (scotch carts and either donkeys or cattle), labour, and social capital can be crucial barriers to entry (see Annex 2a for more information on CPR degradation in all four study sites).

Table 5.2: Common Properties in Chivi.

	Main uses	Main users	Trends/ Issues
Grasslands	**Grazing** for cattle, goats, donkeys **Thatching grass** – for thatching houses and granaries	• non-poor (poor own few livestock) • widespread users	• Gutu: sale of best quality grazing land (by unscrupulous kraal heads) during liberation war to settlers from other parts of the province • Grass-cover poor, livestock graze leaves from shrubby trees (mihombo, misasa mpembere)
Ant-hills.	Soil dug & applied to land to increase soil fertility	Non-poor (poor do not own scotch-carts or livestock for transport)	lack of labour and transport (scotch cart, donkeys or cattle) = major barrier to access
Wild foods	**Mice:** • trapped by children, to contribute to household 'relish' • trapped by adults (coping strategy) h'h food security and income through sale **Wild fruit trees** • all, especially the poor	Children and the very poor Important coping strategy	Lack of labour is key barrier to access Declining availability
Wetlands	**Reeds:** • basket-making • **Rice cultivation:** • grown in vleis and dambos	• specialised craft • poorer households	Availability related to rainfall. Reeds - access related to labour and transport. Rice – free-ranging cattle mean that cultivators must guard crop. Conflict of interest. Cattle ownership by non-poor creates cost for poor
Clay	**brick-making** brick-making: costs = labour charges. **pottery**	• brickmaking: most h'hs make their own bricks. Market in Gutu better developed. • pottery: specialised craft. Poor to middle poor	Declining availability. Access determined by labour and transport availability
Water	• Watering livestock • Domestic use • Beer brewing	• Non-poor • All households • Poorer women	
Wood	• Carpenters • Construction • Households – firewood • Blacksmiths (charcoal) • Brickmakers	• Poor to middle income • All households • All households • Middle income • Most h'hs (occasional), others as input for key income source	• Deforestation: severe wood and bark shortage (carpenters now using trees stumps). Competition between uses and users. Still few alternatives to wood and bark. By-laws tightened in Ward 10, Chivi e.g. felling mopane trees for firewood illegal - increased demand for Misivisve (until law to protect it) and other species - with poorer burning qualities, but better charcoal-making qualities. Wood for charcoal twice as scarce (increasing constraints for blacksmiths etc.) • Murambatsvina, Misvisve, Miwonde and Mushavhu - used by carpenters in Gutu to produce tools and h'h items. • Cutting live trees illegal.
Bark	• Potters – firing kilns (Chivi) • Basket makers (Gutu)	• Poor to middle income	

Source: Gap-filling fieldwork, July-August 2000.

5.5. Markets, Barter and Subsistence.

Barter dominates as a form of exchange. In 1998 there was a shortage of cash circulating in the local economy in Chivi (gap filling field work, July 2000). Households confronted the cash economy particularly when attempting to purchase education and health services and would seek employment where they would be paid in cash, particularly to deal with contingencies.

As we have shown elsewhere in this report, agricultural production for household subsistence was important to almost all households in 1998. Other indicators also show that a large proportion of households used non-market based forms of exchange (see Box 5.2). For example, agricultural producers used seeds retained from the previous year to produce many of their main crops. Hired labour was often paid for using in-kind forms of exchange, they lent and borrowed draught power, labour and implements, and used barter to obtain household items (e.g. soap, clay pots). Where grains were used to obtain goods and services the barter prices were high relative to the cash market prices of the items in the exchange (gap filling field work, July 2000).

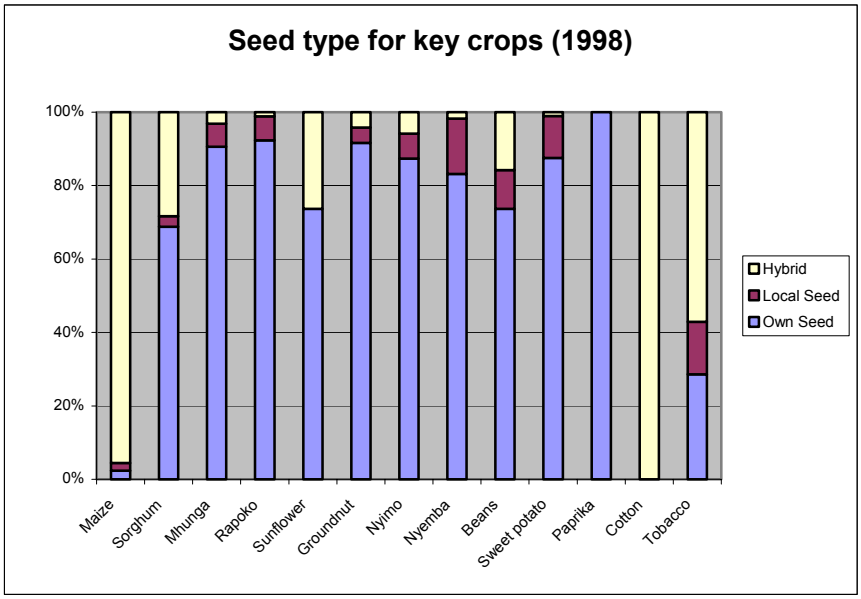
Households employing casual labour commonly paid the labourers in kind. Payments in maize, groundnuts and other commonly grown staples were most usual, although some payments were made in clothes or crockery. Bartering was found to be important for craft goods in Chivi, and blacksmiths were bartering for inputs and staple foods in return for their products. Potters also sold their pots either for cash or in-kind[39].

5.5.1. Retained Seed.

While all cotton growers bought hybrid seeds and the vast majority of households purchased hybrid maize seeds, most other crops were produced using ‘own seed’.

[39] The exchange value for pottery was calculated by the potters by filling the pot with grain (maize, pearl millet, finger millet, sorghum) or filling it twice in the case of unshelled ground or roundnuts. The low cash and barter prices indicate the relatively low returns gained by skilled craftswomen.

Fig. 5.25.



5.5.2. Agricultural Labour.

Labour inputs into agricultural production in the study area in 1998 were predominantly provided by the household, through non-market exchanges, or through unpaid 'borrowed' labour. As we saw in Section 5.5.5 above, many households found that household labour alone was not enough, and of the 49% of households who experienced a shortage of agricultural labour (higher for IG 4 and 5, see Fig. 5.26 below), nearly one in five borrowed labour to solve their problem (Fig. 5.27). This labour exchange system was important to IGs 1 – 3, but less so for IG 4, with only IG 5 opting out of the labour exchange system altogether, and resolving their labour shortages entirely through the labour market. However, the labour market was fairly inactive. Many households experiencing labour shortages were unable to pay labourers either in cash or kind and many individuals in search of employment were unable to find it (gap-filling field work, July 2000). Casual labour markets were very localised resulting in wage rates which varied widely from place to place.

Fig 5.26

Fig 5.27

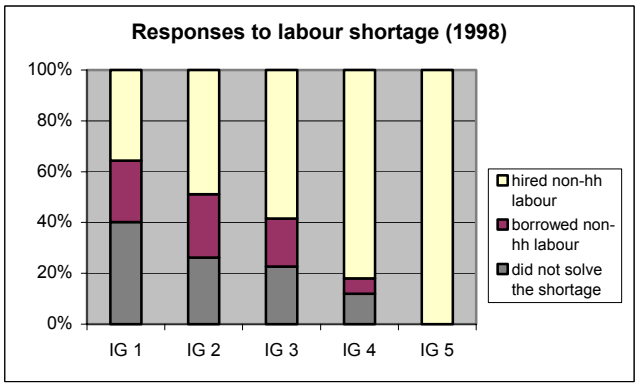
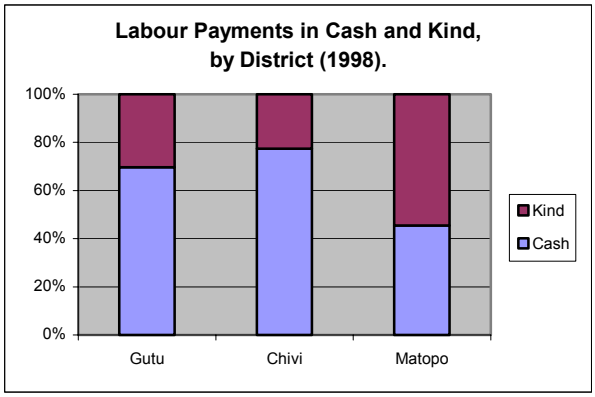


Fig 5.28



Of the households hiring labour many paid their labourers in-kind, but as we see from Fig. 5.28 above, cash payments predominate in both Gutu and Chivi, the wealthier districts.

5.5.3. Livestock.

Income differentials and poor post-drought recovery meant that in 1998 only 41% of households owned oxen, and 33% owned donkeys. Many households had to borrow livestock for draught power, and although around 40% of households neither borrowed nor lent livestock, the borrowing of oxen was widespread.

The numbers of oxen borrowed, in comparison with other types of livestock (see Figs 5.28 and 5.29 below) was almost certainly due to the role of oxen in ploughing. Large numbers of households in income groups 1 and 2 borrowed oxen, the majority from relatives. The proportion of households borrowing oxen was lower in the higher income groups, but interestingly even non-poor households borrowed livestock.

Fig. 5.28

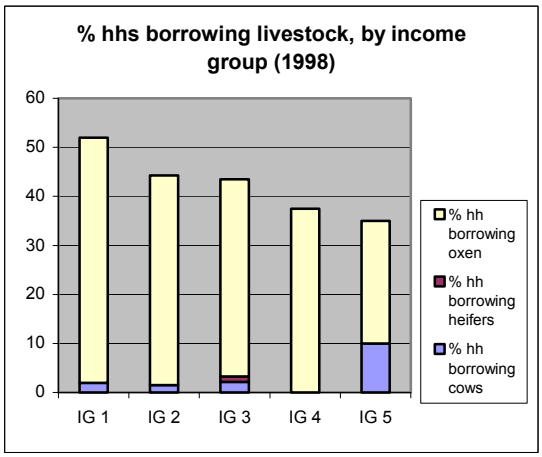
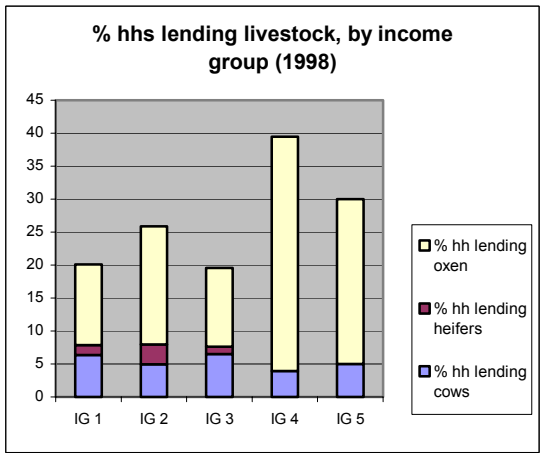


Fig. 5.29



Over 60% of households who borrowed livestock borrowed from kin (see 5.13, 5.14 in Annex 5). It is likely that livestock borrowing within kinship networks is unpaid, and represents an important form of social capital.

For a small minority of households (76 or 13%) the lending of livestock was organised as what we might think of as hiring arrangements, and was an important source of income. This indicates that some households describing themselves as depending on-farm income, may have a range of agriculturally related enterprises. Interestingly, more households in IG 1 hired out livestock than any group other than IG 4. However, 62% of households paid for livestock hire in-kind (see Table 5.15 in Annex 5) and the amounts earned by households hiring out livestock were low, averaging a total of only Z$ 270 (with limited variation around the mean). We found that more households in Matopo, across all income groups, hired out livestock (42 households, as compared with 30 in Gutu and 4 in Chivi).

5.5.4. Farm Implements.

Commercial 'lending' of farm implements appears to have been fairly important with 27% of households lending equipment.

Fewer households hired out their implements in Matopo (120) than in Gutu (151) or Chivi (138), but those who did earned more across each of the income groups. Households in IGs 4 and 5 did particularly well, but incomes earned by hiring varied substantially around the mean of Z$179, with a low of Z$ 68 (IG 1 in Gutu) and a high of Z$ 900 (IG 5 in Matopo) (see Annex 5, Table 5.16).

5.5.5. Financial Services Markets.

The extent to which semi-arid households are excluded from markets is indicated by the way that they are substantially ignored by formal sector financial institutions. Less than 1% of the sample households had access to formal sector agricultural finance (from cooperatives) in 1998. Interestingly, entrepreneurial moneylenders also appear almost absent from the scene, with only 2 households out of 585 having obtained finance via a local farmer or trader. The vast majority of households had to rely on raising funds for working and investment capital through a mix of informal sources. Although kinship networks were fairly important for IGs 1 and 2, providing around 13% of agricultural finance, many households across all income groups used scarce cash resources derived either from their wages or savings or from agricultural income for re-investment in agriculture (an average of 85%).

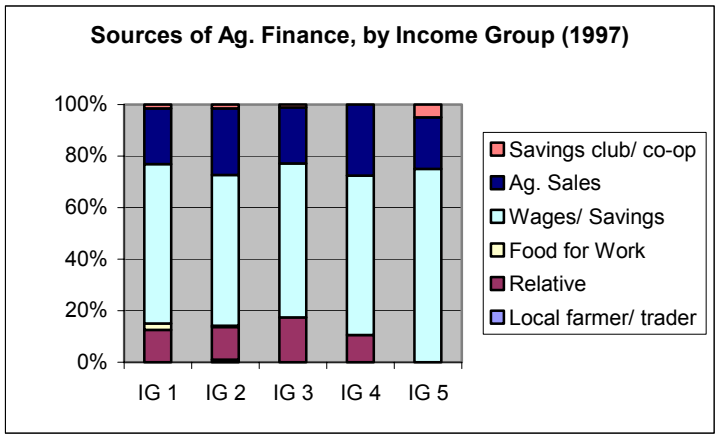
Certainly the financial services market in Chivi is undeveloped (gap-filling field work, July 2000) and a lack of investment and working capital clearly acts as a constraint to diversification and expansion amongst a wide range of rural sub-sectors. In a cash-poor environment the lack of reliable financial intermediation limits opportunities. Without secure savings schemes, households wishing to save for school fees and other contingencies must do so in the form of poultry or livestock, or keep money hidden in their house or granary. Less risk averse households might be interested in borrowing to buy seasonal inputs, including labour, to purchase productive assets, to diversify into high value crops or to move into value-added agro-processing. In a risk-prone environment, insurance might also have an important role, especially where price volatility is high following market liberalisation (see Box 5.4, below). Unfortunately, there is little evidence of traditional savings and loans clubs (e.g. ROSCAs) on which to build a 'village banking' or microfinance network, interventions may need to focus on reform of the formal banking sector.

The credit culture in rural Zimbabwe is poor, and government administered rural credit schemes have suffered from extremely low repayment rates. Commercial

financial institutions are rarely willing to lend to farmers in communal areas, due to their lack of adequate collateral and the absence of formalised land title.

The Savings and Credit Co-operative Organisation was (SADCO) established in 1996, and was found to attempt to provide improved access to small-scale savings and loans. It claimed that its savings service was more efficient than that of the Post-Office Savings Bank (POSB), but as yet it has *very* limited outreach having made only 27 loans by July 2000 (see Box 5.5, below).

Fig 5.30



Box 5.4: Agricultural Insurance.

A commodity insurance scheme for coffee, cocoa and cotton is being piloted in Tanzania, El Salvadore and Thailand with support from the World Bank. A second phase will expand the scheme to Côte d'Ivoire (coffee and perhaps cotton), Ghana (cocoa) and Uganda (coffee).

The low cost scheme has been developed after discussions between international agencies and commodity trading companies, and extends the kind of price insurance available to many developed country producers. It protects producers from short-term price volatility in world markets, and guarantees a minimum financial return in a given cropping season. It does not protect against longer-term price slides, but by reducing risk, farmers are more likely to maintain their level and quality of production. It also makes farmers more credit worthy by reducing their risk exposure.

One aim is to create a compromise between state-managed farms and state marketing boards and unfettered private market agriculture.

Finding a financial services intermediary to provide the service can be a challenge. In Tanzania, insurance is now being offered to coffee producers by the Kilimanjaro Native Cooperative Union (KNCU), which trades 11% of national output and acts as a market intermediary for 90,000 small producers.

A maize insurance scheme in Zimbabwe would have particularly widespread benefits.

Source: Africa Confidential, 2001:2.

Box 5.5: A Local Credit Provider: SADCO Chivi.

SADCO in Chivi was established in 1996, but only officially opened on 20th August 1999. It is funded by CIDA (covering salary and computer costs) and its building was donated. Membership is composed of:

- Farmers (37%) of whom 75% are women
- Civil servants (29%)
- Entrepreneurs and self-employed (23%), of whom 40% are women
- Employees (8%)
- Religious workers (2%)
- 3 memorial funds
- 6 business organisations
- 20 co-operatives groups

SADCO has a very limited outreach, having only disbursed 27 loans (18 to women, for investment in farm enterprises or trading) with a value of Z$75,000 since 1996 (Z$30,000 has so far been repaid).

The maximum loan size (for productive loans) is Z$15,000, but the average is much lower, at Z$3,000, and for provident loans the maximum is Z$ 5,000 and the average Z$1,500.

SADCO loans have been used in the non-farm sector for investment in: retail (both urban and rural); grinding mills; bottle stores; and second-hand clothes trading. In the farm sector, the productive investment loans have been invested in: poultry, piggery and cattle fattening; gardening, including investment in irrigation; and seasonal finance for cotton and sorghum. In the farm sector, group loans are also made to co-operative societies, whose membership is largely female.

Access to credit is gained through paying a Z$1,000 membership fee. Prospective borrowers must also declare their assets and provide a guarantor. The credit is subsidised, as the interest rate is only 28%, significantly below the government quoted inflation rate of 63% (July 2000, had risen to over 80% by October 2000). Sadly, this will undermine the capital base[40] of SADCO and limit the potential for expansion. In addition, the interest rate on savings – the service most likely to benefit the poor – at 13% per annum, is purely nominal. By saving with SADCO, clients will see the value of their capital eroded, making traditional mechanisms of goat and cattle purchase, and more recent strategies of foreign exchange purchase, entirely rational.

Source: Gap-filling fieldwork.

5.6. Conclusion.

Three were widespread positive associations between a range of assets and incomes: the distribution of oxen, poultry, scotch carts, wheel barrows, and the levels of education of the household head were all positively associated. The structure of the household was also associated: women-headed households did better in the NR-based livelihoods, and had accumulated higher levels of relevant assets. The number

[40] Capitalised through membership fees and soft loans from other organisations.

of productive adults in the household was also associated with income. These positive findings lend considerable support to the income categories and the use of income-base differentiation presented in Chapter 4.

A few indicators of assets were not clearly related to income distribution: donkeys, dependency ratios, and membership or organisations as indications of social capital.

Markets were generally underdeveloped in the study areas, and poor households had little effective participation in any markets, relying more on own production and barter.

6. Correlates of poverty in semi-arid areas (1997-98): Livelihood Portfolios.

6.1. An Introduction to Livelihood Portfolios.

In Chapter 2 we described how the livelihood portfolios were constructed from information provided in the dataset concerning household livelihood activities.

This chapter relates these livelihood portfolios to location (district), income group, household size, and asset ownership, and provides an assessment of the importance of risk and social protection.

We saw above, when discussing household income, that livelihoods differ with income group.

The Table 6.1 below (drawn from work by Cavendish in villages in Chivi in 1999) shows the seasonality of work and the differential constraints and experiences of poor and non-poor households.

6.2. Livelihood Portfolios by District.

Matopo has fewer households (12%) claiming farming as their main livelihood activity than either Gutu or Chivi. This is also the case for most other NR-based activities. On the other hand Gutu is a predominantly agricultural district, with higher proportions of households engaging in farm and NR-based livelihoods than the data set average.

Construction is an important activity in Matopo (construction alone and mixed with farming) and twice as many households depend on wage income alone ('wage only') than in Gutu. Matopo appears to have a much more developed wage economy than Chivi or Gutu (see Figure 6.1).

6.3. Livelihood Portfolios by Income Groups.

Figures 6.2 and 6.3 and Table 6.2 below show the importance of different occupational or livelihood clusters across income groups in 1998. We see that households above the poverty line (i.e. in IGs 4 and 5) were more likely to have

access to wage employment, and were either engaged in waged work as a sole activity in or various mixes with trading or agriculture. Conversely poor households were much more likely to be solely engaged in farming or in a mix of NR-based enterprises, or in activities with low social status (casual labour), a high degree of drudgery (beer brewing, construction) or with low entry barriers and returns to labour ('services').

We can also see that a large proportion of the poorest households claimed to have no income earning occupations in 1998. This occupational cluster ('None') is smaller, but still present, in the higher income groups. These households commonly had some form of income, however, they clearly either perceived themselves to be unemployed or were not willing to discuss their livelihoods with outsiders. (We examined the income sources of this group in our discussion of methods, above in Section 2). The dramatically increasing proportion of wage earners in the higher income groups and the equally sharp increase in 'mixed' livelihoods amongst the non-poor are striking.

Non-poor households (in IGs 4 and 5) used their higher human capital (and their access to assets, savings and high degree of urban linkage) to access high-return wage employment. This was compatible with their smaller household size and the disengagement of IG 5 households from reciprocal social arrangements at the village level.

Fig. 6.1. Livelihood Portfolios by District, 1998.

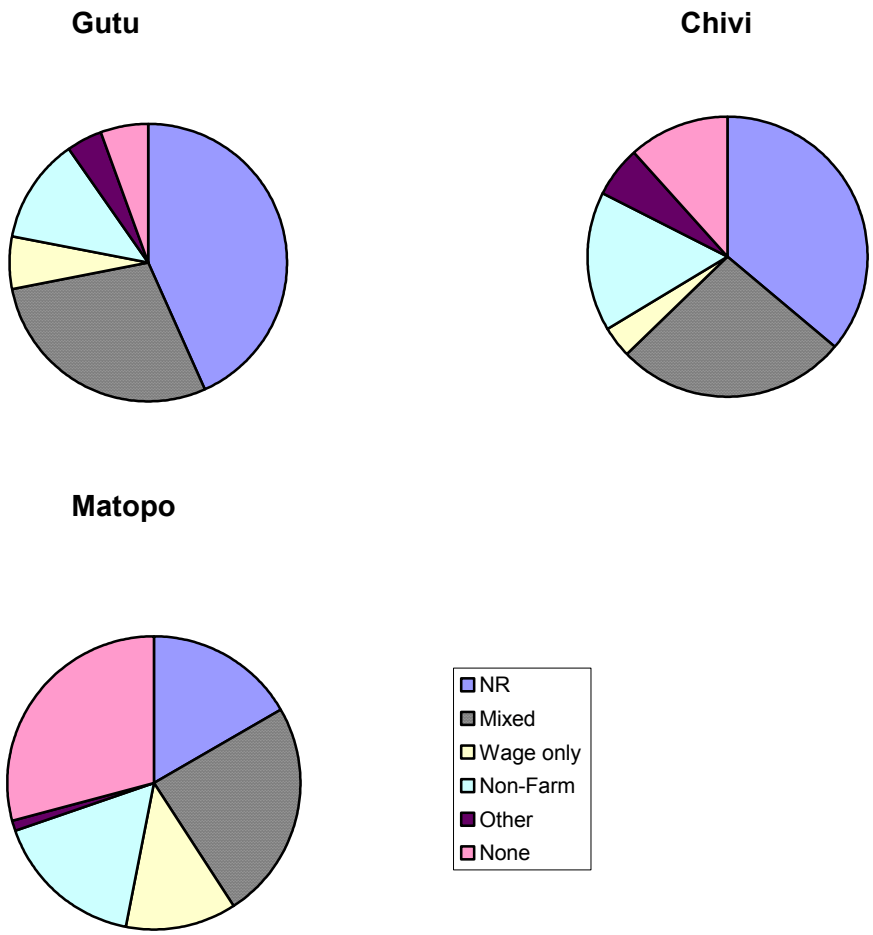


Table 6.1: Seasonal activities of the rich and poor.

Season		Cold Dry Season (Jul-Oct)	Early Rains (Nov-Dec)	Late Rains (Jan-Mar)	Harvest & Threshing (Apr-Jun)
Rich Households	Activities	Winter ploughing with own cattle; Hiring labour to dig ant hills and spread termitaria; Hiring labour to construct and repair their housing; Trading goods from South Africa; Selling agricultural surplus; Doing intensive gardening; Selling garden crops to poor; Hiring labour for gardening, paying via beer brewing.	Ploughing with own cattle; Hiring out cattle for ploughing; Adding cattle manure from kraals; Hiring labour for fertilising.	Hiring labour for cattle herding; Working on fields.	Hiring labour for harvesting, paying with last year's (no longer fresh) crops; Collecting the harvest using their own scotch carts; Collecting maize stover and storing it at home for later use as fertiliser; Exchanging maize for cattle at local white farms.
		Remitters are white collar workers who send remittances all year round			
	Indicators	Wearing thick, warm jerseys.	Enjoying Xmas day by having plenty of food e.g. a goat, rice, some Cokes, beer.	All children going to school, including secondary school or even boarding school.	High yields, except where households no longer bother with agriculture due to high remittance levels.
Medium Households	Activities	Temporary employment as cane- cutters at Triangle, but not drinking all their earnings as the poor do; Winter ploughing; Digging their own ant hills for termitaria; Hiring out ploughing equipment; Carrying manure in their carts to fertilise fields; Selling small quantities of crops and garden produce.	Ploughing with own cattle or borrowed cattle; Fertilizing fields, usually with own labour but sometimes hiring labour.	Beer brewing, sometimes for labour parties (nhimbe) for weeding, other times for sale; Working on fields.	Harvesting their crops; Collecting maize stover; Fencing their gardens with brushwood in preparation for winter vegetables.
	Indicators	Wearing jerseys, but of an inferior quality to rich households.		Most children going to school, wearing uniforms, but not going to boarding school, and carrying books in plastic bags, not "book cases."	Medium to high yields.
Poor Households	Activities	No remittances received; Working for richer households, having little time to work for their own income eg. gardens; Pounding sorghum and millet for other households; Catching and eating or selling mice; Beer brewing in small amounts (due to lack of inputs); Cutting and selling thatching grass; Eating or selling shomwe and dovi reshomwe.	Digging fields with hoes; Adding organic fertilisers (but not cattle manure) to fields; Selling weeding labour in order to buy crop seeds and food; Eating or selling roasted hwakwa from makwakwa.	Selling labour for weeding; Weeding their own fields for a few days only; Brewing and selling wine (mukumbi) from mapfura ; Doing other small activities to make money to buy food.	Harvesting for richer households, beingpaid in money, old crops or clothes; Being sent to local white farms to collect attle for other households; Repairing fencing for other households; Hunting and fishing, exchanging produce for maize and sorghum; Moulding bricks for other households; Selling roofing poles (nhungo).
	Indicators	Not wearing warm clothes; Collecting a lot of firewood in order to keep warm at night, as they don't have blankets.	Unable to work full time on own fields due to the need to sell labour.	Many children not going to school; Food stress common from this period to the harvest: the poor may have to beg food from other households.	Low yields due to inability to work intensively in fields earlier in the season.

Source: *Four women from Shindi and Mutatvikwa villages in Cavendish 1999*

Table 6.2: Numbers of h'hs involved in livelihood activities, by IG (1998).

	IG 1	IG 2	IG 3	IG 4	IG 5	Totals
Farm	42	37	9	7	1	96
Garden	6	9	1	3	0	19
Farm + Poult	4	4	2	4	0	14
Farm + Gard	13	25	7	1	0	46
Farm + Gard + Poult	2	8	1	4	0	15
NR	**67**	**83**	**20**	**19**	**1**	**190**
Agric + Remit	0	7	6	4	0	17
Agric + Construction	3	14	8	4	0	29
Agric + Trade	2	6	6	4	0	18
Wage + Agric	4	11	14	16	12	57
Casual + Agric	3	10	2	0	0	15
Agric + Services	13	5	3	0	0	21
Mixed (NR & Non-NR)	**25**	**53**	**39**	**28**	**12**	**157**
Wage only	**13**	**6**	**8**	**10**	**6**	**43**
Constr + Trade	0	2	5	1	1	9
Construction	13	8	3	2	0	26
Wage + Trade	0	0	2	2	0	4
Beer Brewing +	8	8	3	0	0	19
Knitting +	5	8	4	4	0	21
Trading	2	5	1	2	0	10
Non-Farm	**28**	**31**	**18**	**11**	**1**	**89**
Remittances	1	3	2	1	0	7
Casual Labour	4	6	0	1	0	11
Remit + Casual	1	1	0	2	0	4
Other	**6**	**10**	**2**	**4**	**0**	**22**
None	**65**	**18**	**5**	**4**	**0**	**92**
Total	**204**	**201**	**92**	**76**	**20**	**593**

Fig. 6.2:

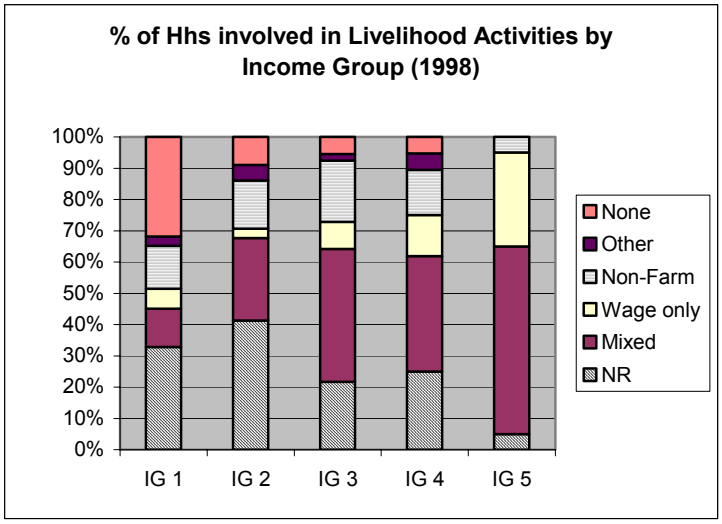
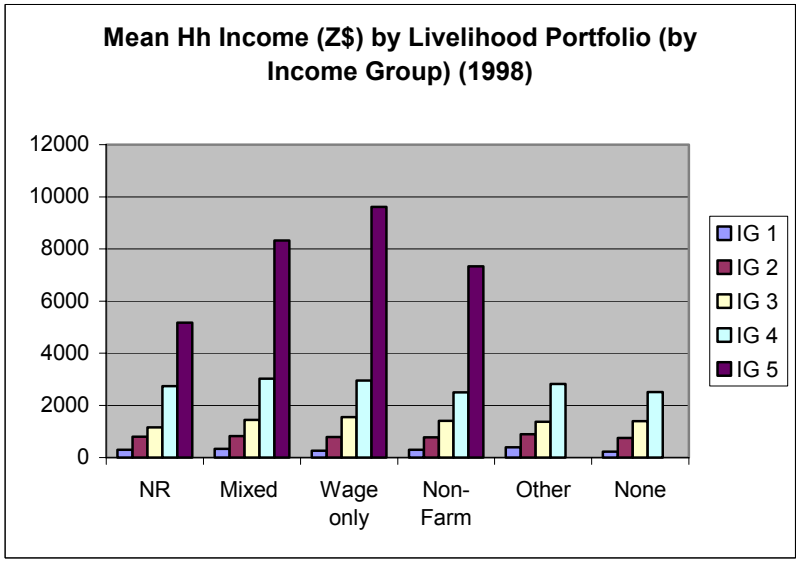


Fig. 6.3



Returns to different livelihood activities are associated with the income group of the household. The chart above (Fig. 6.3) shows incomes, derived from particular livelihood activities, averaged within income groups. It shows that whatever activity a poor household is engaged in, it generates lower levels of income than non-poor households. This is likely to be due to the differential levels of human, social, political, physical, financial and natural capitals at the household's disposal. Using gardening (horticulture) as an example, poor households earn as little as Z$ 221 and non-poor households as much as Z$ 2700.

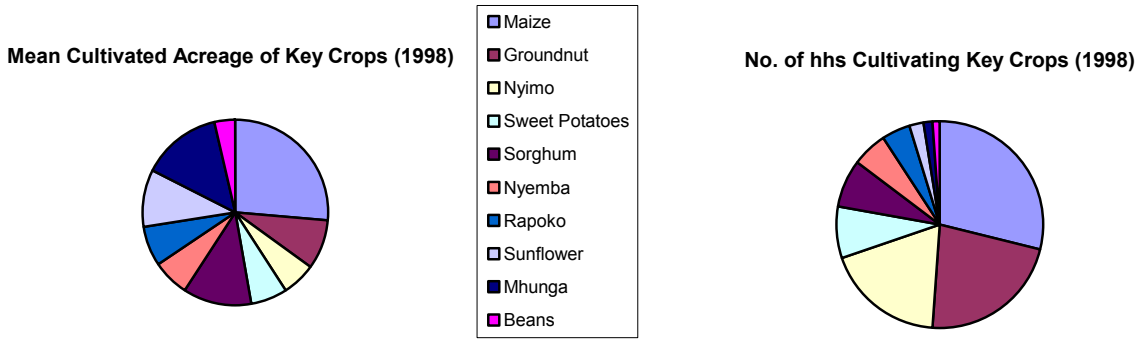
6.3.1. Livelihood Portfolio Types.

6.3.1.1. NR-based livelihoods.

Analysis elsewhere in this report indicates the importance of natural resource-based livelihoods for large numbers of households.

Maize is the dominant crop in the three districts; it is grown by 580 of the 593 households for whom crop area data is available for 1998. Additionally, it has the largest average area (per household) of all crops grown (2.86 acres in 1996-97). Groundnuts and *Nyimo* (Roundnuts) are the second and third most popular crops in terms of the number of households involved in their cultivation. Not all households grow *Mhunga* (Pearl Millet) and Sorghum, but households growing these crops tend to dedicate a high proportion of their land to them (see Annex 6b for a description of the key crops grown in the study area).

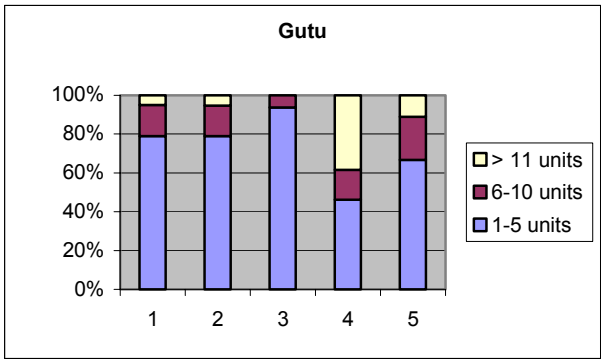
Fig. 6.4.

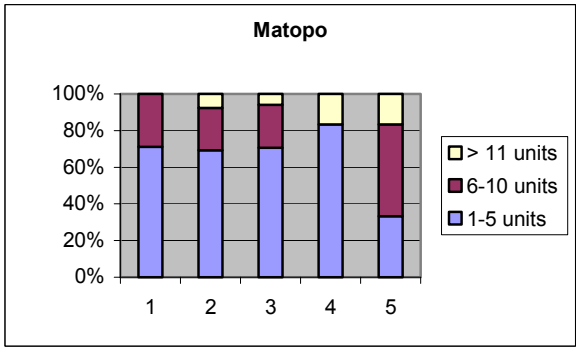


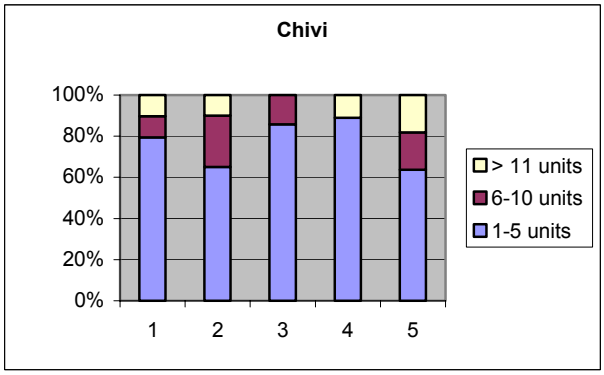
Maize yields were low across the three districts in 1998, but we can see from the charts above that there were differences between districts and income groups. IG 5 did much better in Matopo than in either Chivi or Gutu, and IG 4 achieves higher yields in Gutu than in the other districts. There is a substantial variation in yield, by income group, indicating that yield variation must be influenced by factors other than rainfall.

Farmer's cropping decisions were affected by their perceptions of risk, in combination with other factors (asset holdings, access to cash to purchase seasonal inputs, engagement in markets, labour constraints, drudgery aversion and so on) (see Table 6.3 below)

Fig 6.5: Maize Yields/ Acre, by Income Group and District (1998)







Box 6.1: Cyclone Eline.

Cyclone Eline became famous around the world in February 2000 as a result of the catastrophic floods it caused in Mozambique. The cyclone, which was a by-product of the El Niño phenomena, had a widespread impact throughout the region, causing flooding and structural damage, destroying crops and killing livestock. We were told that in Chivi and Gutu there was a prolonged dry spell preceding Cyclone Eline, which caused harvest failure in rice declines in yield for some other crops. The dry spell was followed by heavy rain and strong winds which had damaged crops, homes and grain stores. The winds blew fruit blossom away, drastically reducing harvests. After the storm had swept through Chivi and Gutu, high soil moisture reduced yields, encouraged moulds and pests, and resulted in groundnuts, roundnuts, and other moisture sensitive crops rotting in the fields. Compounding these miseries, the damp caused stored grain to rot in the granaries.

We were told that during the 2000 cold season (July and August) the weather was unusually cold, with night-time temperatures going down to below freezing. It is not clear whether this was connected with the climatic disturbance of El Niño, but it had resulted in widespread frost-burn to trees and other vegetation in Chivi, damaging sensitive fruit trees and killing small numbers of young small stock.

Source: Gap-filling fieldwork in Chivi and Gutu, July and August 2000.

Table 6.3: Characteristics of commonly grown crops in Chivi (ranked perceptions).

Crop	Profit/ acre[41]	Risk - drought & disease[42]	Labour Intensity[43]	Capital Intensity[44]	Skills/ Knowledge needed[45]	Comment regarding profit/ sale
Maize	4	1	10	2	9	Mainly for eating – not much profit
Pearl Millet (Mhunga)	11	8	3	9	7	No-one wants to buy it, it is really just for local beer brewing
(Finger Millet) Rapoko	6	8	3	7	6	Profitable because he can brew beer
Sorghum	8	7	7	7	8	Can sell to breweries
Rice	2	11	--	--	--	
Roundnuts	9	2	3	4	4	Mainly for home consumption
Groundnuts	3	3	6	3	5	Some produce peanut butter an sell in Harare
Sunflower	9	6	9	10	10	Will give a lot of money if the yields are good
Cotton	1	5	1	1	1	Cargill will collect
Gardening	7	3	2	6	2	Sell locally – headload to local villages
Sugar Beans	4	8	8	4	3	You can make a lot of money – even more than from cotton, but it has the most expensive seed. 500g cost Z$50

Rank 1 = highest

Drought is a common source of risk, as is disease and pre and post-harvest pests (quelia birds, baboons, mice). In the months prior to our gap-filling fieldwork El Niño caused widespread damage to crops (see Box 6.1, above).

[41] Combined score from pair-wise ranking with focus group, interviews with an extension officer and a number of farmers
[42] Combined score from interviews with an extension officer and farmers.
[43] From pair-wise ranking exercise with focus group.
[44] From pair-wise ranking exercise with focus group.
[45] From a simple verbal ranking exercise with a focus group.

The risky environment results in highly variable yields in all of the main crops. The table below shows that commonly grown subsistence food crops are hit by low yields for 5 or 6 years in every 10. The footnotes below show the expected range of yields in good, average and bad years. These ranges indicate that yields are commonly more than quartered in bad years. Yield variations are particularly acute in mhunga and sorghum and less so for roundnuts.

Table 6.4: Farmer perceptions of frequency of low yield (bad) years.

Crop	Frequency (in 10 years
Mhunga (Pearl Millet)[46]	5
Rapoko (Finger Millet)[47]	5
Sorghum[48]	6
Groundnuts (unshelled)[49]	5
Roundnuts[50]	?
Cotton[51]	2
Sunflower[52]	3

6.3.1.2. Mixed (NR & Non-NR)

Some households across all income groups had mixed livelihood portfolios (made up of a mixture from: agriculture, remittances, construction, trading, wage income, casual labour and services), however, significantly fewer households in IG 1 and 2 were diversified (see Fig 6.2 above).

6.3.1.3. Wage only

A much larger proportion of IG 5 households depended purely on wage income, as seen in Fig. 6.2. Their more substantial asset base and higher educational levels have allowed them to specialise. The work available included semi-skilled industrial work and highly skilled formal sector employment (e.g. teaching) (see Table 6.5 below).

[46] Mhunga - Good year = 4.5 x 90kg bags. Bad = 1 x 20 litre tin. Average 1 x 90kg bag & 2 x 20 litre tins
[47] Rapoko - Good year = 10 x 90 kg bag. Bad = 2 x 90kg bag. Average = 6-7 x 90 kg bag
[48] Sorghum - Good year = 3 x 90kg bags. Bad = 2-3 x 20 litre tins. Average = 1-1.5 x 90kg bags
[49] Groundnuts - Good year = 22 x 90kg bags. Bad = 4-7 x90kg bags. Average = 10 x 90kg bags
[50] Roundnuts - Good year = 9 x 90kg bags. Bad = <5 x 90kg bags. Average = 7 x 90kg bags
[51] Cotton - Good year = 3-4 x bale. Bad = 1 x bale. Average = 2 bale
[52] Sunflowers - Good year = 6 x 50kg bags. Bad = 1-2 x 50kg bags. Average = 3.5 x 50kg bags

Table 6.5: Urban employment available to those in Chivi.

Work	Sex	Location(s)	Returns/ Wages	Drudgery	Security	Skills / Assets needed	Shocks and Trends
Unskilled							
Construction on big sites	M	All over, especially Harare	Low Z$1,000/month	Very hard	Very low, contract work for a few months only	Unskilled, no qualifications . Contacts important	Retrenchments (recent individual cases cited: Mashava 1998, PTC 1999, Seleku 1996)
Sugar Plantations[53]	F/M	Chiredzi					
Domestic work	F	Nationwide		Hard	Very variable, can be very low		
Mines	M	Shabani, Mashava,	Moderate	Moderate	Moderate		
TM Supermarkets	F/M	Masvingo, Bulawayo				5 O-levels	
Utilities (PTC, Electric)	M	Masvingo		Hard			
Bata Shoes Factory	F/M	Gweru					
David Whitehead textile factory	F/M	Kadoma					
Secretaries, nurses, teachers, accountants	F/M	Nationwide	High to Very high	Low	Good (until recently)	5 O-levels to enter training	Squeeze on Government expenditure and formal sectors.

Source: Gap-filling research (focus-group discussion and key-informant interviews with two male return-migrants).

6.3.1.4. Non-Farm.

Non-farm employment included construction, trading, wage income, beer brewing and knitting and tailoring, and differs from the 'mixed' livelihoods above in that it is not combined with natural resource based enterprises. Some households in all income groups gained their livelihoods solely from non-farm enterprise, with smaller numbers in Gutu than in either Chivi or Matopo.

The returns to these activities (including informal, semi-skilled and self-employed activities) are likely to be higher than for casual labouring, and they are regarded as less undignified.

Scott (1995) identified beer brewing, brick-making, building, tailoring, and blacksmithing as key enterprises in two semi-arid areas in Zimbabwe. This range is similar to that found in Chivi[54] (gap-filling fieldwork, July 2000) (see Table 6.3, in Annex 6).

[53] Also mentioned: Sisco in Gwekwe, tobacco planting in other contexts.

[54] All sources from Chivi based semi-structured interviews unless referenced otherwise.

Beer brewing.

An opaque 'seven-day' beer is made from small grains and is prepared for sale, for communal and religious ceremonies, and in exchange for labour provided at communal work parties[55]. The market share of commercially brewed opaque and clear beer is increasing, though locally brewed beer remains popular due to its low cost and its role in traditional communal and religious events. The beer tends to be brewed mainly by female-headed households short of labour for effective agriculture (Scott, 1995).

Brick makers and Builders.

Brick makers and builders are almost always men. Sun-dried bricks have replaced now scarce wood based materials, but commercially produced oven-baked bricks are much stronger and are increasingly popular. Traditionally households produced their own bricks, but casual labourers are increasingly hired (Chivi, gap-filling field work, July 2000). Brick making is low skill and poorly paid, but construction generates higher returns. The construction sub-sector contains a number of young men who are returning to their 'rural home' from work on construction sites in urban areas.

Both sub-sectors were found to be experiencing growth, with demand for new homes from retrenchees moving back to rural areas, the need to rebuild homes after the 2000 floods.

Tailors and seamstresses.

Tailors and seamstresses gain good returns, especially if involved in contract work making school uniforms. Tailors (men) tend to own higher-productivity foot-operated machines and make boys' and men's' clothing. Seamstresses (women) tend to use hand operated, lower productivity machines and make girls' and women's' clothing. As the price of clothes increases there is increasing demand for repairs (gap-filling fieldwork, July 2000).

Blacksmiths

Blacksmiths were found making hoes, axes, tubs, pans, ploughs, knives and many other items, often using improvised tools and materials, and without a formal workshop. Productivity was constrained by their remoteness from new technologies and their inability to access raw materials in the local markets. They have to rely on friends and relatives supplying them with scrap materials from the urban, mining and commercial farming sectors. Scott observed that 65% of the work done by blacksmiths for members of their own community was paid for in kind, as the smiths did not want to appear extortionate (1995:196). Tailors and carpenters face the same problem, and carpenters informed us that they often felt unable to charge their neighbours at all (gap-filling fieldwork, July 2000).

[55] It is rare to be paid in cash at these parties, and if paid the rates tend to be very low.

Others.

Other home-based industries discussed during our own interviews included: *pottery, basket making* and *crocheting* (women), and *carpentry* (men). Non home-based activities included *gold panning* which Scoones (1996 *et al*:65) claims to have high returns, but we found to be highly variable. It was reported to be not only illegal but also heavy and highly labour intensive. *Carving* was carried out by the side of the Beitbridge Road and items sold to passing motorists, sometimes at very good although increasingly competitive, prices.

Informal or petty shuttle *trade* and *processing* were important routes for adding value to otherwise low return agricultural activities. Thus vegetables were traded in nearby towns rather than locally in order to fetch better prices (see also Scoones et al 1996:180). Soap or sugar are bought with the proceeds and sold back in the village. Groundnuts were processed into peanut butter and traded in Harare or even South Africa. Second hand clothes or other commodities were then brought back for sale in the rural growth point[56].

6.3.1.5. Other.

'Other' livelihood portfolios are made up of remittances alone, casual labour alone or a mix of remittances and casual labour (without for example agriculture, wage employment). No households in IG 5 fall within this category, but a small number of households in each of the other income groups do. Numbers are low in all three districts, but highest in Chivi and lowest in Matopo.

We have no information about the source of remittances, but remitting individuals are likely to be employed in the range of activities shown in Table 4.1, Annex 4.

Casual Labour.

Casual labouring activities have low wage-rates, making it difficult to use as a means of accumulation, and are frequently paid for in-kind (usually maize and other staples), meaning that workers must spend time and energy selling, often at poor or seasonally variable local rates, if they need the cash. In addition, involvement in casual labour keeps workers from their own fields when they most need attention, depressing productivity.

The people we spoke to in Chivi and Gutu (during gap-filling field work, July 2000) avoided doing casual work, when they could, because of its low, menial status. Even the poorest households preferred to gain self-reliance through agricultural production, rather than 'working for others', and only took casual work when their granaries were empty or they needed money to pay for school fees or other 'lumpy' expenditures.

Most casual work revolved around agricultural production, with the main *pre-harvest activities* being land preparation, planting, weeding, spraying, crop fertilisation and harvesting and the main *post-harvest activities* being threshing, winnowing and packing. Other significant forms of agriculturally related casual work was the digging out kraals

[56] A 'growth point' is the term given to a district town in which government and other services can be found. 'Business centres' are a step below growth points.

(manure digging and spreading) and 'ant hill digging' (collecting and spreading termitaria), while non-agricultural work included brick making or firewood collection (see Table 6.6, below).

Households heavily dependent on casual work may find themselves excluded from communal activities. Activities such as Farmer's Clubs meetings and beer parties (communal work parties) often take place on the traditional rest days. These are Wednesdays in Chivi and Tuesdays in Gutu. Some find that they cannot lose the chance of paid work, so become excluded from communal activities which are important both through generating direct benefits to livelihood activities, and through indirect benefits through generating and maintaining social capital.

Studies in Masvingo in the 1980s suggest that casual labour for local farmers was the sole source of income for many of the poorest farmers (Adams 1991:164). Almost 30% of the (de facto) female-headed households in Adams' sample relied on casual work as their main source of income. However, in Chivi we found that casual labour was a component of livelihood portfolios for many households, but not the sole source of livelihood. We have not identified any households which relied entirely on casual labour, and although many used casual labour as their key source of *cash* income, they obtained much of their food security from subsistence crop production.

It is clear that casual work forms an important coping mechanism. Many seek casual work when other livelihood activities failed, or large amounts of cash is needed (e.g. to pay school fees). However, wage work is vulnerable to drought as labour demands across the local farm economy fall.

Table 6.6: Selected Casual Labour Activities in Ward 10 villages, Chivi.

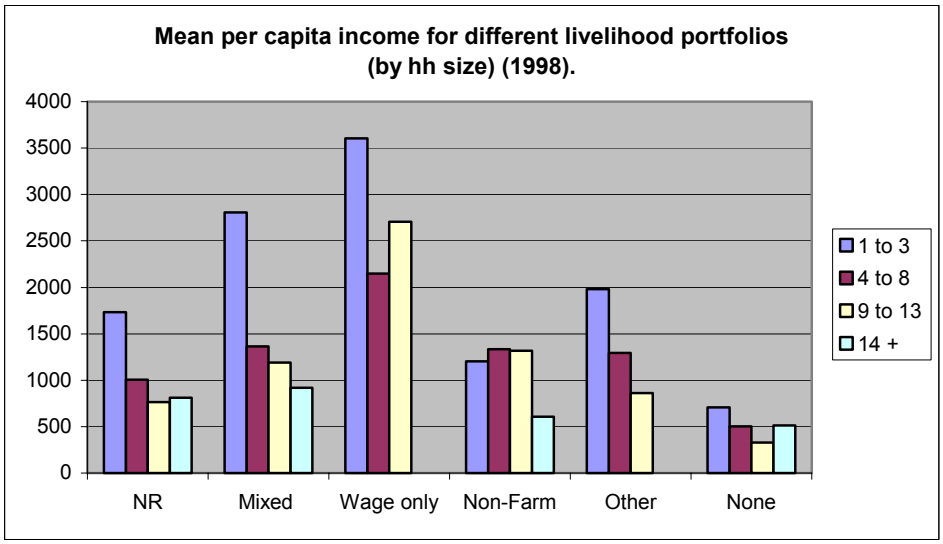
Activity	Returns	Constraints & Barriers to entry	labour intensity [time, energy, working cashflow budgets?]	Synergies, other benefits/ disbenefits	Trends & Risks
Domestic work (within village)	Very Low	• Demand co-varies with agricultural risk • Power asymmetries	• Low to medium labour intensity • No working capital	Regular wage	Increasing formal sector unemployment forcing wage rates down
General Hand	Very Low		• Medium to high labour intensity • No working capital		
Weeding	Very Low		• High labour intensity • No working capital	Removes labour from agricultural production	
Groundnut picking (from dried harvested plants)	Low		• Medium labour intensity No working capital		
Cotton picking	Very Low		• Medium to high labour intensity • No working capital		
Anthill digging	Very Low (for wage rates see Table xx, below)	• Demand co-varies with agricultural risk • Power asymmetries • CPR reliant	High drudgery		
Thatching houses	Medium (for wage rates see Table xx, below)	• Demand co-varies with agricultural risk • CPR reliant	--		

Source: Gap-filling fieldwork, July-August, 2000.

6.3.2. Household Size and Livelihood Portfolios.

Our data shows that smaller households generally obtained higher mean per capita incomes. This was particularly true for households gaining livelihood from NR-based activities, 'mixed' activities, and 'other' activities. However it was less true for households earning wage income or involved in the non-farm sector.

Fig 6.6



If we disaggregate the sub-sectors into *specific* livelihood activities the picture is somewhat more complex, with higher mean incomes for middle-sized households engaged in some livelihood activities (for farming and poultry, construction, agriculture and trade and construction and trade) and for larger households in other activities (agriculture and services). For other activities mean incomes were *lower* for middle-sized households engaged in some activities (farming and gardening, 'wage only', casual labour, casual labour and agriculture, trading and 'none') in comparison with *both* smaller and larger households

6.4. Social Protection.

Poverty was widespread in semi-arid Zimbabwe in 1998. More than 8 out of 10 households (84%) in our sample were poor, and 7 out of 10 (70%) were very poor. This indicates a pressing need for a combination of effective income generation and social protection programmes.

We have limited information concerning social protection available in the study area, in terms of the accessibility of government transfers or fee exemptions for the poorest. However, it is clear that food-for-work (FFW) schemes were active in the study areas during the 1992-98 period, as some households used income from FFW to finance

agricultural inputs. Scoones reports that during the 1991-92 drought 80% of households in Chivi were involved in FFW programmes (Scoones, et al 1996: 178).

Other forms of transfer include school feeding programmes, humanitarian and supplementary feeding programmes (Owens and Hoddinott, 1998) and pensions. Over 60% of women were signed up for supplementary feeding in 1990-91, which was a moderately bad drought year (Corbett, 1994:58). In addition, consumption-saving transfers, such as free medical treatment are reported as being important to the poor (Dashwood, 1999).

In addition, a sizable proportion of poor households in IGs 1-3 received Government Grain Loans (average, 52%, compared with 29% of households in income groups 4 and 5) (See Annex 6, Tables 6.4-6.7). Low rates of repayment across income groups and districts indicate that, despite their name, the majority of households viewed these schemes as transfers rather than loans.

The tables below show that around a third of households received government grain loans (GGL) in Matopo in comparison with approximately two thirds in Gutu and Chivi. The size range of loans was larger in Chivi, and more households received large loans than in either of the other two districts. In addition, many fewer households from Chivi repaid their grain loans. This may be seen as a rational response on the part of government to the higher levels of post-drought recovery in Matopo than in Chivi and Gutu, but this recovery was from a lower base, and the district contains more poor households than either Chivi or Gutu. Alternatively the lower levels of GGL disbursements may be related to the political economy in Zimbabwe, where the Ndebele tribe (the majority ethnic group in Matopo) regard themselves to be ill-treated by the majority Shona population (majority in Chivi).

Fig. 6.8

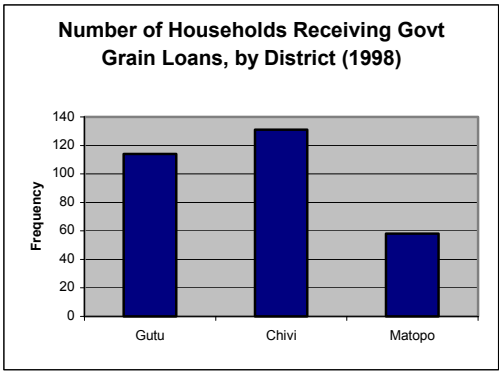


Fig. 6.9

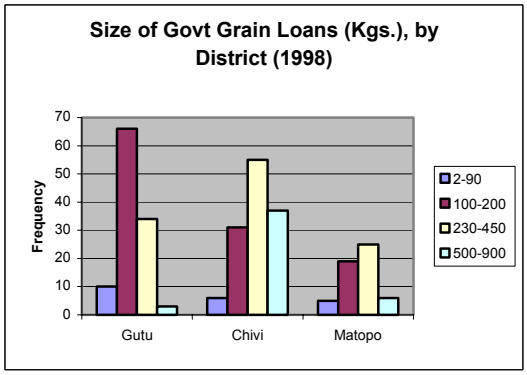
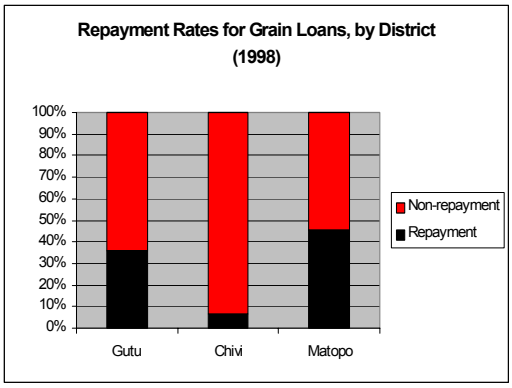


Fig 6.10



In terms of repayment rates, the most common reason given by respondents for their failure to repay the loans was that their harvests had been poor (over 90% in all three districts), with much smaller numbers giving other reasons, including that they did not know who to make repayments to or that they had believed the loan to be a grant.

7. Decline and recovery: change in livelihoods and well-being: 1993 and 1998.

The analysis below focuses on change indicators from the ITDG dataset (see *Section 2.5.1* for more information about the change indicators) and their statistical and qualitative correlates. The analysis is structured by the relevant research questions and hypotheses listed in Chapter 2 (see *Section 2.6*). The perceived changes measured were correlated with income, household size, gender of household head, dependency ratios, education of household head, and livelihood portfolio in an attempt to see what was driving change as it was perceived.

Strong and universal picture of decline rather than post-drought recovery.

A number of indicators are selected to illustrate the post-drought decline experienced by *most* households.

7.1. Wellbeing.

The majority experienced wellbeing decline in a context of persistent poverty and vulnerability: non-recovery was the overwhelming theme of both the ITDG 1998 dataset and even of fieldwork in Chivi in 2000. The research produced powerful indicators of decline in perceived wellbeing, standard of living, income and even of some natural resources.

A substantial proportion of respondents (59%) reported their households as worse off on both of the two general questions[57] relating to perceptions of wellbeing or standard of living. This could be compared to only 9% who saw their households as better off. Others reported inconsistently, or no change. The general perception of decline was confirmed by the responses to detailed questions focusing on a number of indicators[58] - food security and food security related (Figures 7.1 and 7.2).

Perceived decline was widespread, and across the income groups.

[57] See *Section 2.8*, above

[58] It was not clear whether these indicators in the dataset related to the respondent's household or to a more general evaluation of change: it is assumed in this analysis that the responses were in fact largely about the respondent's household.

Figure 7.1

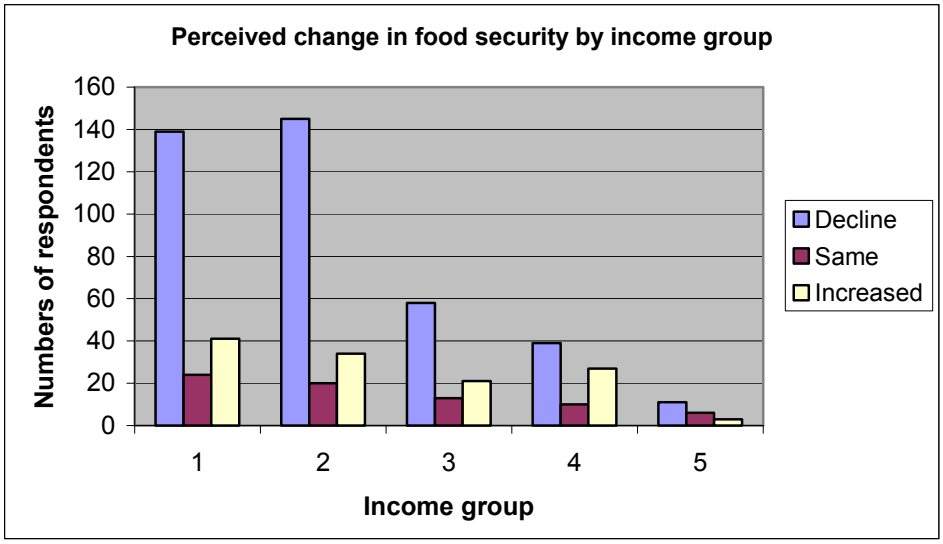
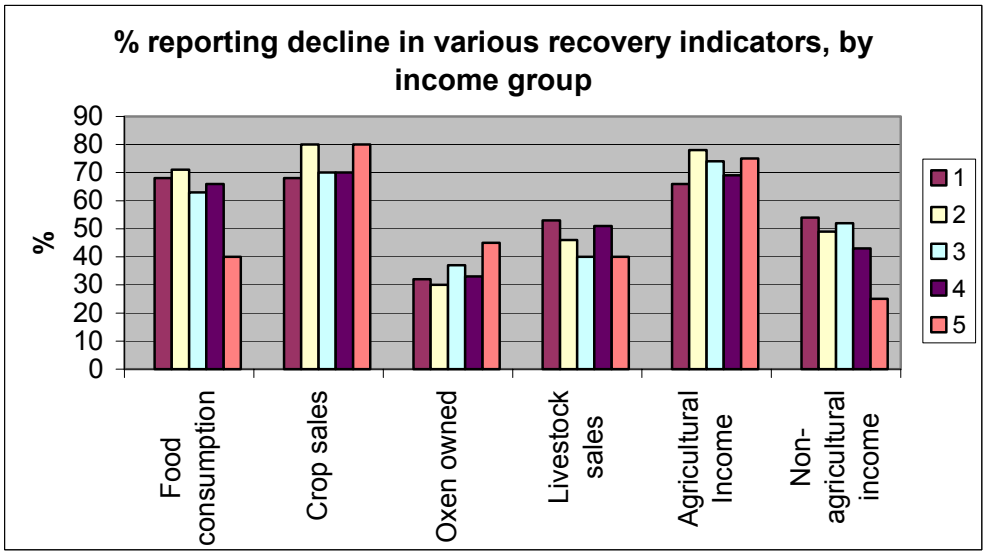


Figure 7.2



There was a statistically significant positive relationship between perception of change in household food security and income group – with the non-poor only somewhat more likely to report improvement or no change (Source: Annex 7, Table 7.14). There were striking differences between Matopo and the other districts, however (see below).

While most of the above indicators speak for themselves, the category of livestock sales is ambiguous. Livestock were generally sold 'when there is a need'. This was largely to raise money for school fees (except for the non-poor, who pay fees from other sources) or for food, but also to buy farm implements. Almost half the population reported selling livestock less often than 5 years previously. Given the predominantly need-based

reasons for sales, this could be interpreted as a sign of recovery. However, around a quarter of the lower income groups (1 and 2) were selling more frequently, suggesting that *they* were having difficulty accumulating stock because they needed to finance current consumption from savings.

7.2. Consumption.

The data here is limited to consumption levels (i.e. the amount consumed of a particular good or service) registering improvement, decline or remaining the same. Unfortunately there is no indication in the dataset how much consumption levels might have changed, or from what base. Consumption of food, health services, transport, clothing, generally declined across the population.

There was a strong negative association between income and declining consumption of clothes and transport – poorer households reduced their consumption more significantly. However, consumption of health services declined least – suggesting people's dependence on health services in adversity, and the priority given to health expenditure. Over half the population reported consumption of health services remaining the same. Casual labourers and households dependent on remittances (including a large proportion of women headed households) were most likely to reduce consumption of *health* services – this suggests that among the poor this group was the most critically vulnerable. They were more likely to report worsened food security, and least likely to report an improvement.

Education by contrast showed a mixed picture: Although education was widely perceived in rural Zimbabwe as a high priority, one fifth of respondents reported increasing education consumption, more among the non-poor; while almost half reported reducing it, more of the latter among the poor.

7.3. Fallow land.

Of the 44% of households with fallow land, the majority across income groups 1-4 reported *increases in land left fallow*. This is a critical indicator, given the relative ease of entry to agriculture and its importance in terms of food security, as well as its contribution to overall income. Reasons given for leaving land fallow were mainly to do with an inability to cultivate (see Annex 7, Table 7.5): in order of importance: insufficient draught power (assets were not owned or could not be borrowed), insufficient money to purchase inputs, poor quality land and a lack of labour. Although plough ownership was widespread, many households, especially in Income Groups (IGs) 1 and 2 did not have the required oxen and ploughs and had to borrow. Increases in borrowing oxen were especially marked among women headed households (25% reported increases) and the poor (17-18% reported increases). And in Chivi (22%). This strategy clearly did not entirely solve the problem, and cultivable land was left fallow. *Insufficient draught power stands out as a very substantial constraint. This was especially the case in Chivi.*

Insufficient labour was a strong reason for leaving land fallow in Gutu – indicating a lower level of labour market development there, and also the significantly smaller size of households. The smaller households in the lower income groups did not have adequate

labour and did not have, or have access to, the working capital or food or beer supplies required to hire, or to the social capital to borrow labour. Less than a fifth of households mentioned agricultural reasons for fallowing, suggesting that systematic fallowing for fertility restoration is not widely practiced[59].

We can nevertheless conclude that the 'coping strategies' accessible to poor households in particular were not adequate to make use of their major available resource (land).

Table 7.1: % reporting change in quantity of fallow land 1993-98, by income group.

Income Group	Increased	Decreased	The same	Total
1	60	18	22	100
2	59	28	13	100
3	54	18	28	100
4	55	24	21	100
5	40	60	0	100

Source: Annex 7, Table 7.4

7.4. Failure to restock.

Livestock is a critical risk mitigating asset in semi-arid Zimbabwe, providing draught power as well as the means of saving. 20-40% of the sample reported *declines* in cattle, donkey and small stock holdings[60]. When added to those with no livestock, the total figure for those experiencing either decline or failure to accumulate would have been greater than this.

The most significant productive function of livestock is *draught power*: a majority of respondents especially among the poor reported a decrease in the availability of draught power. Poorer households had found it very difficult to get back into draught power ownership, and as we have seen, were dependent on loans and hiring.

It would be expected that accumulating small stock – in this case goats and poultry - would be an easier route to recovery of livestock assets. This was true for poultry with a quarter to a third of households in the lower three income groups reporting increases; but not even a fifth of those households reported increased goat holdings. One reason for this may be that goats are liable to theft as discovered in fieldwork in Chivi.

[59] The questionnaire posed a limited range of questions about fallowing. It is possible that the agricultural reasons were not adequately explored and are hidden in the large number of respondents reporting 'other' reasons for fallowing.

[60] 70% reported a decline in livestock holdings as a whole. However, when disaggregated to particular types of livestock the proportion of the sample reporting a decline was generally much smaller.

However, a majority of households reported decreases in poultry; and 40-50% in goats. The decrease in poultry is particularly surprising, and a strong indicator of the failure of many households to recover: entry costs are low compared to other livestock, but chickens are susceptible to a range of pests and diseases which makes them risky. It is also possible that poorer households are driven to sell or barter their chickens for contingencies. The decrease in poultry holdings is only slightly less marked in income groups 4-5. A third of IGs 3-5 reported *increases* in poultry holdings, however. Given the cash outlays involved in increasing poultry production it would be reasonable to hypothesise that:

- Significant increases in poultry ownership would be open to households with non-farm sources of income, including wages and remittances. Others would find this difficult. The failure to use small stock to recover suggests that the markets for such enterprises do not function well in these areas.

Surprisingly *goats* did not seem to offer a widespread means to recovery during 1993-98. Decrease in goat holdings was more than twice as common as increase. This contradicts the general picture offered by official statistics on increasing livestock numbers.

Decline was worst for the poorest and natural resource, casual labour and remittance dependent households.

7.5. Livelihood Decline.

The livelihood portfolios which consistently reported decline across a number of indicators were those dependent on NR-based activities, and those dependent on casual labour and/ or remittances. Many of the latter were women headed households. Both groups of households were most likely to report decline in terms of food security, household food consumption, agricultural income, crop sales, remittances, and consumption of health services.

Chivi district experienced the strongest decline of the three, especially with regard to food consumption and receipt of remittances. Chivi households were also more likely to report an increase in consumption of health services, perhaps a result of declining wellbeing.

Remittances declined most often for IG 1-2 (and increased most often for the non-poor).

7.6. Recovery index

A recovery index was calculated based on responses to 8 questions about change, the answers to which would broadly indicate a degree of recovery[61]. It is not *completely* clear

[61] The indicators were: access to farmland, total crop output, household food security, livestock holdings, draught power availability, children's education – affordability, and health services – affordability.

that the respondent was being asked to comment on improvement/decline/standstill with respect to his/her own household: however, this is the supposition in the analysis which follows. The index was calculated as follows: a positive response scored 1, no change 0, a negative response –1, and the scores were aggregated for each household. The minimum possible was –8, the maximum +8. The mean was –3.98, and the median –5. Only 14.1% of the scores were positive values. 40% of households scored –6 or less.

Analysis of the recovery index showed that strong failure to recover was associated with:

- zero education of the household head
- low income (among the poor, IG 3 had significantly lower negative scores than IG 1 and 2)
- women headed households

7.7. Women headed households.

Women headed households suffered growing multiple disadvantages

In terms of recovery, women headed households were less likely to have positive scores (9% compared to 20% for male headed) and more likely to have highly negative scores (74% compared to 60%). This gender difference was confirmed by the results for changes in standard of living, suggesting that women headed households (one quarter of the sample) had experienced *significantly* less recovery than the male headed households.

Women headed households had to borrow more frequently: over a quarter reported borrowing more livestock, twice the proportion among men headed households.

All was not bleak, however: even women headed households managed to escape the trap of depending solely on casual labour or remittances for cash income. However, they found entry into non-farm based livelihoods more difficult than male headed households.

7.8. Relationship between socio-economic characteristics and recovery.

Recovery did occur but was was limited socio-economically

In terms of *consumption*, the winners were:

- in Matopo: half of those who managed an increase in clothes consumption and three quarters of those with transport consumption increases were in Matopo.
- Increased food consumption was commonly reported only by IG 5 – a very small and exceptional group (60% reported increased or the same consumption level).
- Larger households were more likely to report increased food consumption, even the very large (14+).

In terms of perception of being better off the livelihood portfolios with the best record were:

- Agriculture and trade (mostly IG 3-5). 56% reported being better off

- Farming + Poultry + Gardening. 38% reported being better off
- Beer brewing. 29% reported being better off
- Over a fifth of those with the following livelihoods: farming; gardening; wage only; wage and agriculture; trading reported being better off

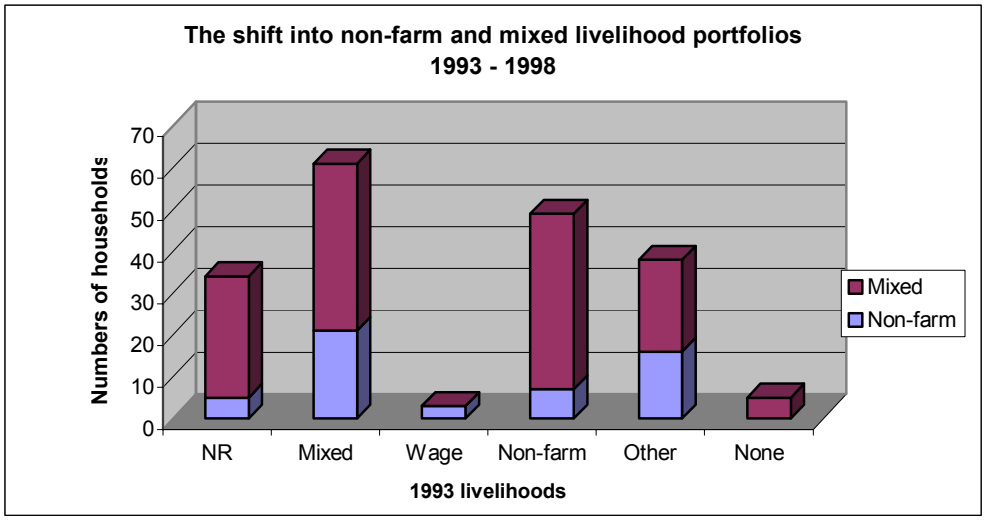
Overall, however, it is worth remembering that three quarters of the entire sample felt worse off.

The livelihood portfolios which were best at generating recovery were: waged, mixed (farm/NR and non-farm), and non-farm. Overall there was a substantial movement into mixed and non-farm livelihoods. Figure 7.3 shows the numbers of households moving to these portfolios from their 1993 starting point.

For the poorest (IG 1 and 2) who were very dependent on self-provisioning agriculture the best strategies were:
- Adding a poultry 'enterprise' to the farm;
- Combining wage employment with farming;
- Combining a service with farming (but this was rarely open to the poorest – IG 1)

For the slightly better off (IG 3 and 4), getting into trade was a very useful adjunct to agriculture.

Figure 7.3



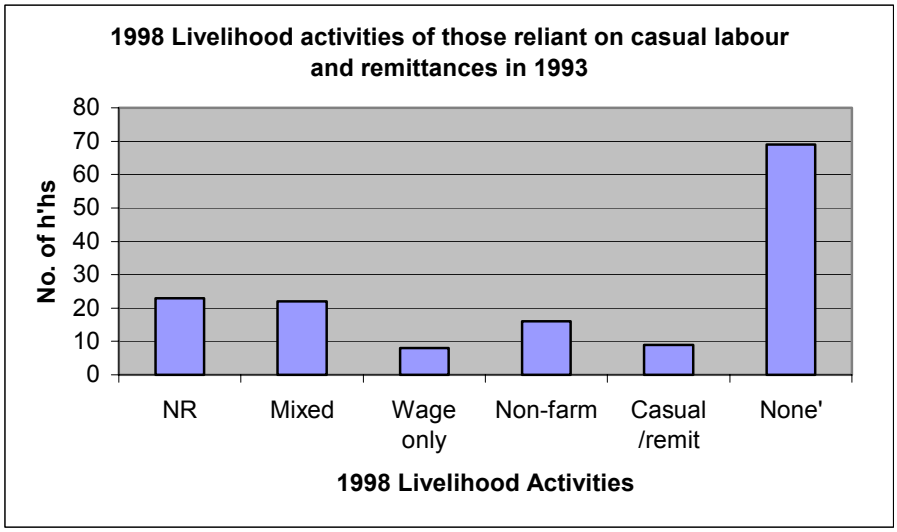
This shift was assisted by education. Only 4% of household heads in the 'mixed' and 2% in the wage, and 8% in the non-farm livelihood categories did not have any education, compared to 11% for NR based livelihoods, and 40% in the casual wage/ remittance category. 21 and 22% of the non-farm and mixed categories had secondary education, compared to 9% for NR-based and casual/ remittances. Given the progress made in education during the 1990s one could expect these differences to be magnified for the household as a whole.

The recovery index suggested that less than one fifth of the sample 'recovered'[62] during the period of study. Almost half the households in Matopo have a positive score, however, while only 5% in Gutu and Chivi recovered. Only IG 4 had a substantial proportion (37%) of households scoring positively. Conversely higher proportions of income groups 1 and 2 had very highly negative scores (-5 to –8). Recovering households were better educated, but education was no guarantee. 75 out of 84 households with heads educated to secondary level did not produce positive scores.

Food security was reported by most households in all livelihood categories as having worsened. Households which still had wage earners in 1998 were the only group significantly likely to report an improvement (Annex 7, Table 7.16)

However, there were also a few signs of recovery among those who were really struggling in 1993. The single most striking change in livelihood portfolios is the reduction in households with casual labour or remittances as their main source of income. There were 147 households in this category in 1993; and only 13 in 1998. These households had moved to a variety of livelihoods – predominantly natural resource based, and mixed farm and non-farm, and even some to non-farm and wage employment. This reflects how uncomfortable this category was.

Figure 7.4



The category 'none' requires further comment in this context (see Chapter 2). Of the 92 households giving 'none' as their source of income, 91 in fact had retained agricultural output, and all had some non-farm income, though none had wage income.

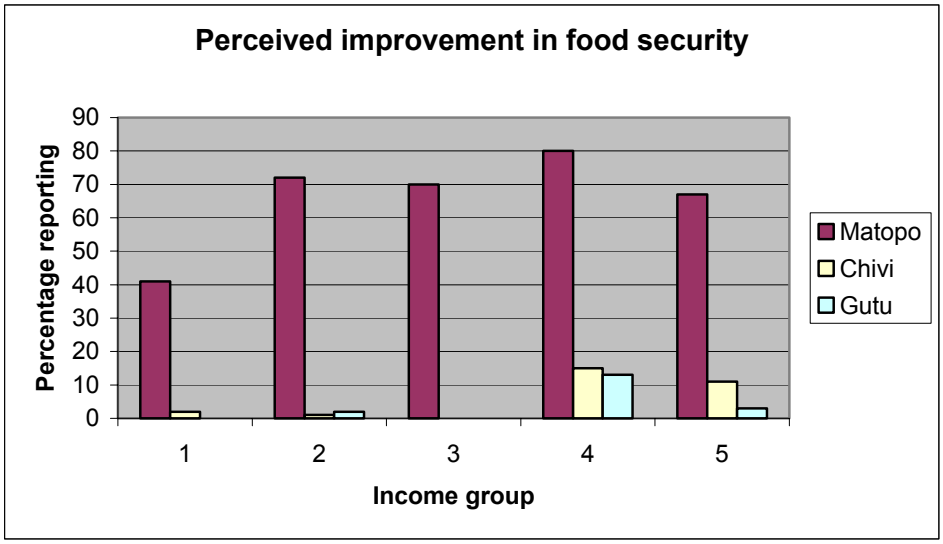
[62] Measured by a zero or positive score on the index. See text above for how the calculation was made.

7.9. The special status of Matopo.

7.9.1.Food Security.

Food security was perceived to have increased for most households in Matopo (see Figure 7.5, below). This is a strikingly different finding from the general picture of decline in Gutu and Chivi. 92 out of the 96 poor households which experienced improvement were in Matopo. There was a strong association there between those reporting improved food security and those reporting improved standard of living. This compares with a general picture for Gutu and Chivi of reduced food security and lower standard of living compared to five years previously. Improvements in food security were more widely felt by the non-poor, especially IG 4, and reductions in food security by the poorer groups.

Figure 7.5



Improved food security for many in Matopo can be linked to significantly greater increase in crop output and sales, livestock numbers and sales, agricultural income and non-agricultural income – i.e. greater all-round improvement for many households. Improvements were particularly marked for IG 1. The percentages reporting each of these improvements were significantly lower than the 58% with improved food security – between 15 and 50%. However, many households will have benefited from improvement on more than one of these indicators.

Broken down by income group, the number reporting improvement in Matopo was impressive. Thus agricultural income improved for 50% of IG 3, and for 65% of the non-poor (IGs 4 and 5). The percentages reporting improvement in non-agricultural income in Matopo were only slightly smaller. By comparison, hardly 5% of any income groups in Chivi or Gutu reported improvement.

The greater apparent recovery in Matopo could be partly because it was from a significantly lower level of income in 1993. However, that average level of income

remained comparatively low in 1998. It could also be that the liberalised market had developed more quickly in Matopo, close as it was to Bulawayo. It could also be that the rural areas of Matopo have become more urbanised than the other districts. The important role non-locals had in setting up a range of non-farm enterprises in Matopo, including trading enterprises, confirms this. Agricultural output, income and crop sales were also significantly up for many in Matopo, across the income categories. Again, this may be attributed to the better market opportunities there, as well as the good support farm households received from the extension services. The significance of local urban markets for agricultural growth in semi-arid areas in sub-Saharan Africa has been demonstrated in several locations now (Tiffen et al, 1994; Tiffen et al, 2001)

7.9.2. Analysis of income change.

Matopo is the only district where the dataset allows comparison of income in 1993 and 1998. Livelihood portfolios showed some variation: the number of households in the mixed and the non-farm categories increased substantially. The majority of respondents remained in the same livelihood category in both years, so the numbers changing category tend to be small. Nevertheless, as the figures for income change show (Table 7.2 below) there were 'good' moves and 'bad' moves.

'Better' moves which generated nominal income increases were:

- From wage only to mixed (non-farm and farm)
- From casual labour/remittances to non-farm
- From 'none' to any of the other categories, even 'other' (casual labour/remittances).

'Bad' moves included:

- From NR to non-farm (surprisingly)
- From mixed to NR
- From waged to none

Table 7.2: Mean income change in Matopo by change in livelihood portfolio[63] (Z$)[64]

	1998					
1993	***NR***	***Mixed***	***Waged***	***Non-farm***	***Casual/ remit***	***None***
NR	-1,324	5,600	--	-885	--	-533
Mixed	-1,950	-1,053	--	-900	--	--
Waged	--	2,254	9,950	720	--	-3204
Non-farm	--	-120	--	550	--	-300
Casual/Remittances		--	--	2,985	1,200	--
None	403	2,068	5966	1,557	1,200	-44

[63] It would have been interesting to break these categories down into their constituent categories, but the sample (58) was too small to give reasonable numbers of cases.
[64] These are nominal figures, not adjusted for purchasing power parity or inflation.

One of the reasons that so many Matopo households have done relatively well is that they tend to have relatively diversified portfolios, and many have moved into the mixed (NR and non-farm) and non-farm categories. Those able to specialise in the non-farm sector typically did better in terms of increasing their incomes than those remaining in the 'mixed' category. Another reason is that, although there are big differentials between male and female headed household incomes in Matopo[65], Matopo had fewer women headed households than the rest of the sample.

Matopo had a more dynamic economy: there were significantly more people self-employed in construction and services.

Education could have been expected to have contributed substantially to the possibility of improved income, but this was not found to be straightforwardly the case, using education of the household head as proxy for the education level of the household. Only college education made a clear positive difference to income levels, and this related mainly to wage income, which contracted slightly during the period. Otherwise the income increases recorded were hardly a match for inflation.

In terms of human capital development, a high 68% reported greater contact with Agritex in Matopo, compared with around 40% elsewhere. This included 68% of women headed households and the same proportion of the poorest households.

Household size proved an extremely interesting variable: both small and large households tended to see their incomes decline, while the 4-8 and 9-13 member household categories saw some increase, though the median increases were small (and negative in real terms).

In summary, the development of the market, and the resulting opportunities for diversification played the biggest part in improving wellbeing in Matopo. The smaller proportion of women headed households also made a difference.

7.10. A general retreat into subsistence.

7.10.1. Technical change: use of own and hybrid seeds.

Among the crops where a choice of hybrid, own, or local seed was common (maize, sorghum, groundnuts) there was widespread increased use of own seed across all income categories. Decreased use of hybrid and local (i.e. purchased) seed was common especially among the poorer households[66]. This is a further indicator of withdrawal from the market for some. However, increases in hybrid seed use was also reported, especially by the non-poor, but also by poor households, indicating a degree of differentiation among the poor with respect to engagement in input markets. This is confirmed by reduction in use of fertiliser by almost half the poorest households (IGs 1 and 2), who were also unable to compensate with increased manure applications. **These**

[65] For the sample as a whole the differentials were varied; women headed households in many categories earned higher incomes (see Chapter 5)

[66] Hybrid seeds were widely used only for maize, and to a small extent for groundnuts and sorghum. The scope for greater use looks ample.

poorer households (two thirds of the sample) were clearly even less integrated into agricultural input markets in 1998 than they had been in 1993.

Less poor households by contrast were more likely to increase their use of hybrids, fertiliser and manure, taking advantage of both their capacity to produce surpluses beyond the needs of household consumption, and the better prices available in the market for some crops – maize, soybeans, sunflower and groundnuts[67].

Table 7.3: % Change in the seed quantities used, by income group.

	Hybrid Seed			*Local Seed*			*Own seed*		
IG	**Increased**	**Same**	**Decreased**	**Increased**	**Same**	**Decreased**	**Increased**	**Same**	**Decreased**
1	21	46	32	8	68	24	36	43	21
2	30	41	29	6	58	37	36	44	20
3	36	44	21	15	44	41	40	45	15
4	31	44	25	11	42	47	29	44	28
5	40	45	15	11	56	33	44	38	19

Risk takers were few in these environments. Very few households reported changing other agricultural management techniques. The only common change was an improvement in agricultural tools.

7.10.2. Marketing changes.

On the other hand, a quarter to a third of households reported changes in agricultural marketing. The biggest of these were:

- More market outlets
- Good prices because there were more independent buyers competing for the goods
- Selling different products

suggesting that liberalisation was beginning to have an effect even in semi-arid areas, and giving support to our hypothesis:

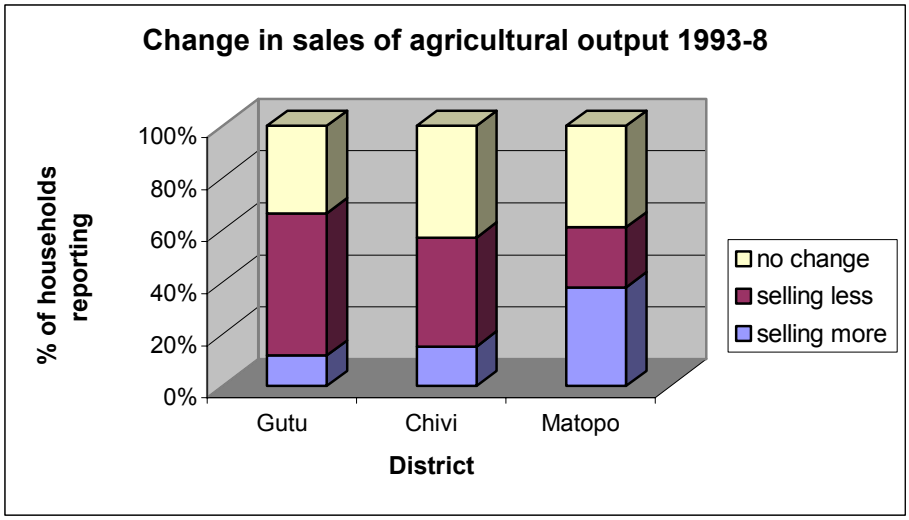
> A liberalised market will reduce post-harvest constraints and transmit price incentives to producers to increase levels of production and move to higher value or more varied products. Farmers are looking for reliable and assured markets to justify taking risks, but in relatively remote semi-arid areas (low productivity) the private sector will be slow to establish effective marketing channels.

What is surprising is that, after almost a decade of liberalisation the changes were not more commonly felt.

[67] However, once deflated by the consumer price index for low incomes, increases become real decreases. However, farmers' calculations are based on the significant volume of retained output, and the profitability of sales, which should be increased through use of hybrids, fertiliser etc.

The effect of these changes varied considerably by district. Almost half the sample in Gutu reported selling less than 5 years previously; almost 6 in 10 reported selling more in Matopo (see Figure 7.6). Overall, only one in five were selling more. Almost all those selling more gave 'harvesting more' as the reason. Only one respondent (out of 121) gave 'better farming methods', and eight gave improved fertiliser accessibility. In other words, selling more was not widely seen as a result of better methods, but simply of producing more. Likewise those who sold less saw it as a function of low output or low rainfall. Some also complained about the price of inputs; others saw reduced sales as a result of increased household consumption or reduced household labour availability due to old age.

Figure 7.6



Smaller households with non-farm based livelihoods had better chances of increasing per capita incomes and wellbeing

In Matopo a clear pattern emerged from the sub-sample of 58 who reported incomes for both 1993 and 1998. At the extremes in Matopo the two small (1-3 members) and one of the two very large (14+) households had negative income change.

Households with 4-8 people experienced higher mean and median income change in the wage and non-farm livelihood portfolio categories. Only in the mixed (farm and non-farm) category were the averages higher for the bigger (9-13) households. This suggests (not surprisingly) that households dependent on agriculture were likely to do better with significantly greater labour resources.

The direction of causality may, however, be otherwise: large households with low levels of resources may have little alternative but to make the best of whatever opportunities for self provisioning agriculture provides; under these circumstances, having a large family makes sense, as ever. It is the level of resources and the livelihood options open to households which is the key, rather than household size. This is confirmed by an analysis of a range of change indicators by household size:

- Over a quarter of households with 9 or more members experienced improvements in agricultural income – three times as many as among households with 8 or less

members. Nevertheless, more than 60% of even the bigger households experienced decline (Annex 7, Table 7.17 (a)).

- The relationship was even clearer for crop sales (Annex 7, Table 7.17 (b))
- Smaller households were as likely to experience improvements or no change in *non*-agricultural incomes as bigger households (roughly half the sample); in fact the biggest households were least likely to report improvement and most likely to report decline (Annex 7, Table 7.17 (c)).
- Very small households, on the other hand, were more likely to experience an increase in remittances, and less likely to see a decline (Annex 7, Table 7.17 (d)).

A haemhorrage of adults?

What is remarkable is that households in all three districts experienced a significant net loss of adults through migration or marriage as well as death; if anything this loss was most pronounced among the very poor. Table 7.4 shows that while births exceeded deaths, as would be expected, the average net loss of adults during the five year period was around 1 per household. This inability to retain adults could be a function of a high death rate; or positive sign of recognition that smaller households have fared better; or it could be a desperate exporting of adult labour; or a combination of these things.

This process is likely to have been considerably exacerbated with the higher prevalence of HIV/AIDS since the survey. Given the critical nature of household size and the availability of adult labour especially for the production of retained agricultural output and the importance of this for wellbeing, especially of the poor, one could predict further (and dramatic) declines in wellbeing across the board after 1998.

Table 7.4 Total net loss of adults by income group.

	IG 1	IG 2	IG 3	IG 4	IG 5	Total
Average No. of deaths / h'h	1.5	1.4	1	1.2	1	1.3
Average No. of deaths in all h'hs	0.4	0.4	0.3	0.3	0.2	0.4
Net change 1 (due to immigration/ emigration)	-22	-14	5	-26	-2	-59
Net change 2 (due to births and deaths)	135	109	39	48	12	343
Total net loss of adults. (– deaths* + rows 1 and 2 above)	-150	-109	-33	-80	-10	-382
Average net loss of adults. (total net loss divided by total no of households)	1.3	0.9	0.7	1.2	1.1	1

Source: dataset analysis.

The relative buoyancy of non-agricultural incomes

Non-agricultural incomes had increased more frequently for the non-poor (IG 4 and 5) households, and decreased for half or more of the households in IG 1-3. Non-agricultural incomes improved for significantly more of the poorer households (especially in IG 2 And 3, but not among the poorest) than agricultural incomes, which declined for two thirds to three quarters of these households[68].

Agricultural income increases were only reasonable widespread for IG 4, and in Matopo, where increases were from a very low base. The rate of change appears to have been driven by positive changes in markets (see below). There are statistically significant positive relationships between income group and improvements and decline in agricultural and non-agricultural income (see Annex 5, Tables 5.12 and 5.13) at the level of the whole sample. In other words, inequality increased, the rich got richer and many of the poor experienced reduced wellbeing.

Once the sample is disaggregated to the five income groups in the three districts statistical significance disappears. Nevertheless there are some interesting observations at this level. In particular, the proportions of households in Matopo across the income groups achieving improvement in food security and agricultural incomes is far in excess of those in the other districts, and the those reporting decline are far less. This is a remarkable result, but there is still a significant difference between poor and non-poor: improvement for the poor was achieved in agriculture; for the non-poor much more frequently in non-agricultural activities.

This picture lends support to the hypotheses:

> We would expect households who are able to diversify away from activities with covariant risk following a drought (e.g. from agricultural to non-agricultural occupations).
>
> Households with low levels of dependence on natural resources were more likely to experience increases in well-being in the post drought period.

[68] These differences were statistically significant at the level of the sample as a whole.

Diversification within smallholder agriculture: a widespread response to changing markets

Table 7.5 Change in Cultivated Crops 1992/3-97/8.

Crop	No of h'hs	Mean Area cultivated 1997/8 (acres)	Mean Area cultivated 1992/3 (acres)	Change in Mean area cultivated	Student's t-value
Maize	580	2.86	2.72	+0.14	2.59*
Groundnut	442	0.92	0.74	+0.17	4.81*
Nyimo	374	0.63	0.51	+0.12	4.87*
Sweet Potatoes	157	0.70	0.62	+0.08	1.95
Sorghum	152	1.30	0.93	+0.37	5.25*
Nyemba	110	0.67	0.39	+0.28	3.55*
Rapoko	91	0.76	0.61	+0.15	2.71*
Sunflower	43	1.10	0.59	+0.51	4.13*
Mhunga	29	1.49	1.38	+0.11	0.42
Beans	22	0.39	0.33	+0.06	1.09

* Statistically significant at the 95% confidence level

Significant increases occurred in the acreages of maize, sorghum, groundnuts, *nyimo*, *nyemba*, and declines in *rapoko* and *mhunga*. This represents a move away from crops requiring large amounts of scarce resources of labour (*rapoko*) or capital (*mhunga*) or where there are high levels of risk (*rapoko*) (refer to Chapter 6, Table 6.3). These changes were largely accounted for by more households growing the crops: crop diversification was particularly marked in Chivi and Matopo; and most marked in Matopo – another reason for its greater level of post-drought recovery.

It is interesting that farmers chose to grow less *mhunga* and *rapoko* which were the crops whose real producer prices (i.e. deflated by the lower income consumer price index) had sunk to a very low level by 1996 (39% of their 1980 value), while the crops which were expanded were those which had maintained a more respectable real price level – with the exception of sorghum (Ministry of Agriculture, 1997: 95). Given the high proportion of agricultural product retained for own consumption, it could have been expected that farmers' responses would have been less reflective of the market, but not so. The exception – sorghum – whose price level had decreased significantly was low risk, low labour, management and capital requirement and could be sold to the breweries (Table 6.3, Chapter 6).

It would appear that the motivation for crop diversification was to earn cash. Groundnuts was the most common crop to diversify into: together with sunflower and maize, it was the crop which had best retained its value on the market. Thus decisions about cropping

strategy were being taken on commercial grounds, despite the high proportion of retained output.

High quality extension performance

The evaluation of the extension services presented by the respondents is remarkable:

- Most (over 60%) reported increased contact with extension agents over the period – this was especially marked for Matopo, poor households, and women-headed households.

Only households with very high dependency ratios, who were likely to be highly subsistence oriented, saw themselves as relatively neglected.

However good the extension services may have been, there was relatively little *and declining* use of hybrid seed and other purchased inputs, except for maize. Disengagement from markets was not a result of absence of information or willingness to innovate.

Despite all this, a smallholder agricultural crisis?

But this relatively dynamic picture of semi-arid smallholder agriculture did not produce good results. Relatively few households reported increased crop sales, agricultural output, livestock sales, agricultural incomes, food consumption, and food security. Even in Matopo, where many more households did report favourably on these indicators, the income change data showed that households who remained dependent only on natural resource based livelihoods had less income in 1998 than 1993 (the median drop was Zimbabwe $500, the mean $1324). Only those households who added a non-agricultural livelihood were able to increase their incomes significantly. The crisis was therefore one of *returns* to farming and other NR-based livelihoods.

This picture of agricultural change gives support to our hypothesis:

> Non-poor households will be better able to take up new opportunities created by market liberalisation because they have the resources that enable them to take the risk (e.g. access to working and investment capital, access to marketing institutions). Poorer households without such resources would only benefit from systems which obviated the need for such resources.

Box 7.1: The benefits of vertical integration – the case of cotton.

The successes of the liberalised cotton sector in Zimbabwe include: producing and exporting more from the smallholder sector, increasing cotton yields, and developing a greater degree of vertical integration. This was already a reasonably vertically integrated operation prior to liberalisation, as producers were tied in through credit information and input supply; and the state sold and exported ginned cotton on forward contracts to a limited number of endusers. Post-liberalisation the major firm, Cottco, has acquired shares in a spinning company, as well as retaining other elements of co-ordination within the sector. Yields have increased in the smallholder sector because the cotton firms have supplied improved seed, fertilisers and pesticides, though this has not always been easy given the overall shortage of foreign exchange with which these are purchased.

Competition among cotton firms has not increased substantially, however, as the public monopoly has been replaced by a private oligopoly. This has meant that producers have not gained in terms of receiving a higher proportion of the f.o.b.price of ginned cotton. They have gained in terms of rapidity of cash payment on delivery.

An alternative approach to that of vertical integration is the reduction in requirements of costly external inputs (eg fertilisers, pesticides). Here the organic approach has much to offer: in Zimbabwe a pilot project in Guruve supported by the Lower Guruve Development Association, Novib and the Pesticides Trust led to hundreds of farmers planting organic cotton in the 1990s, and developing a private knowledge base on the use of non-industrial pesticides. Links were then to be created for processing and marketing this cotton separately from other cotton. To sustain the approach, these links will undoubtedly be critical. For example, farmers will need assistance developing adequate organic sources of fertility to compensate for the non-use of chemical fertiliser.

Sources: Larsen, M.N. (2001) and Nyakanda, F. (1999).

Conclusion: what were the keys to recovery?

From this analysis the keys to recovery for households lay in

- The ability to diversify within agriculture and into the non-farm sector and tap into markets
- Access to a wage income or a good remittance (increasingly scarce)
- Primary education of the household head[69]
- Having adult male labour in the household
- A relatively small household – unless it was purely dependent on agriculture, in which case larger households were better.

From a societal point of view, keys to recovery were:

- Well functioning commodity markets offering good prices
- Urbanisation of the countryside
- Social security for the poorest to tide them over until they accumulate enough human and other capital to enter the market: this would have prevented the decline which was evident for so many poor households

[69] Taken here as a proxy for education of the household.

8. Analysis of livelihoods options for the poor, researchable constraints, and further research requirements

Summary of preceding chapters.

Chapter 1 introduced the research team, commented on the terms of reference and laid out the structure of this report.

Chapter 2 described the study area and the research methods used. The major approach was to re-analyse data on three semi-arid areas out of four communal areas surveyed by ITDG in 1998. The dataset developed from this household survey was designed to explore the effects of structural adjustment in communal areas in Zimbabwe. The quality of the original ITDG dataset was evaluated:

- Its strength lies in the size of the sample, the coverage of three predominantly semi-arid districts, the detail available on household livelihoods and the composition of households and household incomes
- Its weakness lies in the way in which change was investigated: respondents were asked whether and how many aspects of their livelihoods had changed, but the magnitude of the changes were generally not quantified

Chapter 3 sketched the difficult Zimbabwean economic and political context in the 1990s. This was one of increasing pressure on land in the communal areas due to population growth, the return of unemployed urban people to rural areas; reduced remittance flows resulting from shrinkage in the urban (formal and informal) economies reducing life expectancy due to HIV/AIDS (which is expected to translate into a declining population by 2003); reduced per capita income at the beginning of the 1990s following the devastating 1991 drought and low and volatile growth in the 1980s, picking up somewhat by 1998; significant dependence of per capita income trends on the rainfall pattern (strongly below the average normal during the period) and the performance of the agricultural sector. While there had been progress in smallholder maize production this was restricted to the 10% of households in the higher potential areas with capital to invest in fertiliser. Increased farm gate prices following devaluations in the early 1990s benefited few farmers as few produced much surplus for sale, and many were net buyers of maize. The long term trend in real crop prices was in any case strongly downward as elsewhere in the world. There was chronic under-employment and open unemployment, and the 'peasant farming' sector absorbed much of this.

Three quarters of the rural population was reckoned to be below the national poverty line in 1995, and the prevalence of extreme poverty, as measured by the Food Poverty Line, increased in the 1990s from 17 to 37% of the rural population.

The government's major rural development policies centred on

- Increasing smallholder agricultural production
- Land redistribution and
- Drought relief

These generally proved unequal to the task of assuring improving livelihoods for the majority, and were not enough to restrain the growth of extreme rural poverty. HIV/AIDS began to take a heavy toll, with deaths in the 15-35 age bracket, increasing numbers of orphans and households headed by grandparents, women and children. Livelihoods impacts of HIV/AIDS included:

- Increased responsibilities for care and income for grandparents
- Girl children reducing school attendance
- Women's time increasingly taken up with caring, and reduced time available for income generation
- Reduced ability to pay school fees
- Increased use of child labour
- Reduced agricultural output
- Asset stripping of widows and orphans

Government policies have been inadequate to this challenge, and all the signs were of worse to come.

The study districts were also described. Chivi and Gutu are densely populated and semi-arid with poor soil. They are isolated with very weal non-farm economies and urban links. Matopo, the most arid (NR V) of the four areas is also partly mountainous, but it is near a large city (50km from Bulawayo, Zimbabwe's second largest city), which has had a number of important impacts (lower numbers of female headed households, a higher degree of diversification). Matopo is a traditional livestock herding area (with median herd size of four animials, the same as the median in Guruve but twice that of Chivi and Gutu), but has poor grazing despite having more natural forest remaining than the other two semi-arid areas in this study.

Chapters 4-6 presented a static analysis of the livelihoods of the poor in the three semi-arid districts, focusing on the correlates of poverty and the relationship between poverty, well-being and livelihood strategies. Chapter 4 focuses on incomes, chapter 5 on assets and markets, and chapter 6 on livelihoods.

- Not surprisingly, there were significant variations among the three districts. The principal difference was between Matopo and the others.

Within districts there was a striking degree of income differential, and considerable variety in the major sources of income. Overall, nearly three quarters of households were extremely poor – below the 'Food Poverty Line'. The non-poor were 16% of the sample. Almost all households relied to a significant degree on 'retained output' (i.e. subsistence production). Non-farm income, wage income and remittances were all significant sources for a substantial proportion of households. Higher income households typically received more wage and remittance income, while lower income households were more dependent on retained agricultural output and were generally less likely to be strongly engaged in markets, with the exception of those in Matopo where markets worked better. The markets which did engage poor households were activities like beer brewing or construction which involved high levels of drudgery.

Critical assets correlated with higher incomes were oxen, scotch carts and wheelbarrows. Overall, household and agricultural assets were very unequally distributed with only ploughs and poultry, among the principle agricultural assets, being very widely distributed. Education enabled households to engage in the wage labour

market and some diversification from subsistence agricultural production. Social capital (measured by borrowing labour, livestock, credit and implements and membership of farmers', women's and gardening clubs and other informal organisations) was important especially for borrowing oxen, livestock and labour but was not correlated with income. The wealthiest households had opted out of lending systems – perhaps as a strategy to protect their accumulating assets, but also because they were able to access inputs using market mechanisms, with lower transaction costs than those applying to traditional reciprocal arrangements.

Income was associated with household size and structure, the sex of the household head, and dependency ratios. Contrary to expectation for an economy dominated by subsistence production, and agricultural activities more generally, households with large numbers and large numbers of economically active adults were more likely to be poor. However, there was much variation across the income groups. Overall, wealthier households were smaller; poorer households had more children but the degree of association was not very strong. On the other hand, an analysis of labour availability in agriculture indicated that the availability of labour was a constraint for many households. This was especially so in Matopo, where there was more competition for available labour and greater use of child labour, and where small families faced particular difficulties. Very few households looked to the labour market to solve labour constraints, indicating the low level of market involvement of most households. Enabling children to live long enough to be healthy productive adults was clearly critical to household well-being. Given the increased prevalence of HIV especially among teenagers, this is likely to have become an even bigger constraint for many households since the survey was carried out.

Women headed households did better in natural resource-based occupations than male headed, and the key to this was adding a poultry and/or a gardening (hand irrigated horticulture) enterprise to the farm; the opposite was true for wage work, and non-farm or mixed livelihood portfolios, where women headed households did not perform well. In the market men competed better due to higher education levels, and the generally higher pay for work they commanded.

Markets were not sufficiently organised or attractive to engage poor people, except in Matopo. Elsewhere barter dominated as a form of exchange, and poor households made few transactions through the market. The only widespread exception was the purchase of maize seed. Chapter 7 documented the retreat into subsistence between 1993 and 1998. However, while some were retreating, a quarter or so were experiencing good prices, more outlets and selling more varied products. Within agriculture, changes in cropping pattern seemed to be driven by profitability considerations and price responsiveness, despite the subsistence orientation of many.

Government grain loans gave some important income smoothing support to many poor households in Chivi and Gutu and fewer in Matopo, and food for work had been a significant source of cash to finance agricultural activities for a small proportion of households. However, the net effect of such social protection measures was certainly not enough to prevent impoverishment or provide a floor to poverty. Agricultural extension services were widely available, even to poor households – no mean achievement at a time when the service was under pressure to be lean and efficient. However, there was little that the information provided alone could do to counteract the risks and weak markets producers in semi-arid areas had to face.

Chapter 7 analysed the changes in livelihoods and well-being between 1993 and 1998. The overwhelming picture was of decline in well-being, consumption and non-recovery from the effects of the 1991 drought. Even many of the non-poor reported decline. The exceptions were mainly in Matopo. Matopo experienced considerably greater dynamic positive change:

- The economy of Matopo was significantly poorer but more diversified, despite much lower population densities (partly due to its mountainous topography), reflecting the power of urban proximity
- Many more households experienced improvement in Matopo, in crop sales, non-farm income, and food consumption.
- 50% of households reporting increase in clothing consumption and 75% of households reporting increases in transport consumption were in Matopo.

Chivi, by contrast, had the most households reporting decline across several indicators, and many reported increasing consumption of health services, which could be a result of declining incomes and food consumption.

Many, especially the poorer households, had agricultural land lying fallow because they did not have the means to cultivate it – insufficient draught oxen and labour. There was poor availability of financial services throughout the 1990s, which meant these assets could be acquired only with difficulty. There were substantial numbers of households whose livestock holdings declined during this period. This applied even to small stock and poultry.

Decline was generally worst for the poorest households, who were also those dependent on natural resources, casual labour and low levels of remittances. Many of these were women headed. These households were more likely to report decline in consumption of health services as well as other items – richer groups were less likely to report this, indicating the sacrifices people made, where this was possible, to treat sick members of the household.

A recovery index was calculated, based on perception of 8 change indicators. Failure to recover was widespread (4 out of 5 households), but especially marked for the same groups (those dependent on natural resources, casual labour and low levels of remittances), plus households whose head had no education at all.

Recovery was greater in Matopo, and food consumption for large households. In terms of livelihood portfolios, households with agriculture and trade (generally somewhat better off anyway), and the combination of farming, gardening and poultry were likely to report positive change. Improved food security and well-being in Matopo was associated with increased agricultural income, output and sales as well as non-agricultural income. And the poorest also benefited. Possible reasons were thought to be:

- A lower starting point (households in Matopo were poorer than others in 1993)
- The more rapid development of a liberalised market in the vicinity of a major urban centre – Bulawayo. This affected the opportunities in construction and services, as well as more widely.
- The more mixed nature of the household livelihood portfolios, with many moving into non-farm activities over the period.
- The smaller proportion of women headed households.

- The greater access to extension.

Overall, the livelihood portfolios which generated the best recovery were waged, non-farm and mixed farm and non-farm. For the poorest adding a poultry enterprise or wage employment to the farm were the best strategies. Very few households remained with remittances or casual labour as their *only* source of cash income by 1998. Most had been compelled at least to farm, but many had also done other things.

Diversification was helped by education. Non-agricultural incomes were generally more resilient in this post-drought period, especially for the better off, but even for those of the poor and poorest who had these non-agricultural income sources. Smallholder agriculture was clearly in a crisis of profitability.

While it was not clear that size of household or dependency ratios had a systematic effect on well-being or recovery, what was clear was the significant net loss of adults in the sample as a whole through marriage or migration as well as death, and this tended to be most pronounced among the poorest. This net loss was likely to have increased since the survey, due to HIV/AIDS.

The characteristics and experiences of the poor in semi-arid Zimbabwe

There was a big per capita income differential from top to bottom (mean differential across income sources: 1:23), despite being only a relatively poor segment of Zimbabwe society, but the differential varied hugely between income sources

- For retained output the ratio was: 1:2.5
- For crop sales: 1:5
- For livestock sales: 1:4
- For non-farm income: 1:5.5
- For remittances: 1:9
- For wages: 1:35

For most households the value of retained output was more significant than cash income from crop/livestock sales, by factors of between 3 and 10.

Cash income came largely from non-farm sources and wages. Remittances, crop and livestock sales all contributed less than 10% of total household income.

> Some assets were strongly associated with income: oxen, scotch carts, and wheelbarrows in particular. Education (of head of household – a proxy for education of the household as a whole) was also strongly associated with total income, with cash income, and with diversity of income sources.

The key characteristics of households below the poverty line (Income Groups 1-3, the 'consumption poor' were 84% of the population) were: they were large households, more likely to be divided into multiple unit, but did not have significantly higher dependency ratios. They had both a low level of income and of assets. They had not recovered their position since the 1991 drought – in fact the opposite was the case. They had strong dependence on borrowing e.g. for critical agricultural inputs like draught power, based on payments in kind. They were less educated than non-poor. Frequently they reported being short of adult household labour, despite being large households. The *very* poor, in addition, (Income Groups 1 and 2, those below the Food Poverty Line) were generally

unable to borrow as they had less human capital with which to repay loans and were unable to reciprocate by lending at a later date.

There was experience of both positive and negative change during the 1993-8 period. Common features of positive change included the following:

- Non-agricultural income was much more likely to have increased or to be stable, with the exception of remittances.
- Livelihood improvement was more likely for less poor households (IG 3-5)
- Improvement was also more likely for smaller households. However, there was some variation depending on livelihood portfolio, indicating that larger households could find portfolios which brought increased returns.
- Many more households experienced improvement in Matopo, in crop sales, non-farm income, and food consumption.
- 50% of households reporting increase in clothing consumption and 75% of households reporting increases in transport consumption were in Matopo.
- IG 3-5 experienced growth of remittances.
- IG 3-4 had increased crop sales.
- Households with wage earners experienced less decline in crop sales than others.
- Food consumption held up better for those with wage income, non-farm income or mixed (NR and non-NR based) livelihood portfolios
- Only IG 5 consistently experienced an increase in food consumption.
- Nevertheless, larger households reported an increase in food consumption more frequently than smaller households.

Many households also experience a downward pressure on their well-being and livelihoods:

- Most households reduced consumption, especially of clothing and transport, but also of food. (The least reduction was made in health – clearly seen as a very necessary expenditure by most.)
- Households dependent mainly on NR-based activities and/or casual wages and remittances experienced the worst perceived decline across a number of well-being indicators: food security, agricultural income, crop sales, non-agricultural income, household food consumption, consumption of health services.
- Very few households could afford to depend on remittances as their main source of income by 1998.
- Chivi had the most households reporting decline across several indicators, and many reported increasing consumption of health services, a result of declining incomes and food consumption.
- Women-headed households, and small households strongly reduced crop sales; large households were more likely to report increased crop sales

Livelihood strategies and poverty reduction

What can we say about the livelihood strategies of different socio-economic groups in the semi-arid communal areas?

The poor relied on production for own consumption and had weak engagement with markets. This was even true for the non-poor IG 4. The poor were also

strongly reliant on natural resource based work. Their cropping and farm strategies were less specialised than those of the non-poor. Their livelihood portfolios were made up of low entry barrier and high drudgery occupations. However, even for the poor, education enabled diversification from subsistence agriculture and access to the wage economy.

The very poor had even less diverse portfolios; even within agriculture they farmed fewer crops, or kept a smaller range of stock. They had very little *cash* income from self employment (especially IG 1), and very little wage employment (as opposed to occasional casual work). Retained output was very often their *only* source of income. $^1/_5$ got remittances; $^1/_3$ had some non-farm income; and only ¼ had sold agricultural output.

Women-headed households were locked into natural resource based occupations and casual labour as a result of the 'traditional' gender division of labour, and low education levels. Women headed households diversified *within* natural resource based occupations, while men-headed households tended to diversify outside it. Nevertheless they were able to accumulate more of some key assets for such livelihoods, e.g. scotch carts, ploughs, wheelbarrows and donkeys if they had the cash to acquire them. Access to remittances and casual labour were critical to acquiring these assets

The non-poor (IG 4) depended significantly on wage and remittance income, and were hardly involved in agriculture. However, even among this group a significant proportion reported decline in well-being between 1993 and 1998. *The better off non-poor (IG 5)* tended to be disassociated with arrangements for social solidarity (e.g. lending labour, livestock, credit, implements) and were even less involved in agriculture.

The two livelihood portfolios which consistently did worst in terms of perceived well-being (food security, agricultural income, crop sales, remittances, household food consumption, health service consumption were all likely to have decreased)were the natural resource based portfolios (especially those reliant only on farming, less so for those who added poultry and/or gardening), and those reliant on casual labour and/or remittances.

The portfolios which did best, on the other hand are 'agriculture plus': agriculture plus either remittances, or construction, trade or wage income; and wage earners who also engaged in trade. For the poor, adding poultry to farming increased incomes significantly, as did adding a service or (only for IG 3 among the poor) trade.

Researchable constraints on the livelihood options open to the poor in semi-arid Zimbabwe.

It is expected that neither the availability of agricultural technology nor of production information was a strong constraint, given the comparative effectiveness of the Zimbabwean research and extension services. However, it was observed that the use of hybrid seed was restricted to maize for most growers, as well as cotton, sunflower and tobacco for the small numbers of farmers who grew them. It may be that the markets for hybrids for other crops have lagged behind. If this is the case, and where there are new seeds which respond well to a low input environment, efforts to multiply and distribute these seeds would have high and well distributed returns.

The availability of land *per* se was also not a constraint, interestingly, given the policy emphasis on land redistribution[70]. (Communal areas are often on poor or poorly served land. High density, intensive agriculture is inappropriate, leading to high risk agriculture and low or variable yields. Land may not be a constraint, but land of a good quality can be.)

Constraints were found in the following domains: risks, governance, household size and structure, the state of natural resources, and markets.

Risk profile
There was continued dependence of poor households on high risk (rainfall quantity and year on year variation, pests, and evolving private sector markets) agriculture. Agricultural research could focus on some of these risks, as indicated below.

There was widespread failure to recover from asset depletion caused by 1991 drought. Clearly the available coping, insurance and recovery mechanisms had not worked. The constraints on existing private and public as well as informal insurance could be much better understood. There is a need to investigate the possibilities for widespread private and public insurance mechanisms and services which could mitigate this situation in future.

There are vulnerable groups within the population who may need special protection. Women headed households, for example, typically had fewer physical assets and lower education levels. They were able to engage in less non-farm diversification the key to reduced poverty, and where this happened it was into low return or high drudgery occupations. It can be argued that they will never be able to invest and develop themselves without a strong pull up from a widows' pension, or child allowances which could put a floor to their vulnerability. Girl's education is a priority.

[70] Any real demand for land redistribution probably came from different constituencies – the urban unemployed for example. Some rural households might have been short of land, and communal farmers were often on poor land, so might appreciate accessing better quality land. However, the constraints on its use would still broadly exist.

Table 7.1 Unusual researchable technical constraints[71].

Constraint	Current Response	Potential Response
Bird attacks on millets and sorghum	Reduction in households cultivating millets	• Research Quelia-bird behaviour (what can be done to control flocks, reduce numbers etc.) • Develop a market for hunted birds (Trap birds. Birds become new CPR-based livelihood) • Develop new spiny varieties • Develop bird-scarers
Baboon attacks on crops	Guard crops	• Fencing?
Baboon attacks on granaries	Design of granaries – break-in requires dexterity	• Improve design?

Governance.

There were two strong constraints to recovery in the governance field. Public services were widely held to have become less affordable. Health in particular seemed to absorb a significant proportion of available cash. This can be compared with the good record of the agricultural extension services in reaching the poor and women as well as more commercially oriented smallholders.

Government provided minimal social protection to cover the above risk profile. Only government grain loans (GGL) got to many (but not all) poor households, and to rather few in Matopo. GGL went less frequently to the most needy households with high dependency ratios. On the other hand, women headed households were more likely to get GGL. The loan element was not taken seriously by many. It is questionable whether grain distribution in to distressed poor households should be on a loan basis. There was thus scope for improvements in management of GGL.

Household size and structure
Large households with high dependency ratios consumed a lot, were constrained in paying cash for goods and services, and found difficulties paying for children's education. They needed a high level of retained output, but faced constraints of adult labour and draught power availability. Mobilising labour for agriculture was problematic for many smaller households in the lower income groups who did not have adequate labour themselves and did not have or have access to the working capital or food or beer supplies required to hire labour, or to the social capital to borrow it. Critically, households with high dependency ratios were less likely to increase their non-agricultural incomes[72].

[71] Lipton and Longhurst long ago (1989) made the point that research systems never deal with the animal pests which damage crops, which are often the major causes of damage. Scientists have preferred to deal with pests which can be managed through agro-chemicals.
[72] This was one of the very few associations with dependency ratio. This variable was very poorly associated with most other variables in the dataset. A further exception was that high

Labour availability was a critical constraint for these households, which will have intensified with the onset of HIV/AIDS in these districts. Identifying the key constraints to the development of the rural labour market is arguably the single most urgent future research task. This is tied up with the scarcity of cash, liquidity and credit in this quasi-cashless economy[73]. It is also tied up with the issue of social protection. There is a range of households who were unable to support themselves.

The state of natural resources.

It is possible that declining natural resources undermined the ability of poor households to diversify their income sources through exploiting common property resources. A better idea about this may be available from the research on micro-catchments in Zimbabwe[74].

Markets.

The extent to which these economies were still, in 1998, unmonetised, is staggering. Opportunities for cash savings and cash credit were rare. There were limited opportunities for waged work, both in the formal sector and casual labour. This may have been in turn partly a function limited credit for enterprise. The difference made by nearness to a town in the case of the Matopo villages studied was apparent. Elsewhere the limited development of rural towns as market hubs (critical for e.g. gardening, but also the development of services and construction) was an enormous constraint on local economic growth. The constraints on small town expansion and prosperity are poorly understood.

A root constraint?

From this picture can we identify 'root constraints' from which others emerge? A candidate would be:

- The savings, credit and insurance market: shortage of working capital constrained employment generation (ability to mobilise labour), livelihoods were pursued amid many uninsured risks, and there were no possibilities of secure (inflation-proof) cash savings.

However, even if there had been functioning financial services markets enabling savings, income smoothing, and a degree of access to credit and insurance, these would not have helped the many households experiencing significant decline in assets, incomes and well-being. Mechanisms to arrest such processes are still badly needed in Zimbabwe: adequate social protection and safety nets are simply not in place. In view of the country's economic decline, and the long-term implications of the HIV/ AIDS pandemic this is a major challenge for the future.

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dependency households were less likely to receive government grain loans.

[73] It is expected that Matopo would be much less a 'cashless' rural economy than Chivi or Gutu.

[74] See NRSP Project on Micro-catchment Management and Sustainable Rural Livelihoods in Zimbabwe

What is the effective demand for new livelihood options? (ToR)

A simple method for identifying relevant existing and new options was developed. This involved specifying a number of criteria which would need to be satisfied – see Table 8.2.

Criterion 1 will give the most widespread benefits as all households retain output. However, these strategies probably do not need to involve new research at this stage.

Identifiable 'new' options

1 Strategies for strengthening subsistence

- gardens: good for the provision of greens, food security, women and local markets [constraint: what the local market can absorb.]
- low external input sustainable agriculture: good for soil water retention and therefore security; low level of purchased inputs fits pattern of scarce resources.

Potentially these strategies would benefit almost all households, with particular emphasis on the poorer and poorest who rely most on retained output. However, as we have seen above, preconditions for achieving and sustaining such benefits are the improvement of financial services, and the development of stronger safety nets.

2 Strategies for marketing widely produced goods and services

- improve opportunities (markets and services) for backyard poultry producers, taking advantage of the premium for free range table birds (and eggs?)
- explore vertical links with marketing and processing companies, especially in view of the threat to supplies from the commercial sector
- enhanced markets for under-used CPR outputs
    - wild fruits
    - apiculture

These strategies could benefit large numbers of poor people. There might be some barriers to accessing CPR (e.g. limited ownership of scotch carts and wheelbarrows, declining natural resources); there might be constraints to farm households diversifying into crops where there are vertical integration opportunities.

Investment in poultry and small stock represent a way for poor households of climbing back to a more robust livelihood portfolio. The level of production risk and market exposure associated with poultry and small stock will constrain take up.

Table 8.2 Criteria and evaluation of existing options & new options[75]

Criteria	Existing options	New options	Comment on New Options
1. Enhance security/ level of retained output	Gardening	• **Low External Input Sustainable Agriculture** focused on improving subsistence as well as cash cropping • **Integrated pest management and composting** • **Land management programmes** • **Enhance information flows**, though farmer's clubs and gardening clubs •	• Low external inputs affordable by cash-strapped poorer households • Land management programmes – these could generate employment at scarcity periods and in drought years • Enhance information flows – focus on marketing, knowledge generation. Farmer's clubs need to be opened to the poor. There are no legal or constitutional barriers to this, but institutional norms will need changing
2. Enhancing the market for widely produced or produceable goods	Widen or deepen the market for poultry and eggs	• **Vertically integrate** crop production with processing and marketing (eg sorghum-*chibuku* breweries). • **Explore marketability** (including value addition) of range of commonly available CPR products	• Vertical Integration - this would involve combinations of private capital, fair trade organisations and/ or collective enterprises based on farmers' and gardening clubs. A number of farms and non-farm products could benefit from such arrangements • Reduce high transaction cost barter trade. Improve terms of trade for agricultural vs. processed goods. Improve transmission of market information and so farmer response to comparative and competitive advantage – move into optimal farm enterprises. Increase marketed surplus, following increased reliability of markets.

[75] See Annex 8 for a longer list of 'new' livelihood options.

3. Enhancing the labour market		• **Develop appropriate financial services market for the poor** (savings, credit and insurance)	Would allow the accumulation of cash savings; the mitigation of risk and the use of seasonal credit for the increased hiring of seasonal labour, benefiting the poorest (casual labourers); increased use of purchased inputs; and enhanced ability to store crops until market price optimal for sale.
4. Widening ownership of livestock		• **Animal loan schemes**	Animal loans would be particularly significant in enhancing resilience and reducing sensitivity of livelihood systems to drought.
5. Enhanced agricultural input markets		• **Oxen (plough set) hiring schemes** • **Scotch-cart hiring schemes**	
6. Avoid further strain on overstretched resources (CPRs, women's time)	Exploitation of CPRs as: • source of raw materials for artisanal activities (clay for pottery and brick-making, reeds for basket making); • for food (wild fruits, honey, field-mice) and • for agriculture (grazing, leaf litter and termitaria for soil augmentation)	• **agro-forestry** on common land and homestead orchards • **Non-NR-based artisan or service occupations**	CPR management needs improvement; agro-forestry would help to tailor improvements to the needs of the poorer households
7. Diversification into low risk or higher return activities	Non-farm occupations	Reduced risk vertical integration in agriculture	

3. Strategies for strengthening CPR management (see Section 5.6.2).

- Legally protect the common property status of current CPRs (to avoid sale by unscrupulous kraal heads)
- Investigate mechanisms for strengthening CPR management institutions (important for renewable resources for grazing, and non-renewable resources such as clay – extraction for brick-making and pottery)
- Counter deforestation by developing tree nurseries (employment and income for resource poor households) for agro-forestry on CPR land (range of tree species, including fruit trees, flowering trees to support apiculture etc.).
- Develop fuel wood groves with fast-growing tree varieties with good burning characteristics.
- Investigate introduction of low fuel-use stove designs.
- Work with potters and basket makers to develop alternative raw materials which reduce bark use
- Widen and deepen market for selected low impact CPRs-based products, e.g. honey and wild fruits
- Seek to improve returns to, and resource-use efficiency in, selected CPR based enterprises e.g. pottery, brick-making, as an element in a CPR preservation and management strategy

4 Diversification

Livelihood diversification could be supported through activities to

- improve public transport provision
- develop entrepreneurship and human capital
- develop labour markets
- develop financial services markets
- develop agricultural output markets (including for high value cash crops such as cotton, paprika and 'gardening' or horticultural crops)
- support local post-harvest value-addition (credit for machinery and seasonal labour, market information, training in packaging and branding)

Research questions for phase 2

A long list is presented below, which is then narrowed to a short list using the following criteria:

- Researchability in today's Zimbabwe
- Likely dissemination and use of results
- Degree of impact on the poor and very poor]

1 How to extend critical secondary markets e.g. savings and insurance which could enable commodity and labour markets to function better?

2 Sub-sectoral analysis to see what can be done to stimulate labour-intensive growth locally and nationally.

- What existing and new opportunities could be available to people with different levels of education?

3 Scope to extend vertical integration to low risk crops e.g. sorghum-*chibuku* breweries? Or stock e.g. poultry

4 What can be done to enhance the return to women's labour?

- Better access to farmers' groups (women are currently unable to access these except through their husbands. Women headed households are excluded)

5 Why is the current level of development of the poultry market so low?

6 How can the role of rural growth centres and small towns be enhanced to maximise the impact on rural markets?

7 What are the key transport constraints which make rural Zimbabwe increasingly a headload economy?

8 Has HIV/AIDS exacerbated the decline in well-being experienced by the majority of the sample between 1993 and 1998? Coping strategies of household reformation would have had beneficial effects on livelihoods and well-being if they resulted in greater resources of adult labour.

Table 8.3 Evaluation of potential further research questions

Criteria	*Researchability*	*Dissemination potential within Zimbabwe*	*Potential impact on the poor*
1 Extension of financial services markets	High	Medium	High
2 Sub-sectoral analysis	High	High	Low-medium
3 Vertical integration	High	High	High
4 Returns to women's labour	Medium	Low	High
5 Rural growth centres and small towns	High	Medium	Medium
6 Poultry	High	Medium	High
7 Key transport constraints	High	Low	High
8 HIV/AIDS	Low	Low	High

Based on this analysis, the researchers' proposal is twofold :

Market improvement
A research project focusing on the reduction of risk for poor households in semi-arid areas through the improvement of markets including vertical integration, the extension of financial services to enterprise and households, and understanding the constraints in the poultry (and vegetable/fruit) markets.

Social protection
A wider policy research project focusing on the extent to which a stronger approach to drought-related safety nets and social protection could be developed in Zimbabwe, in order to underwrite rural livelihoods in a fragile, AIDS affected and highly unequal economy.

Whereas the former is suitable for NRSP, the latter might need to be taken up by another research commissioning section of DFID, or be included in another research project proposal.

Either or both of these research projects would ideally be accompanied at the least by a resurvey of the same households in 2002, to track their progress 5 years from the original survey. This would be a tremendous opportunity to track the impact of change, in particular of HIV/AIDS, in Zimbabwe on this population of largely poor and very households. A further dimension would be to expand the survey to other semi-arid districts to validate the results enabling generalisation across semi-arid areas in Zimbabwe.

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