

Comprehensive Food Security and Vulnerability Analysis (CFSVA)

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Rural Malawi Comprehensive Food Security and Vulnerability Analysis

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FOREWORD

It was a great pleasure for WFP's country office to support Malawi, its Government and development partners in efforts to achieve the Millennium Development Goal (MDG) of eradicating extreme poverty and hunger in the country by 2015.

For the first time in its history, Malawi carried out a nationwide Comprehensive Food Security and Vulnerability Analysis (CFSVA), a tool designed to measure food insecurity and vulnerability, including the overall environment. Most importantly, it aims to identify the underlying causes of food insecurity and malnutrition, the impact of shocks and households' ability to cope. With answers to these questions, policy makers can be guided in responding appropriately to reduce vulnerability.

The safest way to reduce food insecurity and vulnerability is to address the root causes. This is, in turn, the most cost-effective way to assist vulnerable people and ensure sustainability. By using the 'livelihood zone' approach, the survey examines people's specific capacities and the constraints they experience. This approach is also advantageous because it identifies which zones are most vulnerable, why they are vulnerable and household coping strategies.

My sincere gratitude to all the task force members for their valuable input and support during this exercise, especially the Government of Malawi through its Ministry of Agriculture and Food Security, National Statistical Office and Ministry of Development Planning and Cooperation. The Food and Agricultural Organization of the United Nations (FAO) was also an important task force member.

My special thanks go to the Bill and Melinda Gates Foundation for providing financial resources to implement the CFSVA exercise. Without these resources, the study would not have been possible.

I look forward to WFP's continued collaboration with the Government of Malawi and its development partners.

Anne Callanan

WFP Country Director ad interim

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ACRONYMS

ARI	acute respiratory infection
BMI	body mass index
CFSVA	Comprehensive Food Security and Vulnerability Analysis
CSI	coping strategies index
CV	coefficient of variation
EA	enumeration area
FAO	Food and Agriculture Organization of the United Nations
FCS	food consumption score
GLM	general linear model
HAZ	height-for-age Z-score
HH	Household
IUGR	Intrauterine Growth Restriction
MDG	Millennium Development Goal
MICS	Multiple Indicator Cluster Survey
MoAFS	Ministry of Agriculture and Food Security
MUAC	mid-upper arm circumference
MVAC	Malawi Vulnerability Assessment Committee
NGO	non-governmental organization
NHCS	National Center for Health Statistics
NSO	National Statistical Office
OMXF	WFP Food Security Analysis Service
PCA	principal component analysis
PDA	portable digital assistant
SPSS	Statistical Package For Social Sciences
TLU	Tropical Livestock Unit

UNICEF	United Nations Children's Fund
VAM	vulnerability analysis and mapping
WAZ	weight-for-age Z-Score
WFP	World Food Programme
WHO	World Health Organization
WHZ	weight-for-height Z-Score
WI	wealth index
WRSI	water resource satisfaction index

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EXECUTIVE SUMMARY

Overview, scope and methods

Malawi is a landlocked nation that shares its borders with Mozambique, the United Republic of Tanzania and Zambia. Covering 118,484 square miles, it had a population in 2008 of 13 million people and a growth rate of 2.8 per annum. The country experienced its worst food insecurity during the 2001/02 growing season, which required a large-scale humanitarian and food-assistance operation. A similar, but less alarming, situation was experienced in the 2005/06 growing season.

Factors affecting food security in the country include chronic poverty, low agricultural productivity, poor infrastructure, a limited amount of arable land, high costs of agricultural inputs and recurrent weather shocks. However during the past three seasons, Malawi has experienced a surplus of maize production, which has been attributed to the Government's new policy on input-support programmes targeting poor farmers. According to the 2009 official estimate, the good rainfall coupled with the Government input-subsidy programme allowed about 1.7 million subsistence farmers to buy cheaper fertilizer and seeds, boosting food production. The maize harvest was estimated at 3.8 million mt (a surplus of 1.2 million mt).

No recent study in Malawi has addressed a wide range of thematic areas such as poverty, production, markets, livelihoods, food security, health and nutrition. For this reason, the Comprehensive Food Security and Vulnerability Analysis was conducted to fill this information gap in order to support the efforts of WFP and other actors operating in the areas of food security and humanitarian assistance.

The main objective of the Comprehensive Food Security and Vulnerability Analysis was to analyze the vulnerability of the population, and to provide baseline information to stakeholders. The study sought to answer five questions: (i) who is at risk of food insecurity; (ii) how many are they; (iii) where do they live; (iv) why are they food insecure; and (v) how can food assistance and other interventions make a difference in reducing poverty, hunger and supporting livelihoods?

This report presents the results of a study conducted in April 2009 and coordinated by the Malawi Vulnerability Assessment Committee in partnership with the National Statistical Office, the Ministry of Agriculture and Food Security, WFP, and the Food and Agriculture Organization of the United Nations. A task force comprising staff members from these institutions was instrumental in implementing the survey. A sampling plan was developed by the National Statistical Office. For the purpose of the study, Malawi's 17 livelihood zones were collapsed into 12 zones. Primary sample units included 271 enumeration areas, with 20 households randomly selected within each enumeration area; the total sample consisted of 4,908 households. Findings are representative of each of the 12 zones and the country as a whole; regional results are also presented. Data were collected using a household questionnaire and an individual questionnaire for women of reproductive age and children under 5. Focus group discussions were also conducted within communities.

While survey data represent the situation at a given time, seasonality also influences food access and availability. The survey took place in April. By this time of the year the lean period has come to an end, and the green-harvest is underway, although with regional differences. In a normal year, April can be considered as a month where food is generally available.

How many people are food insecure and malnourished?

At the time of the survey, 11 percent of the households had poor food consumption; 37 percent of households had borderline food consumption; and 52 percent of households had acceptable food consumption. Poor-food-consumption households were found to eat mainly cereals and vegetables, and little protein. Borderline-consumption households had a richer diet than the poor-consumption group; particularly they eat pulses more often. The acceptable-consumption group showed a further increase on all food items, especially oil and animal proteins.

Wasting was observed in 3 percent of girls and 4 percent of boys age 6-59 months; 10 percent of girls and 12 percent of boys aged 6-59 months were found to be underweight. Differences between boys and girls regarding wasting and underweight were small and not statistically significant. However, the prevalence of stunting in girls (56 percent) was significantly lower than stunting in boys (62 percent), which reflects long-term issues in feeding and child-care practices for girls and boys. The prevalence of stunting showed a peak in the children between 36-47 months. One reason could be the surplus maize production in the past three agricultural seasons; consumption patterns and feeding practices may have changed to focus on maize, which

alone is not nutritious enough to meet the needs of young children and could be reflected in the high levels of stunting in those children born three years ago.

The negative effects of malnutrition are cumulative over time and can influence the nutrition of subsequent generations. Non-pregnant women of reproductive age were weighed and measured in order to determine their nutritional status. Of these women, 9 percent had a body-mass index less than 18.5 kg/m², and 4 percent were stunted (< 145 cm). The prevalence of low body-mass index was steady for women 15 to 29 years old, then decreased by 6 percentage points for women 35-39 years, peaked again at 40-44 years and evened out for the oldest women.

Where are the food insecure and malnourished people?

As shown in the map on the right, there are clear differences between the livelihood zones in the distribution of poor food consumption.

Poor consumption was most prevalent in the south-eastern part of the country. In particular, the percentage was highest in Lake Chirwa / Phalombe Plain (18 percent of households) and Shire Highlands (17 percent).

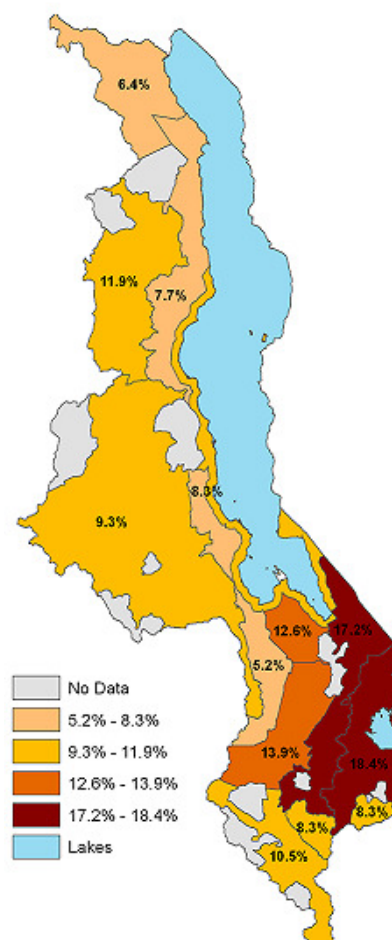
In Phirilongwe Hills and Middle Shire Valley, poor consumption was just little above the national average (14 percent and 13 percent respectively), but these zones also had a high percentage of households with borderline consumption (47 percent and 46 percent respectively); therefore they should be considered with particular attention.

The prevalence of **acceptable consumption** was highest in Chitipa / NC Karonga / Misuku Hills and Nkhata Bay Cassava / S. Karonga (73 percent and 67 percent respectively). These two zones are next to each other in the north-western part of the country.

The study also provided indicative information on malnutrition in children 6-59 months across livelihood zones. The highest levels of **wasting** (it could be as high as 16 percent) were found in Chitipa / NC Karonga / Misuku Hills; the lowest prevalence was found in the Rift Valley. Children in Thyolo / Mulanje Tea Estate were the most likely to be **underweight** while the lowest prevalence of underweight was found in Kasungu / Lilongwe Plains.

The highest prevalence of **chronic malnutrition** (stunting) was found in Nkhata Bay Cassava / S. Karonga, where 75 percent to 100 percent of children were stunted. Children in Chitipa / NC Karonga / Misuku Hills were also likely to be stunted. Underweight among women was highest in Nkhata Bay Cassava / S. Karonga, and lowest in Lakeshore, Rift Valley and Lower Shire.

Distribution of poor consumption by livelihood zone



Who is food insecure?

The association between consumption and various household characteristics was also explored:

Livelihood: Households relying on agricultural wage labour were most likely to have poor food consumption (25 percent – 14 percentage points above the national average), followed by the households relying on non-agricultural wage labour (17 percent).

Demographics: Households headed by women and elderly people were more likely to have poor food consumption than other households. In addition, food consumption was relatively poor in households living with at least one orphan, a chronically ill member or those in which the head of household died. The presence of many dependents or an illiterate head of household also increased the probability of poor consumption.

Wealth and Production: Food consumption was lowest among the poorest households and improved as wealth increased. Households with poorer consumption tended to:

- (i) own less land;
- (ii) cultivate less diverse crops;
- (iii) devote a smaller proportion of their harvests to trade;
- (iv) rely less on their own production (especially between July and February); and
- (v) be less optimistic about how long their 2009 maize harvest would last. It has been estimated that in April '10 (the month before the next harvest) 23 percent of the poor consumption households will have maize available as opposed to 27 percent of the borderline and 43 percent of the acceptable households.

Underlying causes of food insecurity

The study sought to establish the underlying causes of food insecurity. Controlling for all the other parameters included in the model, several characteristics were found to have a statistical significant impact on household food security.

Food consumption was **negatively affected by:** (i) presence of a woman head of household; (ii) illiteracy of the head of household; (iii) high frequency of coping mechanisms (CSI); (iv) absence of an irrigation system; and (v) limited crop diversification. Food consumption was **positively influenced by:** (i) migration of the head of household; (ii) large household size with high proportion of working members; (iii) high production of maize; and (iv) large area of land cultivated.

Livelihood zones and groups: the multivariate analysis confirmed that households relying on agricultural wage labour consumed significantly less food, and that households in Chitipa / NC Karonga / Misuku Hills had higher food consumption than those in other livelihood zones throughout the country.

Agricultural Production

The analysis highlighted the importance of agricultural production in determining food consumption. Approximately 40 percent of households had either no land or less than 1 acre to cultivate. Households in Lower Shire and Lake Chirwa / Phalombe Plain were the most likely to cultivate small plots of land. The lowest crop diversity was found in Phirilongwe Hills, where almost half of households cultivated only one crop, followed by the Rift Valley and Lakeshore (29 percent each). Data suggest that during the current year, production of maize and pulses increased by 5 percent and 14 percent respectively.

No irrigation was used by 84 percent of farming households; 7 percent irrigated less than half their total land; the same percentage irrigated half or more; and only 2 percent irrigated all their land. Irrigation was least common in the Northern zones of Western Rumphu / Mzimba SS (92 percent with no irrigated land), Nkhata Bay Cassava / S. Karonga (93 percent with no irrigation) and Chitipa / NC Karonga / Misuku Hills (94 percent). It was most common among farmers in Kasungu Lilongwe Plain and Shire Highlands (20 percent with some land irrigated).

For maize, 80 percent of households had access to subsidized fertilizers; subsidies were more moderate for beans (22 percent) and very rare for the other crops. Subsidized planting materials were accessed by 51 percent of farmers for maize but were virtually non-existent for other crops. Despite the relatively high percentage of households with access to subsidized fertilizers and maize seeds, high cost of agricultural inputs was still reported as a shock by 59 percent of households, followed by drought and reduced rainfall.

Markets

A review of market data indicated that maize prices are very unstable, fluctuating between 51 percent and 70 percent from the average. Such instability increases uncertainty for: households, who face indecision on budgets; traders, who are unable to anticipate the profits of their activities; and producers, who cannot anticipate the final prices of their outputs. Maize prices appear to return to their previous levels within a year, but show an upward trend in the long term. While Malawi's maize markets are fairly integrated within the same livelihood zone, they are poorly integrated between livelihood zones. There is also poor market integration between Malawi and its neighbours Mozambique and the United Republic of Tanzania, and no integration with the international market. Price transmission analysis showed that some markets act as source markets,

influencing prices on destination markets. Any market intervention should focus on the source markets that are likely to have an impact on the other markets.

Recommendations

The findings reported above led to recommendations for future programmes and policies.

Human Capital

The survey findings confirmed the association between illiteracy and food insecurity. It is important to strengthen policies that promote education in the country. In particular, the Government should consider introducing compulsory primary education and re-introducing adult literacy programmes to increase literacy rates, especially among adult women.

Natural and Physical Capital

Land-reform programmes that promote redistribution of land should be supported to sustain farmers who do not have adequate land for cultivation. Priority should be given to the Lower Shire and Lake Chirwa / Phalombe Plain, in which the highest percentage of households cultivate small plots of land.

Extension services must be intensified in order to increase crop diversification to mitigate the dangers caused by crop failure. The Phirilongwe Hills and Rift Valley require more attention in the implementation of these services.

Agricultural extension services should be combined with education on food utilization. Since agriculture is the most important livelihood activity in Malawi, it is vital educate farmers to keep an adequate amount of stock for consumption before sale.

The Government's input-subsidy programme for fertilizers and seeds should be expanded to cover more vulnerable farmers. The programme should also include farm implements. To minimize the impact of drought: (i) extension services should promote the use of improved early-maturing varieties and drought-tolerant crops; (ii) more water reservoirs should be built to increase the amount of irrigated land; (iii) moisture-retaining fields (which require little or no irrigation) should be identified and farmers should be supported in cultivating them; and (iv) investments in irrigation schemes should be expanded.

Mother-and-child health and nutrition

Special consideration in Kasungu Lilongwe Plain, Mulanje Thyolo Tea Estate, Lower Shire, and Lake Chirwa / Phalombe Plain is required to ensure safe drinking water and sensitize communities about good hygiene practices.

Programmes aimed at improving women's literacy and educating caregivers on health, nutrition, child-care practices and sanitation should be strengthened. Promoting healthy behaviours helps to prevent chronic malnutrition among children.

Health programmes should also be strengthened and women encouraged to consult a trained midwife, doctor or nurse during pregnancy. The Government should increase the number of trained midwives and nurses trained in antenatal care. Health education should also be improved at antenatal clinics. Health surveillance assistants and other health staff should visit pregnant women at home and intensify health and hygiene education.

Markets

This study demonstrated the necessity of market profiling to explore linkages between markets and identify the source markets that influence other markets. Market interventions should focus on source market centres.

1.0 INTRODUCTION

The Comprehensive Food Security and Vulnerability Analysis (CFSVA) aims at providing much-needed information on food security, health and nutrition in rural Malawi at the regional and livelihood-zone levels. The Government, WFP and other stakeholders have conducted standard measurements of food security, health and nutrition, which provided individual and household data along with important information for comparing among regions and livelihood zones.

WFP has supported implementation of the CFSVA in line with its mandate of addressing hunger and food insecurity. This mandate can only be carried out with a comprehensive understanding of the household food security situation, nutrition and other livelihood issues, particularly regarding vulnerable populations. Stakeholders implementing development activities that go beyond food assistance also require a thorough analysis of pre-implementation conditions to better design location- and livelihood group-specific interventions, and to have a baseline against which progress can be measured. The CFSVA is instrumental in providing this vital information.

Background

Malawi is a landlocked country that shares its borders with Mozambique, the United Republic of Tanzania and Zambia. It covers 118,484 square miles with a population in 2008 of 13 million people and a growth rate of 2.8 per annum¹. All three regions – Northern, Central and Southern – are characterized by plateaus, mountains, valleys, rivers and lakes. Malawi straddles Africa's third largest inland lake, Lake Malawi, which stretches from the Northern to the Southern region; the Shire River in the Southern region is the largest river in the country.

Forests and woodlands occupy 40 percent of the total land area and consist chiefly of savannah-type grasses and shrubs on the infertile plateaus, and bamboo, acacia and yellowwood trees on the highlands. Malawi has an equatorial monsoonal climate with three seasons: a cool, dry season from May to August; a warm, dry season from September to November; and a rainy season from December to April. Annual rainfall ranges from 800 mm in the lowlands to 1,300 mm on the plateaus and 2,300 mm in the northern highlands.

Food security and nutrition situation

In the 2001/02 growing season, Malawi experienced its worst food insecurity, which required a large humanitarian food-assistance operation. A similar situation occurred in the 2005/06 growing season, but to a lesser extent. Many factors affect the food-security situation in the country, including chronic poverty, low agricultural productivity, poor infrastructure, ecological constraints, inappropriate economic policies, limited arable land and interactions between demographic and social factors. Other basic factors include poor land productivity as a result of environmental degradation, late delivery of agricultural inputs, limited access to land, low education levels and recurrent weather shocks.

About 75 percent of rural Malawians are smallholder farmers, with land size averaging 1.2 ha per household. This has led to farmers overworking the land, resulting in extreme land degradation and low agricultural productivity. In the past, limited access to farm inputs has also resulted in low productivity.

In the past three growing seasons, Malawi has experienced a surplus production of maize. The surplus is attributed to the new Government policy on input-support programmes, which has benefited rural poor farmers, who contribute 90 percent of the country's production. This has lessened the need for humanitarian food assistance, which is currently focused only in areas that have experienced floods and long dry spells. The 2009 official estimate of maize harvest was 3.8 million mt, representing a surplus of 1.2 million mt. The good rainfall, coupled with the Government input subsidy programme, allowed 1.7 million poor subsistence farmers to buy cheaper fertilizer and seeds, boosting food production.

Chronic malnutrition has not decreased significantly in the past two decades. According to the 2006 Multiple Indicator Cluster Survey (MICS), stunting was at 45.9 percent while underweight was at 19.4 percent.² The prevalence of acute malnutrition has seasonal fluctuations, with lean season global acute malnutrition levels of over 5 percent in some districts. HIV/AIDS has emerged as one of the main causes of malnutrition. Malawi has an estimated 12 percent prevalence rate for HIV infection.

¹ National Statistical Office, September 2008. *2008 Population and Housing Census Report*, Zomba, Malawi.

² National Statistical Office/UNICEF, September 2007. *2006 Multiple Indicator Cluster Survey (MICS)*, Zomba, Malawi.

Food security assessments

Food security assessments have been conducted by the Malawi Vulnerability Assessment Committee (MVAC) using the Household Food Economy Approach with a focus only on rural areas. In the 2009/10 reporting period, the MVAC estimated that 275,000 people are at risk in four districts and need assistance in the lean season.³ Other food-security surveys have also been conducted in specific areas of interest by organizations that provide support. There have been few food security and nutrition surveys with national coverage concentrating on rural areas however, and no recent studies have addressed a wide range of thematic areas. The CFSVA was conducted to fill these information gaps in order to support policies and programmes.

³ MVAC, October 2009, *The Malawi Vulnerability Assessment Committee Bulletin*, Volume 5 No. 2. Updated Food Security Forecast, October 2009.

2.0 CFSVA OBJECTIVES AND METHODOLOGY

2.1 OBJECTIVES

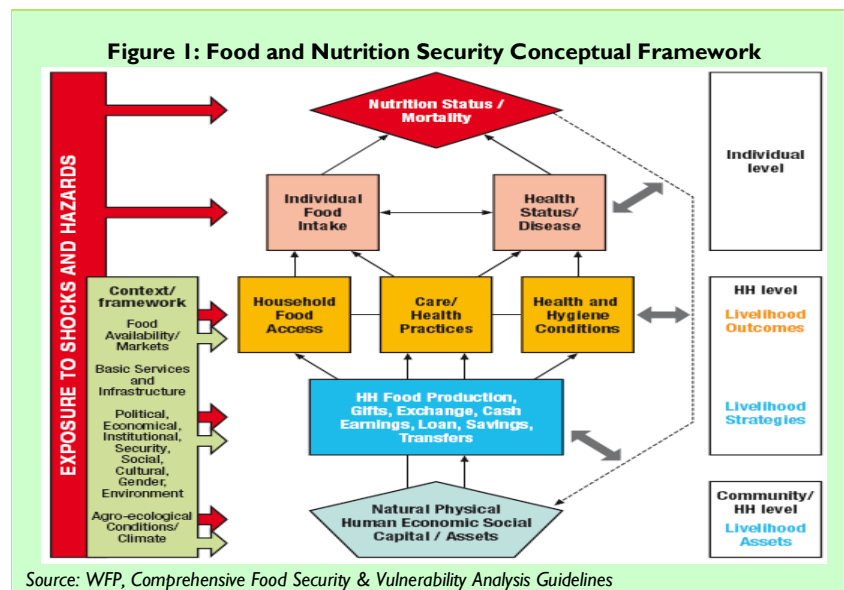
The overall objective of the Comprehensive Food Security and Vulnerability Analysis (CFSVA) was to analyze the food security and vulnerability of the rural population, and to provide baseline information to actors regarding food insecurity. The study sought to answer five questions:

- Who are the people at risk of food insecurity?
- How many are they?
- Where do they live?
- Why are they food insecure?
- How can food assistance and other interventions make a difference in reducing poverty, hunger and supporting livelihoods?

The specific objectives of the rural Malawi CFSVA were to:

- identify geographic and socio-economic groups that are food insecure or vulnerable to food insecurity;
- analyze underlying causes of food insecurity and malnutrition, and explore the links between food security and nutrition;
- identify the major constraints to improving food security and review coping mechanisms used by vulnerable groups;
- support the design of livelihood group-specific poverty and food insecurity reduction programmes; and
- provide baseline data against which poverty-reduction and food security programmes will be measured.

2.2 CONCEPTUAL FRAMEWORK AND DEFINITIONS



The Food and Nutrition Security Conceptual Framework (Figure 1) informed the selection of indicators for data collection; this report follows the logic of the Food and Nutrition Security Conceptual Framework. First, the human, social, natural, physical and economic assets are introduced, including a discussion of livelihood strategies. Next, food consumption and nutrition data are examined. The different components are analyzed to identify the determinants of food insecurity and malnutrition. Those determinants are summarized in food

security and vulnerability profiles to answer the following questions: who are the food insecure, where are they, how many are they, and why are they food insecure? Lastly, recommendations are provided to strengthen food security programmes.

2.2.1 Food Security Concepts and Definitions

Food security exists when “all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life”.⁴ Food security is understood as a multidimensional function of:

1. **Food availability:** the amount of food physically available to a household (micro level) or in the area of concern (macro level) through all forms of domestic production, commercial imports, reserves and food aid;
2. **Food access:** the physical (road network, market) and economic ability (own production, exchange, purchase) of a household to acquire adequate amounts of food; and
3. **Food utilization:** the intra-household use of the food and the individual’s ability to absorb and use nutrients (function of health status).

Food security is an outcome of the livelihood strategies adopted by households. A **livelihood strategy** is an organized set of lifestyle choices, goals, values, and activities influenced by biophysical, political, economic, social, cultural and psychological components. In simple terms, livelihood strategies are the behavioural strategies and choices adopted by people to make a living (including how people access food; earn income; allocate labour, land and resources; their patterns of expenditure; the way they manage and preserve assets; how they respond to shocks; and the coping strategies they adopt).

Livelihood strategies are based upon the **assets** or capital available to households, which include human, social, natural, physical and financial resources. A livelihood strategy is **sustainable** when “it can cope with and recover from stresses and shocks, and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base.”⁵

Vulnerability is “the probability of an acute decline in access to food, or consumption, often in reference to some critical value that defines minimum levels of human well being”.⁶ It is a function of:

1. **Exposure to risk:** the probability of an event that, if it did materialize, would cause a welfare loss (e.g. drought); and
2. **Risk management:** the ability to mitigate the possible consequences of a probable event. This can in turn be divided into ex-ante risk management (preparedness) and ex-post risk management (ability to cope). The ability to cope can be negative – affecting the resource base of the household such as the selling of assets – or positive (such as migration). The ability to cope is undermined by the intensity of the event itself as well as by structural and societal conditions such as poverty.

⁴ World Food Summit, 1996.

⁵ DFID, 1999. *Sustainable Livelihoods Guidance Sheet*. Department for International Development.

⁶ WFP, 2002. *VAM Standard Analytical Framework*. World Food Programme.

2.3 METHODOLOGY

This report presents the results of a nationwide study conducted in April 2009. Data collection was coordinated by the Malawi Vulnerability Assessment Committee (MVAC) in partnership with the National Statistical Office (NSO), Ministry of Agriculture and Food Security (MoAFS), WFP and the Food and Agriculture Organization of the United Nations (FAO). A total of 32 enumerators participated in a five-day training session prior to data collection in order to familiarize them with the survey protocols and data-collection instruments. Enumerators were trained in selecting respondents, conducting interviews, using portable digital assistants (PDAs) and taking anthropometric measurements of women and children. After the training, enumerators were divided into eight teams, each composed of four individuals and one supervisor.

2.3.1 Sampling Strategy

The sampling plan was developed by NSO. For the purpose of the study, Malawi's 17 livelihood zones were regrouped into 12 zones, and the enumeration areas (EAs) were stratified according to zone. All cities, forests, game reserves and national parks were excluded from the sampled area. A total of 271 EAs were randomly selected as primary sample units. The number of EAs allocated to each livelihood zone was proportional to the number of EAs in the zone. In zones with a small number of EAs, additional EAs were added to ensure the representativeness of the results. Selection of EAs across the livelihood zones was based on the 1998 National and Housing Census. Using systematic sampling,⁷ 20 households were selected in each EA. The total sample consisted of 4,908 households.

Table 1 shows how the 17 zones were combined for the purpose of the survey while Figure 2 shows the 12 livelihood zones on the map.⁸ The CFSVA provides statistically representative results for each of the 12 livelihood zones and the entire country; however regional-level results are also presented in this report.

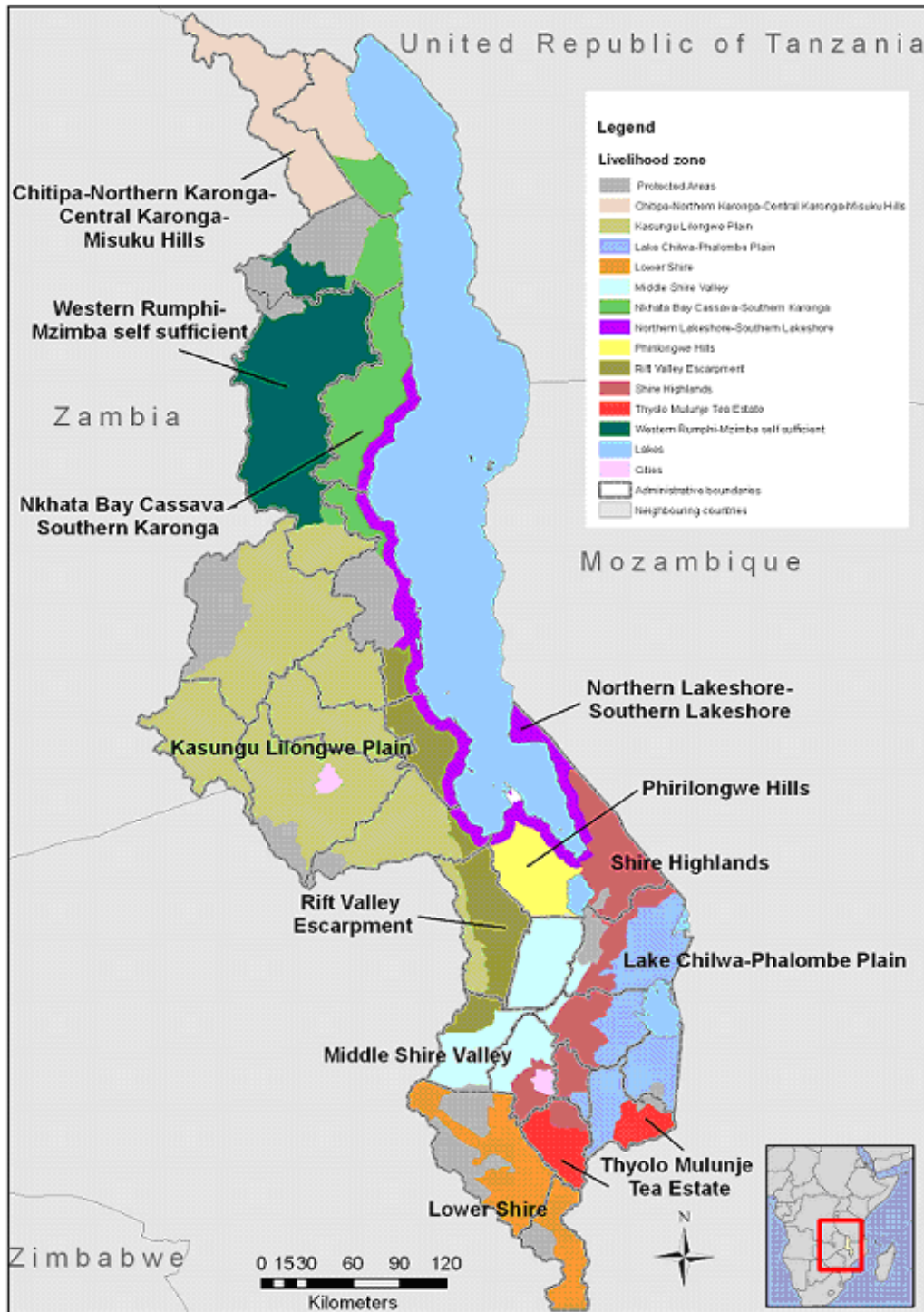
Table 1: Rural Malawi and CFSVA combined livelihood zones

Malawi livelihood zones	CFSVA combined livelihood zones
1. Chitipa Millet & Maize	1. Chitipa / Northern and Central (NC) Karonga / Misuku Hills
2. Central Karonga	
3. Northern Karonga	
4. Misuku Hills	
5. Kasungu Lilongwe Plain	2. Kasungu Lilongwe Plain
6. Lake Chirwa and Phalombe Plain	3. Lake Chirwa / Phalombe Plain
7. Lower Shire	4. Lower Shire
8. Middle Shire Valley	5. Middle Shire Valley
9. Nkhata Bay Cassava (including S. Karonga)	6. Nkhata Bay Cassava / S. Karonga
10. Northern Lakeshore	7. Northern / Southern Lakeshore (or simply Lakeshore)
11. Southern Lakeshore	
12. Phirilongwe Hills	8. Phirilongwe Hills
13. Rift Valley Escarpment	9. Rift Valley Escarpment
14. Shire Highlands	10. Shire Highlands
15. Thyolo Mulanje Tea Estate	11. Thyolo Mulanje Tea Estate
16. Mzimba Self Sufficient	12. Western Rumphu / Mzimba Self Sufficient (SS)
17. Western Rumphu	

⁷ Because of problems with PDAs, in some EAs the number of interviews actually saved and imported into the dataset was less than 20.

⁸ The rural Northern Region corresponds to Chitipa, Karonga, Rumphu, Nkhata Bay and Mzimba; the rural Central Region comprises Kasungu, Ntchisi, Dowa, Nkhotakota, Salima, Lilongwe Rural, Mchinji and Dedza; and the rural Southern Region includes Ntcheu, Balaka, Mangochi, Machinga, Zomba Rural, Chiladzulu, Blantyre Rural, Thyolo, Mulanje, Phalombe, Mwanza, Chikwawa and Nsanje. Regional boundaries do not match perfectly with livelihood zone boundaries; therefore regional-level results should be considered as indicative of a general trend.

Figure 2: Livelihood zones for the rural Malawi CFSVA



Source: NSO 2009

2.3.2 Instruments

Three instruments were used for primary data collection: a household questionnaire administered to randomly selected households; individual questionnaires for women of reproductive age and children under 5; and qualitative focus group discussions.

Questionnaires

Structured questionnaires were composed mainly of direct questions with response options provided by enumerators;⁹ this tool was reviewed by the CFSVA task force chaired by MVAC.

The **household survey** instrument focused on: (1) demographics; (2) housing and facilities; (3) productive/non-productive assets and access to credit; (4) agriculture; (5) livelihood activities; (6) expenditures; (7) food sources and consumption; and (8) shocks and coping strategies. The demographic section included an individual roster to determine the food security and vulnerability status of chronically ill individuals and orphans. The agricultural production section collected information on production, inputs and fertilizers, utilization of harvests and seasonal market dependency.

The **individual questionnaire** focused on maternal health and nutrition, and child health and nutrition. It included measurements of weight, height and mid-upper arm circumference (MUAC) for women and children. Standard height boards were used for women while height/length boards were used to measure children. Mother-child electronic scales from the United Nations Children's Fund (UNICEF) were used to weigh mothers and children.

The questionnaires were developed in English and then translated in Chichewa.

Focus groups

After household questionnaires were administered, the teams returned to the field to conduct **focus group** discussions. In each selected village, the community leader was asked to identify between 6 and 12 persons representative of the larger population and able to provide meaningful information. Discussions took place following the focus group protocols and without the presence of the local authorities.

The discussions focused on: (1) demographics; (2) livestock ownership, crop production and income activities; (3) food security (including food utilization and shocks); (4) commodity markets and credit/loan accessibility; (5) health and nutrition; and (6) seasonality. Section 6 used a seasonal calendar to record: the seasonality of crop production; livestock (flock migration, pests and diseases, sells); hunger periods; disease incidence; household expenditures; wage labour; and income activities.

Data entry and data analysis

Data was collected with PDAs. Files from the PDAs were imported into the Statistical Package for Social Science (SPSS) for analysis. SPSS and ADDAWIN, another data-analysis program, were used to conduct a principle component analysis (PCA) and cluster analysis.¹⁰ Z-scores for wasting, stunting and underweight were calculated using WHO Anthro software. All other analyses were done using SPSS.

A household wealth index (WI) was computed as a proxy measure of wealth: a PCA was conducted using wealth-related variables. After a careful analysis of the frequency distribution of non-productive assets and housing facilities, the following variables were used for computing the final WI:¹¹

1. Material of wall (cement/burnt bricks vs unburnt bricks/mud/wood/straw)
2. Material of roof (tiles/iron/asbestos vs wood/plastic/grass/thatch)
3. Material of floor (cement/concrete/tile vs mud/sand/wood)
4. Ownership of at least one of the following household assets: bed, table, chair, mobile phone, watch, mosquito net, bicycle, radio, battery, pressing iron or bank account.

⁹ The questionnaire included a consent form to protect respondents. Participation was voluntary, and respondents did not receive any money or other compensation for participating.

¹⁰ ADDAWIN is available at http://cidoc.iuav.it/~silvio/addawin_en.html.

¹¹ Productive assets such as hoes, axes, land and livestock were not included in the analysis because they reflect livelihood strategy choices. Roof, floor and wall materials were transformed into bivariate variables. Initially, other variables were included in the WI computation such as savings, crowding, safe water, safe sanitation and water availability; however these variables were eliminated because of their poor contribution to the WI (low component loading factor).

The first component was selected to represent a proxy measure of wealth. It conserved 33 percent of the total variance. Wealth quintiles were derived from the WI, ranging from poorest to the wealthiest.

Nutrition

Z-scores for wasting (weight-for-height), stunting (height-for-age) and underweight (weight-for-age) were computed using WHO Anthro, and were imported into SPSS for the analysis. Z-scores were based on the new child growth standards released by the World Health Organization (WHO) in 2006.

Plausibility checks were conducted on the data to reduce errors. Age and sex distribution of measured children was compared to the expected distribution, standard deviation, skewness and kurtosis of the Z-scores; heaping of age and weight were examined to understand the magnitude and distribution of bias (especially areas or enumeration teams). Children whose ages were not properly recorded (or flagged for invalid entries) were excluded from the analysis after checking for data-entry errors.

2.3.3 Limitations

All possible steps were taken to ensure that the results accurately represented the food security context and situation in the country. However, the study faced a number of limitations:

- Data collectors faced challenges in physically accessing some rural areas because of infrastructure problems.
- While survey data always represent the situation at a given time, seasonality has an influence on food access and availability. The survey took place in April. By this time of the year the lean period has come to an end and the green-harvest is underway, although with regional differences. In the Southern region green maize is available already at the beginning of March and the main harvest takes place from mid-April to May. In the Central and Northern regions green maize is ready at the end of March and the main harvest takes place between the end of April and early June. Therefore, in a normal year, April can be considered as a month where food is available and households have access to it.

RURAL MALAWI CFSVA RESULTS

3.0 HUMAN AND SOCIAL CAPITAL

In the context of this study, human and social capital entail demographic, educational and health characteristics that enable a population to be productive. **Demographics** comprise age, sex, household size, composition, and migration; **education** comprises level of education completed and literacy; **health** includes illness and death. All these factors influence overall welfare and ultimately household food security. This chapter presents major findings on demographics, education and health.

3.1 DEMOGRAPHICS

The population of Malawi increased from 9.9 million in 1998 to 13 million in 2008 (2008 Population and Housing Census, preliminary results). Population density has been steadily increasing for several years.

The results in Table 2 show that the average household size¹² is 4.0 for rural households (instead of 5.5, as reported in the 2004 Integrated Household Survey). The average age of household heads is 45 years and 29 percent of households are headed by women. The proportion of households headed by women is 34 percent in the rural Southern and 25 percent in the rural Central and rural Northern regions, as shown in Table 3. By livelihood zone, households headed by women are more likely to be found in the Shire Highlands and the Lake Chirwa / Phalombe Plain, and are least common in the Lower Shire zone.

Table 2: Household composition, headship status, age and size

Average HH size	Average age HH head	Percent HHs headed by women	HH composition (%)					
			0-15		16-60		61+	
			male	female	male	female	male	female
4.03	45.24	29%	50%	50%	47%	53%	47%	53%

Table 3: Percentage of households headed by women in rural Malawi by region and livelihood zone

Region		Livelihood zone	
	Percent		Percent
Rural Northern	25%	Lakeshore	28%
Rural Central	25%	Kasungu Lilongwe Plain	23%
Rural Southern	34%	Lower Shire	21%
Rural Malawi	29%	Western Rumphu / Mzimba SS	22%
		Nkhata Bay Cassava / S. Karonga	25%
		Rift Valley	30%
		Shire Highlands	39%
		Lake Chirwa / Phalombe Plain	38%
		Middle Shire Valley	32%
		Thyolo Mulanje Tea Estate	35%
		Chitipa / NC Karonga / Misuku Hills	25%
		Phirilongwe Hills	36%

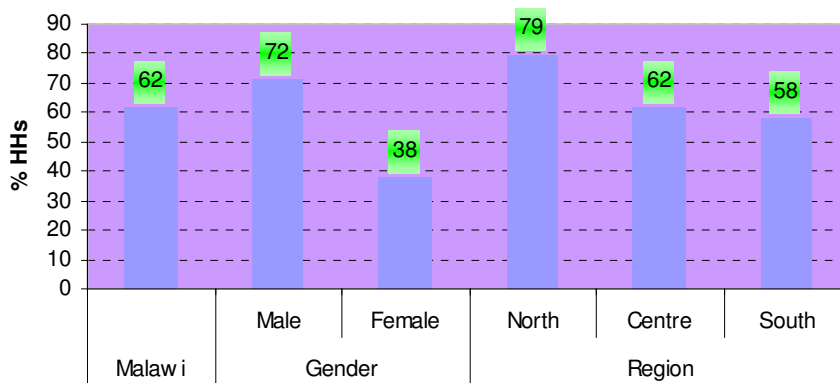
¹² Household size was defined as the number of people sleeping in the household; the crowding index was defined as the number of people per room.

3.2 EDUCATION

The second Millennium Development Goal (MDG) calls for universal primary education by 2015. Adult literacy and highest level of education completed among the adult population – important indicators of a country's human capital – were measured during the assessment.

Literacy is defined as a person's ability to read and write a simple sentence. Figure 3 shows that in Rural Malawi, about 60 percent of household heads are literate, with the highest literacy levels found in the rural North and the lowest in the rural South. Men heading households are more likely to be literate than women (72 percent vs 38 percent), but woman heads of household tend to be older than men (51 vs 40 years), and thus did not have the same access to education when they were younger.

Figure 3: Percentage of literate household heads in rural Malawi, by gender and region



The highest educational level corresponds to the highest level of education a person has formally completed (not the highest grade completed).¹³ Table 4 shows that 29 percent of rural Malawians above age 12 have not completed any education, while 31 percent have completed junior primary and 26 percent have completed senior primary education. There is higher proportion of men with more than primary education than women (Table 4).

¹³ A respondent may have completed a certain level of education (e.g. junior primary level) but not acquired any formal qualification.

Table 4: Highest educational level completed by persons 12 years and older by gender, region and livelihood zone

		Highest educational level completed							
		No schooling	Junior primary (Stand. 5)	Senior primary (Stand. 8)	Junior secondary (Form 1/2)	Senior secondary (Form 3/4)	Vocational school	College/ university	Not known
Rural Malawi		29%	31%	26%	6%	6%	< 1%	1%	< 1%
Gender	Male	22%	31%	30%	7%	9%	< 1%	1%	< 1%
	Female	49%	29%	17%	3%	1%	< 1%	< 1%	< 1%
Region	Rural Northern	15%	20%	41%	11%	11%	1%	1%	< 1%
	Rural Central	29%	34%	25%	5%	7%	< 1%	< 1%	< 1%
	Rural Southern	33%	30%	24%	6%	5%	< 1%	1%	< 1%
Livelihood zone	Lakeshore	37%	27%	22%	6%	6%	1%	1%	0
	Kasungu Lilongwe Plain	30%	32%	25%	6%	6%	< 1%	< 1%	< 1%
	Lower Shire	30%	28%	28%	8%	6%	0	< 1%	0
	Western Rumphu / Mzimba SS	11%	22%	44%	11%	10%	< 1%	< 1%	< 1%
	Nkhata Bay Cassava / S. Karonga	22%	13%	43%	10%	10%	< 1%	1%	0
	Rift Valley	20%	36%	29%	4%	10%	0	1%	< 1%
	Shire Highlands	36%	29%	23%	5%	6%	0	< 1%	1%
	Lake Chirwa / Phalombe Plain	30%	33%	23%	7%	4%	< 1%	1%	1%
	Middle Shire Valley	34%	30%	26%	5%	5%	0	< 1%	0
	Thyolo Mulanje Tea Estate	30%	34%	23%	7%	3%	< 1%	1%	0
	Chitipa / NC Karonga / Misuku Hills	18%	12%	37%	12%	20%	1%	< 1%	0
	Phirilongwe Hills	44%	37%	12%	2%	3%	1%	0	1%

3.3 HEALTH

The study collected information on chronically ill and disabled household members, recent deaths (six months prior to study) and orphans in the household. The enumerators asked if any member had passed away during the six months before the survey and if the deceased member was the main income earner.¹⁴

The study indicated that 5 percent of households live with at least one chronically ill adult member, 10 percent are supporting at least one disabled member and 7 percent experienced the recent death of a household member. Table 5 shows that households in the Phirilongwe Hills were the most likely to have a chronically ill or disabled household member. Households in Chitipa / NC Karonga / Misuku Hills were the least likely to have chronically ill or disabled household members.

¹⁴ Chronically ill individuals are defined as having been ill for more than three months. Disability includes both physical and mental disability.

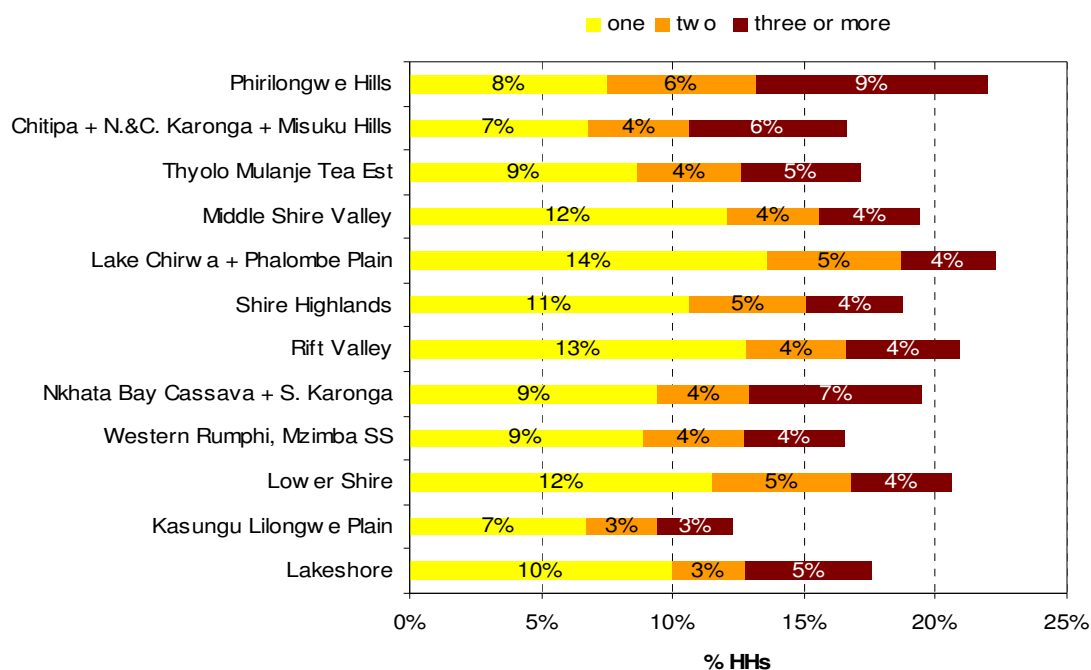
Table 5: Percentage of households with at least one chronically ill or disabled member, recent death and orphan by livelihood zone

		Chronically ill member	Disabled	Recent death of member	At least 1 single orphan	At least 1 double orphan	Average number of orphans ¹⁵
Rural Malawi		5%	10%	7%	12%	6%	1
Livelihood Zone	Lakeshore	5%	13%	9%	13%	6%	1
	Kasungu Lilongwe Plain	4%	11%	5%	9%	4%	1
	Lower Shire	2%	5%	9%	16%	6%	1
	Western Rumphu / Mzimba SS	2%	9%	5%	11%	6%	1
	Nkhata Bay Cassava / S. Karonga	3%	4%	9%	16%	5%	2
	Rift Valley	3%	11%	5%	13%	9%	1
	Shire Highlands	7%	8%	9%	14%	6%	1
	Lake Chirwa / Phalombe Plain	6%	9%	5%	15%	9%	1
	Middle Shire Valley	7%	13%	9%	14%	8%	1
	Thyolo Mulanje Tea Estate	7%	12%	5%	12%	8%	1.5
	Chitipa / NC Karonga / Misuku Hills	2%	3%	9%	15%	3%	2
Phirilongwe Hills	11%	11%	5%	20%	4%	2	

Issues of health and recent deaths lead to the discussion of presence of orphans in households. Table 5 shows that 12 percent of households have at least one single orphan and 6 percent have at least one double orphan. Phirilongwe Hills is the zone with the highest percentage of households living with at least one orphan (20 percent).

Overall, 10 percent of households live with only one orphan; 4 percent host two orphans; and 4 percent have three orphans or more (Figure 4).

¹⁵ Only for households hosting at least one orphan.

Figure 4: Percent distribution of households according to the number of orphans by livelihood zone

3.4 MIGRATION

Households were asked whether any member had been away in the 12 months prior to the survey and the duration of the migration. Table 6 shows that 11 percent of households had a member who had migrated, with 8 percent away for less than three months. The results show that 17 percent of the households in the rural North had a migrating member, which is consistent with the fact that many rural northerners habitually migrate to other areas.

Table 6: Percentage of households with members who migrated in the 12 months prior to the study by gender of household head and region

		Migrated (length not specified)	Migrated (> 3 months)	Migrated (< 3 months)	Never migrated
Rural Malawi		< 1%	3%	7%	89%
Gender head	Male	< 1%	4%	9%	87%
	Female	1%	2%	3%	94%
Region	Northern	< 1%	3%	14%	82%
	Central	< 1%	2%	6%	92%
	Southern	1%	4%	8%	87%

The major reasons for household members' migration included: to search for non-agricultural work (44 percent); to engage in agricultural work (28 percent); and to work abroad (13 percent). Only 4 percent migrated for educational reasons. A higher proportion of households headed by men (47 percent) than by women (27 percent) had a household member who migrated for non-agricultural work, while no large difference was observed with migration for work abroad. Households' needs and opportunities greatly differ among the regions, manifesting themselves in different migration patterns.

Table 7: Percentage of households with migrated members and reason for migration by gender of household head, region and livelihood zone

		agric. work elsewhere	non-agric. work	work abroad	education	lack of land	relieve strain on HH
Rural Malawi		28%	44%	13%	4%	1%	10%
Gender head	Male	28%	46%	13%	3%	1%	8%
	Female	27%	27%	11%	7%	1%	26%
Region	Northern	39%	31%	5%	5%	< 1%	19%
	Central	38%	37%	12%	3%	2%	8%
	Southern	21%	53%	13%	3%	1%	9%
Livelihood zone	Lakeshore	17%	41%	17%	7%	0	17%
	Kasungu Lilongwe Plain	42%	40%	6%	4%	2%	6%
	Lower Shire	35%	41%	13%	0	0	11%
	Western Rumphi / Mzimba SS	53%	27%	5%	0	0	15%
	Nkhata Bay Cassava / S. Karonga	13%	47%	7%	0	7%	27%
	Rift Valley	19%	48%	18%	4%	4%	7%
	Shire Highlands	22%	59%	9%	0	0	9%
	Lake Chirwa / Phalombe Plain	15%	50%	16%	3%	2%	14%
	Middle Shire Valley	21%	71%	0	0	7%	0
	Thyolo Mulanje Tea Estate	21%	43%	21%	14%	0	0
	Chitipa / NC Karonga / Misuku Hills	8%	85%	0	8%	0	0
	Phirilongwe Hills	29%	57%	14%	0	0	0

4.0 PHYSICAL CAPITAL

In this study, physical capital comprises housing structures and facilities, quality of water and sanitation, and asset ownership. **Housing structures and facilities** comprise tenure, quality of dwelling units and sources of energy. **Water and sanitation** include sources of water and quality of toilet facilities. Asset ownership includes productive assets such as hoes and axes, and non-productive assets, like table, chairs and mobile phones.

4.1 HOUSING

4.1.1 Housing Structure and Facilities

Housing and shelter are important indicators of a population's living conditions. Table 8 shows that most rural Malawian households (93 percent) own their dwellings; 5 percent do not own, but live in their dwellings for free; and only 2 percent pay rent. No major differences were observed between households headed by men and women regarding housing-tenure status.

Table 8: Tenure status by gender of household head

		Tenure status		
		Own	Do not own but live for free	Pay rent
Rural Malawi		93%	5%	2%
Gender of household head	Male	93%	4%	3%
	Female	94%	5%	1%

Quality of housing structure is associated with wealth (Figure 7). It is therefore important to analyze construction materials of floor and the walls. The majority of the households used burnt or unburnt bricks; more households headed by men than women used burnt bricks. The results show some regional differences: almost 60 percent of rural Northern households used burnt bricks compared to only 35 percent in the Central region and 44 percent of rural Southern households.

Table 9: Main construction material for walls by gender of household head and region

		Main material for walls							
		Burnt bricks	Unburnt bricks	Cement blocks	Mud	Wood	Straw	Tin	Plastic
Rural Malawi		41%	41%	0	16%	1%	0	0	0
Gender	Male	43%	40%	0	16%	1%	0	0	0
	Female	38%	44%	0	17%	1%	0	0	0
Region	Rural Northern	59%	20%	0	18%	2%	1%	0	0
	Rural Central	35%	37%	0	27%	1%	0	0	0
	Rural Southern	44%	49%	1%	6%	1%	0	0	0

The majority of households (86 percent) in rural Malawi used smooth mud as the main type of material for floors while only 14 percent used cement (Table 10). Houses with cement floors were more common in households headed by men than women.

Table 10: Main construction material for floor by gender of household head

		Main material floor			
		Mud/sand	Cement/concrete	Tiles	Wood
Rural Malawi		86%	14%	0	0
Gender	Male	85%	15%	0	0
	Female	88%	12%	0	0

The study further shows that three quarters of rural households used grass for their roofs and only one quarter used iron sheets (Table 11). Use of roof materials differs across the regions: the use of iron sheets is more common in the rural North (one in three households) as opposed to one in five in the rural South and rural Centre.

Table 11: Main construction material for roof by gender and region

		Roof material					
		Tile	Iron sheet	Wood	Plastic	Grass/ thatch	Asbestos
Rural Malawi		1%	24%	0	0	75%	0
Region	Northern	0%	30%	0	0	70%	0
	Central	0%	20%	0	0	79%	0
	Southern	1%	25%	0	0	73%	0
Gender	male	1%	25%	0	0	74%	0
	female	1%	21%	0	0	78%	0

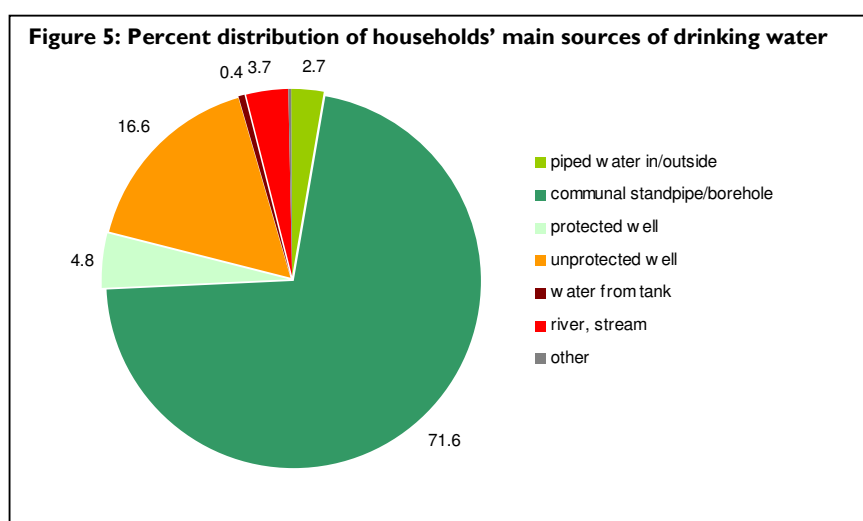
Table 12 indicates that 96 percent of rural households use firewood for cooking; charcoal and electricity account for 2 percent each. Households headed by women use firewood for cooking more often than those headed by men (97 percent compared to 95 percent), but overall there was no difference between households headed by women and men on the main source of fuel for cooking. In terms of lighting, 90 percent of households use paraffin as the main source, while only 2 percent of use firewood and 1.8 percent electricity.

Table 12: Main energy source for cooking and lighting by gender of household head

		Main energy source for cooking				Main source of lighting					
		Paraffin	Charcoal	Firewood	Sawdust or straw	Electricity	Paraffin	Charcoal	Firewood	Sawdust or straw	Other
Rural Malawi		1%	2%	96%	1%	2%	90%	1%	2%	1%	4%
Gender	Male	1%	2%	95%	1%	2%	90%	1%	2%	0	4%
	Female	1%	1%	97%	1%	1%	90%	1%	3%	1%	3%

4.1.2 Water and Sanitation

Access to safe water and sanitation are important development goals, particularly since water is one of the most basic human necessities. In this study, safe or improved water sources refer to boreholes (or communal standpipes), protected wells and tap water (piped into the dwelling unit or compound). Figure 5 shows that about four in five households reported access to drinking water from improved sources.



Main sources included boreholes (72 percent), protected wells (5 percent) and piped water (3 percent). About 17 percent of households sourced water from unprotected wells and 4 percent used rivers or streams as their main source of drinking water.

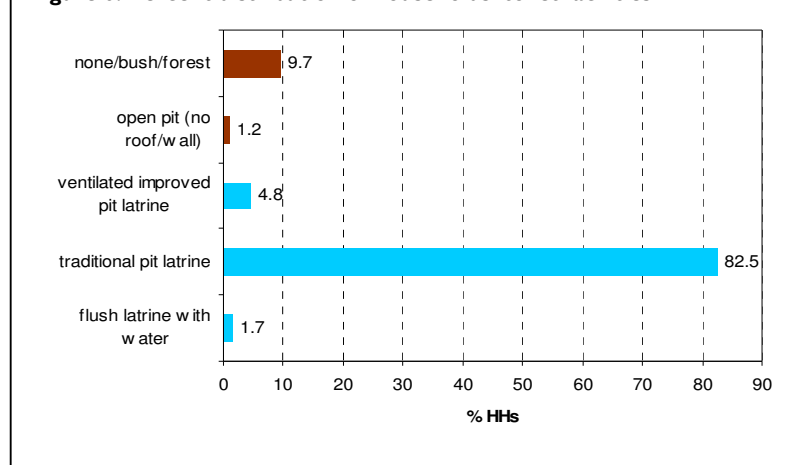
Table 13: Main source of drinking water by wealth,¹⁶ livelihood zone and region

		Piped-in water	Communal standpipe	Protected well	Unprotected well	River water from tank	River, stream or dam	Other
Wealth	Poorest	1%	66%	4%	24%	1%	5%	0
	Poor	1%	70%	4%	21%	0	3%	0
	Medium	2%	76%	4%	13%	0	4%	0
	Wealthy	2%	75%	5%	14%	1%	4%	0
	Wealthiest	8%	71%	7%	11%	0	3%	0
Livelihood zone	Lakeshore	6%	80%	4%	7%	0	2%	1%
	Kasungu Lilongwe Plain	1%	56%	7%	31%	1%	4%	0
	Lower Shire	2%	87%	2%	7%	0	2%	0
	Western Rumpi / Mzimba SS	1%	79%	5%	5%	0	10%	0
	Nkhata Bay Cassava / S. Karonga	2%	59%	18%	14%	0	7%	0
	Rift Valley	4%	81%	5%	7%	0	2%	1%
	Shire Highlands	1%	86%	2%	8%	0	2%	0
	Lake Chirwa / Phalombe Plain	5%	78%	2%	11%	0	4%	0
	Middle Shire Valley	2%	85%	2%	5%	1%	5%	0
	Thyolo Mulanje Tea Estate	8%	59%	6%	22%	1%	5%	0
	Chitipa / NC Karonga / Misuku Hills	9%	72%	10%	2%	0	6%	0
Phirilongwe Hills	1%	79%	3%	13%	0	4%	1%	
Region	Northern	2%	77%	8%	5%	0	8%	0
	Central	2%	58%	6%	29%	1%	3%	0
	Southern	3%	80%	3%	10%	0	3%	0

Safe/improved sanitation

includes toilet facilities that flush to sewer, ventilated improved pit latrines or covered pit latrines. Traditional pit latrines (no water) were used by 83 percent of households; 2 percent used flush toilets and 5 percent used ventilated improved pit latrines. One in ten households reported having no toilet.

Figure 6: Percent distribution of households' toilet facilities



¹⁶ The explanation of the computation of the wealth index (WI) and quintiles is reported in the Methodology chapter; however a more thorough description of WI and the geographic distribution of the wealth quintiles in Malawi is provided in this chapter.

Table 14: Sanitation by wealth,¹⁷ livelihood zone and region

		Flush latrine/toilet with water	Traditional pit latrine (no water)	Ventilated improved pit latrine	(Partly) open pit (no roof/wall)	None/bush
Wealth	Poorest	1%	73%	5%	2%	19%
	Poor	1%	78%	4%	2%	15%
	Medium	2%	85%	3%	2%	9%
	Wealthy	1%	91%	4%	1%	4%
	Wealthiest	4%	85%	9%	1%	2%
Livelihood Zone	Lakeshore	3%	81%	2%	0	13%
	Kasungu Lilongwe Plain	2%	73%	7%	3%	15%
	Lower Shire	2%	83%	5%	0	10%
	Western Rumphu / Mzimba SS	1%	91%	1%	0	7%
	Nkhata Bay Cassava / S. Karonga	1%	84%	2%	1%	11%
	Rift Valley	1%	76%	16%	2%	6%
	Shire Highlands	1%	92%	2%	1%	5%
	Lake Chirwa / Phalombe Plain	2%	87%	3%	0	8%
	Middle Shire Valley	0	90%	2%	1%	7%
	Thyolo Mulanje Tea Estate	2%	95%	0	0	2%
	Chitipa / NC Karonga / Misuku Hills	2%	92%	2%	0	5%
	Phirilongwe Hills	0	90%	4%	0	6%
Region	Northern	1%	89%	2%	0	8%
	Central	2%	72%	7%	3%	16%
	Southern	2%	88%	4%	0	6%

¹⁷ See previous footnote

4.2 ASSET OWNERSHIP AND WEALTH INDEX

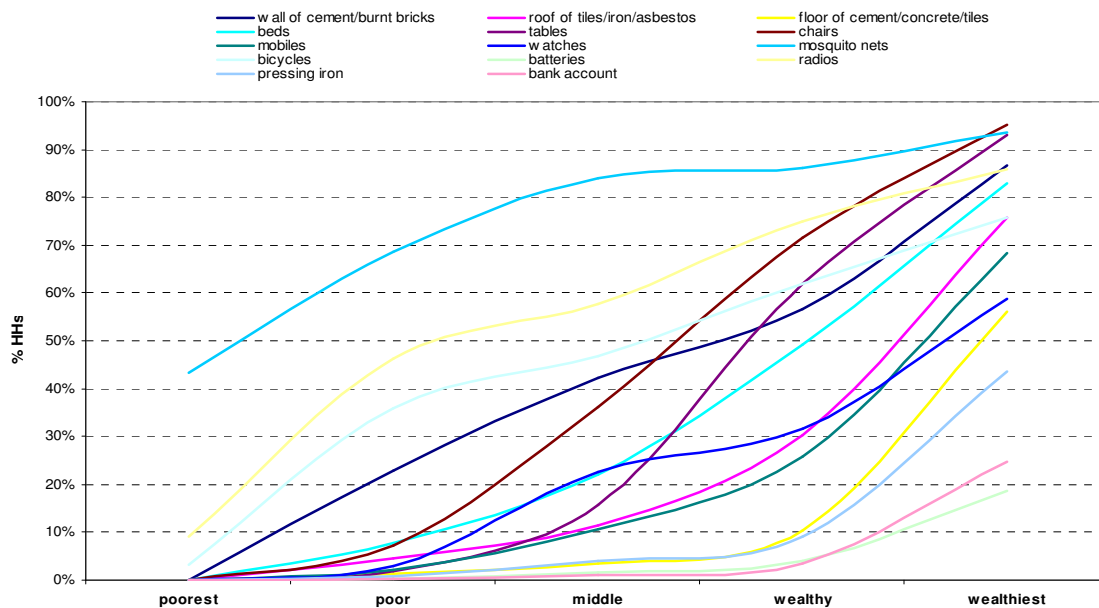
Asset ownership refers to whether a household possess a particular item such as a hoe or table. Household assets can either be productive or non-productive; examples of productive assets include agricultural tools like sickles, hoes, pangas and knives, while non-productive assets include tables, chairs and mosquito nets.

During the survey, information from households was gathered regarding ownership of productive and non-productive assets.¹⁸ The most frequently owned non-productive assets were mosquito nets (75 percent of households), radios (55 percent) and bicycles (45 percent). The most frequently reported productive assets were axes/hoes (97 percent), pangas/machetes (71 percent) and sickles (62 percent). The extent of ownership of agricultural tools is a clear indication of the importance of agriculture as a livelihood activity.

Information on households' non-productive assets and other physical assets was used to compute the household wealth index (WI) as a proxy measure of wealth. As mentioned, a principal components analysis (PCA) was conducted using wealth-related variables to compute WI. After careful screening, the following variables were used to compute WI: material of wall (cement/burnt bricks vs unburnt bricks/mud/wood/straw); material of roof (tiles/iron/asbestos vs wood/plastic/grass/thatch); material of floor (cement/concrete/tiles vs mud/sand/wood); and ownership of at least one bed, table, chair, mobile phone, watch, mosquito net, bicycle, radio, battery, pressing iron or bank account. The first component was selected to represent a proxy measure of wealth; it conserved 33 percent of the total variance. Wealth quintiles were derived from WI, ranging from the poorest to the wealthiest.

The chart below represents the relationship between the variables included in the WI and the index itself. It shows that ownership of all the assets increases as wealth increases, and that bank accounts, pressing irons, car batteries, and floors made of cement, concrete or tiles are very rare and owned only by the wealthiest households. Assets like walls of cement or burnt bricks, mosquito nets, bicycles and radios are fairly common, however.

Figure 7: Asset ownership (percent of households) across wealth quintiles



¹⁸ The list comprised axes/hoes, mosquito nets, pangas/machetes, sickles, radios, bicycles, chairs, tables, beds, watches, mobile phones, pressing irons, bank accounts, batteries, saving, televisions, sewing machines, modern stoves, oxcarts, fishing nets, motorcycles, backpack sprayers, refrigerators, automobiles, land-line phones, dishes, generators, ploughs, tractors, harrows and hand mills.

Figures 8 and 9 below show the distribution of wealth across the rural areas of Malawi. Figure 8 illustrates the geographic distribution of the poorest wealth quintile while figure 9 provides the breakdown of all the quintiles.

Kasungu Lilongwe Plain and Phirirongwe Hills are the poorest zones, where 50 percent and 53 percent of households respectively are in the poorest and poor wealth quintiles (see chart above).

The southeastern part of the country comprised by Middle Shire Valley, Lake Chirwa / Phalombe Plain and Shire Highlands is fairly homogeneous with regard to wealth. Here, the prevalence of poverty is slightly higher than in the country as a whole.

The rural Northern region is wealthier than the other areas. Indeed, Chitipa / NC Karonga / Misuku Hills is the wealthiest livelihood zone (70 percent of the households are wealthy or wealthiest), followed by Western Rumphu / Mzimba SS (63 percent) and Nkhata Bay Cassava / S. Karonga (59 percent).

Figure 8: Distribution of the poorest wealth quintile

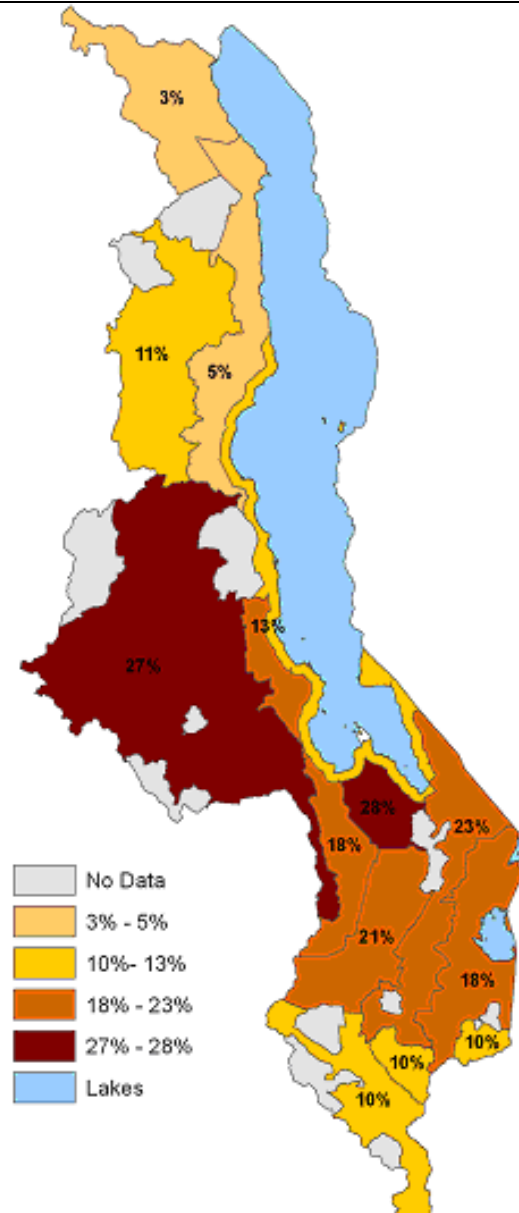
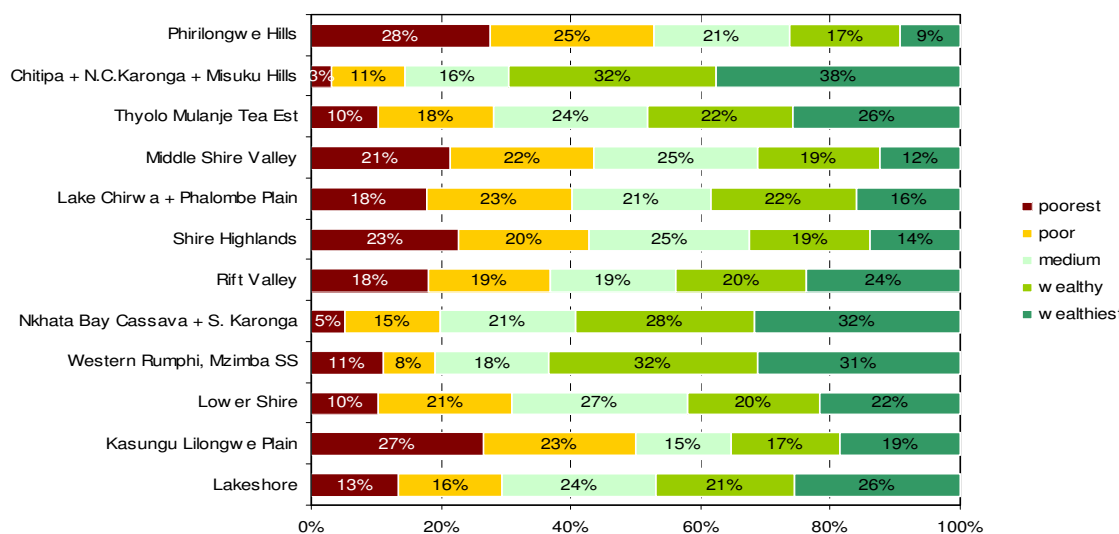
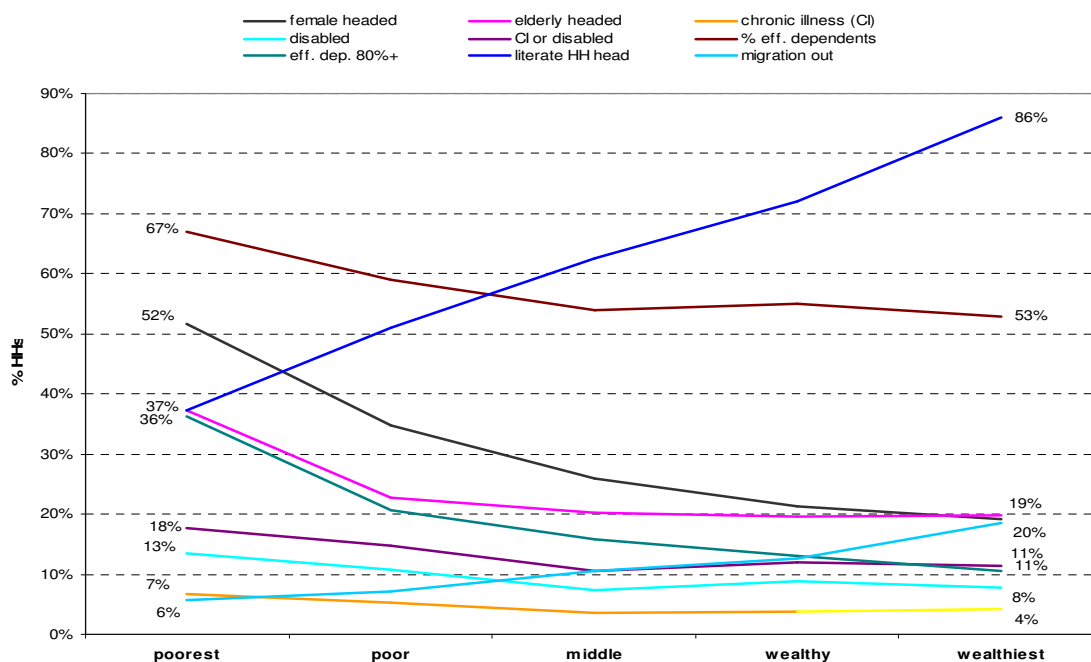


Figure 9: Geographic distribution of wealth quintiles



Throughout this report, wealth quintiles are used to study the associations between wealth and the demographic and socio-economic characteristics of households. This chapter particularly considers demographic variables that were not included in the WI, but that nevertheless are related to wealth. Findings in Figure 10 include only the demographic variables that show a significant association with the WI.¹⁹

Figure 10: Distribution of major demographic indicators across the wealth quintiles



Among the variables that showed significant association, literacy of household head was positively related to wealth while female household head, presence of chronically ill or disabled household members and percentage of effective dependents were negatively associated with wealth. Recent deaths, death of main earner, presence

¹⁹ Pearsons' r was used to analyze these associations. The relationship between wealth and livelihood outcomes will be explored in the following chapters.

of any orphan and number of orphans were also included in the analysis but their associations with wealth were not statistically significant.

Table 15 presents the distribution of construction materials across the wealth groups. It is worth noting that while corrugated iron sheets constituted the roofs of the majority of rich households (74 percent), poor households' roofs were all thatched. In addition, all poor households' floors were made of mud or sand and one in ten rich households used electricity for cooking compared with none of the poor households.

Table 15: House construction materials by wealth quintiles

		Wealth quintiles				
		poorest	poor	medium	wealthy	wealthiest
Main material for walls	Burnt bricks	0	23%	42%	57%	85%
	Unburnt bricks	64%	56%	43%	32%	11%
	Cement blocks	0	0	0	0	2%
	Mud	34%	21%	14%	11%	2%
	Wood	2%	1%	0	0	0
	Straw	1%	0	1%	0	0
	Tin	0	0	0	0	0
	Plastic	0	0	0	0	0
Main material for roof	Tiles	0	0	0	1%	1%
	Iron sheet	0	4%	11%	28%	74%
	Wood	0	0	1%	0	1%
	Plastic	0	1%	0	0	0
	Grass/thatch	100%	95%	88%	70%	23%
	Asbestos	0	1%	0	1%	0
Main material for floor	Mud/sand	100%	99%	96%	89%	44%
	Cement/concrete	0	1%	4%	10%	56%

Table 16: Main energy sources by wealth quintiles

		Wealth quintiles				
		poorest	poor	medium	wealthy	wealthiest
Main energy source for cooking	Electricity	0	0	0	0	2%
	Paraffin	0	1%	1%	1%	1%
	Charcoal	1%	1%	1%	2%	6%
	Firewood	97%	98%	98%	96%	90%
	Sawdust or straw	2%	0	0	1%	0
Main source for lighting	Electricity	0	0	0	0	8%
	Solar energy	0	0	0	0	2%
	Gas	1%	0	0	0	0
	Paraffin	86%	92%	94%	94%	84%
	Charcoal	1%	1%	1%	0	0
	Firewood	5%	2%	2%	1%	1%
	Sawdust or straw	2%	1%	0	0	0
	Other	5%	4%	3%	4%	4%

5.0 ECONOMIC CAPITAL AND LIVELIHOOD STRATEGIES

In this study, economic capital at the household level comprises main livelihood activities, income sources and changes in household income over time. This chapter highlights **livelihood activities** and **household profiles**, changes in household income and remittances. Finally, the chapter looks at both food and non-food expenditures.

5.1 LIVELIHOOD ACTIVITIES

5.1.1 Main Activities

The concept of livelihood comprises the capabilities, assets and activities required to secure basic needs – food, shelter, health, education and income. This section examines the sample households' most commonly reported livelihood activities.

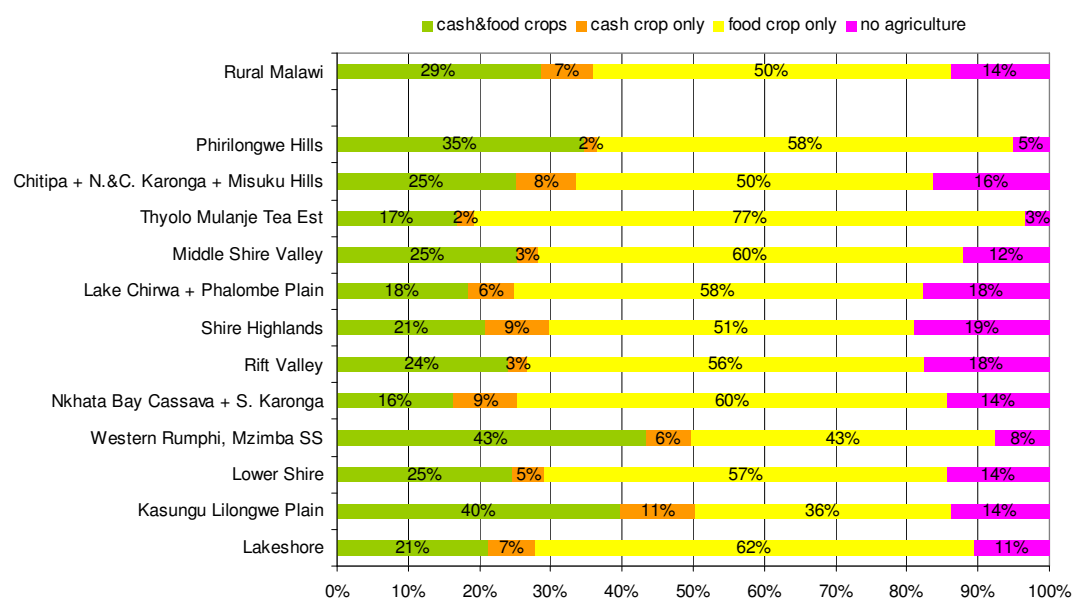
Respondents were asked to name their households' three most important livelihood activities in order of importance, and to estimate the contribution of each activity to the household's overall livelihood.

Table 17: Percentage of households by main livelihood activity

Livelihood activity	Percentage of HHs reporting the activity as their main livelihood source	Percentage of HHs engaged as a top-3 activity (disregarding the order of the activity)
food crop production	63%	79%
cash crop production	11%	36%
livestock rearing and/or selling	1%	8%
Brewing	2%	6%
Fishing	2%	5%
agricultural wage labour (<i>ganyu</i>)	5%	17%
non-agricultural wage labour	3%	16%
handicrafts/artisan	1%	5%
petty trade/street vending	2%	10%
selling of firewood/charcoal	1%	5%
seller/commercial trader	2%	6%
salary/wages	4%	7%
self-employed (taxi driver, carpenter)	2%	5%
Other	1%	18%

Food-crop production was the main livelihood activity, accounting for 63 percent of the households. Cash-crop production was reported by 11 percent of households as the main livelihood activity; 5 percent ranked agricultural wage labour as their main activity, and only 3 percent reported non-agricultural wage labour. Households reporting regular wages as their main livelihood activity totalled 4 percent. Engagement in agricultural (*ganyu*) wage labour was reported by 17 percent of households and non-agricultural wage labour by 16 percent (Table 17).

Results in Figure in 11 show that 50 percent of households in rural Malawi reported engagement in production of food crops, while more than a third were involved in cash-crop production. The analysis also showed that 86 percent of the interviewed households were involved in some agriculture to sustain their livelihoods, with 29 percent integrating cash and food crop production. By livelihood zone, the highest numbers of households growing a mix of cash and food crops were in Western Rumphu / Mzimba SS (43 percent), and in the Kasungu Lilongwe Plain (40 percent). A detailed breakdown by livelihood zone is presented in the graph below.

Figure 11: Percent distribution of households involved in agriculture and non-agricultural activities by livelihood zone

Food-crop production as the main livelihood source was more prevalent in households living in the rural South than in the Centre and rural North, which were more reliant on cash crops. Food-crop production was highly reported in the Thyolo / Mulanje Tea Estate livelihood zone (77 percent) while cash-crop production was most often reported in the Kasungu Lilongwe Plain (11 percent). Dependence on agricultural wage labour (*ganyu*) was most often reported in the Shire Highlands and Lake Chirwa / Phalombe Plain zones while charcoal and firewood selling was commonly reported in the Lakeshore, Lower Shire and Middle Shire Valley zones.

In the context of rural Malawi, dependence on agricultural wage labour as the main livelihood activity could be interpreted as a sign of food insecurity (stress) because households are unable to work their own fields. This reduces crop production and makes households even more dependent on *ganyu* for meeting their needs. As casual labour is reported to be poorly paid, the more households rely on it, the more likely they are to be food insecure.

At least three livelihood activities were reported by 45 percent of households while 34 percent named two main livelihood activities. Reliance on three livelihood activities was highest in Western Rumpfi / Mzimba SS (62 percent) followed by Lake Chirwa / Phalombe Plain (53 percent). Reliance on one livelihood activity was highest in Nkhata Bay Cassava / S. Karonga and Chitipa / NC Karonga / Misuku Hills, as reported by 50 percent of households in each zone.

5.1.2 Livelihood Strategy Profiles

Using principal component analysis (PCA) and cluster analysis, households were grouped into 13 homogenous livelihood profiles using the contribution of each reported livelihood activity to households' total income. These groups were: (1) agriculturalists (food crops); (2) agriculturalists (cash and food crops); (3) agricultural wage labourers; (4) traders; (5) salaried workers; (6) self-employed; (7) non-agricultural wage labourers; (8) brewers; (9) petty traders; (10) fishermen; (11) agro-pastoralists; (12) artisans; and (13) households relying on other non-specified activities.

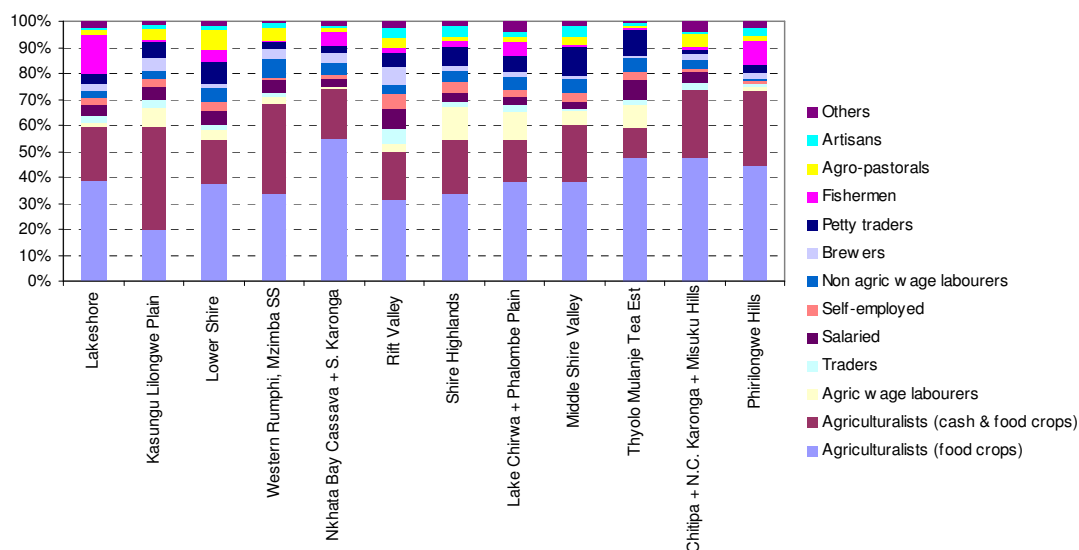
The first two groups of agriculturalists (relying on either food crops only or a combination of cash and food crops) accounted for 58 percent of the population. The third most common livelihood group was agricultural wage labourers (7 percent) followed by petty traders (6 percent). A description of each livelihood group profile is reported in Table 18 along with percentages of households headed by women, literate household heads and elderly household heads (60 years of age or older) in each group.

Table 18: Summary of livelihood profiles

Livelihood group and percentage of total	Description <i>(based on average characteristics of the group)</i>	% HH in the poorest wealth quintile	% HH headed by a woman	% HH heads who are literate	% HH heads 60 years old or more
Agriculturalists (food crops) 32%	Households depending nearly entirely on food-crop production for their livelihoods (the relative contribution of this activity to the overall livelihood of the household is estimated at 83%). Approximately one half of HH heads are literate (fourth lowest rate).	24%	38%	52%	32%
Agriculturalists (cash & food crops) 26%	Households earning their living from a mix of cash- (48%) and food-crop (40%) production.	11%	18%	71%	19%
Agricultural wage labourers 7%	Households depending mainly on <i>ganyu</i> , which accounts for 61% of their livelihoods. Agriculture remains important, accounting for 23%. Highest percentage of HHs in the lowest wealth quintile.	37%	44%	50%	19%
Traders 3%	Households with an average 65% of their livelihoods generated by trade; the rest coming predominantly from agriculture (26%).	6%	34%	81%	11%
Salaried 5%	This group depends mostly on salaries from their work as long-term employees (68%), but also engages in agricultural food-crop production (20%). This group has the highest literacy rate for household heads.	5%	16%	85%	11%
Self-employed 3%	Self-employment comprises 56% of the livelihoods of these households, while food-crop production contributes another 32% to the total.	11%	12%	79%	11%
Non-agricultural wage labourers 4%	Households depending on non-agricultural labour (62%), with some contribution from food-crop agriculture (22%).	22%	31%	61%	20%
Brewers 4%	Brewing contributes 49% to their livelihoods; agriculture another 33%. Highest percentage of women and elderly household heads; lowest literacy among household heads.	37%	52%	43%	39%
Petty traders 6%	Households with an average of 58% of their livelihoods generated by petty trade (including sale of firewood/charcoal); agriculture accounts for 28%.	26%	36%	62%	17%
Fishermen 3%	These households rely on fishing for 53% of their livelihoods; agriculture is also important, accounting for 35%.	14%	23%	61%	15%
Agro-pastoralists 3%	Agro-pastoralists build their livelihoods on a combination of livestock production (46%) and food-crop production (38%).	13%	28%	62%	33%
Artisans 2%	Agro-artisans generate over half of their livelihoods from artisan work (55%) and most of the rest from agriculture (41%).	23%	15%	69%	27%
Other (not specified) 2%	Households in this group have the most limited role in agriculture for their livelihoods (11%), relying mostly on other non-specified activities (80%). Highest percentage of elderly household heads and second highest percentage of women household heads.	33%	51%	46%	42%

The geographic distribution of the main livelihood profiles is consistent with the information about the reported livelihood activities. Agriculturalists relying on-food crop cultivation were the largest group (55 percent) in Nkhata Bay Cassava / S. Karonga, followed by Thyolo Mulanje Tea Estate and Chitipa / NC Karonga / Misuku Hills (48 percent each). Cash and food crop farmers were more common in the Kasungu Lilongwe Plain (39 percent) and in Western Rumphu / Mzimba SS (35 percent). The highest proportion of agricultural wage labourers was found in the Shire Highlands (12 percent) followed by Lake Chirwa / Phalombe Plain (10 percent) and Thyolo Mulanje Tea Estate (9 percent); all were above the national average of 7 percent.

Figure 12: Livelihood profiles by livelihood zones



5.1.3 Change in income

Surveyed households were asked whether the number of working members and the estimated total income changed over the last year. Overall, 90 percent of the households responded that the number of working members remained the same; about 7 percent said that the number decreased; and 3 percent reported an increase. No significant difference was found across livelihood zones or groups.

The average number of working members was 1.7 (median 2). Only the households that relied on non-specified activities had an average (1.05 persons) that was significantly lower ($p < 0.05$) than the other groups.

More than half of households reported a change in their income levels within the past year: income decreased in 31 percent of households while it increased in 23 percent of households. No significant change in income since the previous year was reported by 46 percent of households. Agriculturalists growing both food and cash crops were the group that most reported increased income (34 percent); only 7 percent of households living on agricultural wage labour reported an income increase.

By livelihood zone, Phirilongwe Hills had the highest percentage of households reporting a decrease in their income (42 percent). About one third of households in Thyolo Mulanje Tea Estate, Lake Chirwa / Phalombe Plain, Kasungu Lilongwe Plain, Shire Highlands and Middle Shire Valley reported a decrease in income over the past year.

Table 19: Change in income in the last 12 months by livelihood zone and livelihood profile

		No change	Decrease	Increase
Livelihood profiles	Agriculturalists (food crops)	49%	31%	20%
	Agriculturalists (cash & food crops)	36%	30%	34%
	Agricultural wage labourers	60%	33%	7%
	Traders	32%	43%	26%
	Salaried	44%	27%	29%
	Self-employed	44%	28%	28%
	Non-agricultural wage labourers	58%	30%	12%
	Brewers	58%	25%	18%
	Petty traders	46%	32%	22%
	Fishermen	49%	34%	17%
	Agro-pastoralists	43%	33%	24%
	Artisans	49%	34%	17%
	Others	47%	36%	17%
Livelihood zone	Lakeshore	52%	28%	20%
	Kasungu Lilongwe Plain	38%	33%	28%
	Lower Shire	69%	22%	9%
	Western Rumphu / Mzimba SS	57%	20%	22%
	Nkhata Bay Cassava / S. Karonga	76%	12%	12%
	Rift Valley	50%	27%	23%
	Shire Highlands	44%	35%	21%
	Lake Chirwa / Phalombe Plain	45%	33%	22%
	Middle Shire Valley	46%	35%	20%
	Thyolo Mulanje Tea Estate	39%	32%	29%
	Chitipa / NC Karonga / Misuku Hills	71%	8%	21%
Phirilongwe Hills	42%	42%	16%	

Among the households with a decrease in income, the most common reasons were: lower profit/reduced scale (64 percent); fewer people working because of a lack of opportunities (43 percent); lower wages (24 percent); and less support/lower remittance (20 percent). Reasons for increases in income included higher outputs (71 percent) and higher profit/increased sale (60 percent).

Table 20: Reasons for decrease / increase in income (percent of households)

Reasons for decrease		Reasons for increase	
Lower profit/reduced scale	64%	Higher outputs	71%
Fewer people working due to lack of opportunities	43%	Higher profit/increased sale	60%
Lower wages	24%	Higher wages	18%
Less support/lower remittance	20%	More support / remittance	9%

5.1.4 Remittances

Less than 10 percent of the households in rural Malawi received cash or food from friends or relatives in the six months before CFSVA data collection. Among those who did, the majority (91 percent) received the support from within the country, while only 9 percent received outside remittances. The results indicate that 25 percent of households did not receive any transfer the year before. Among those households who received remittances, 53 percent experienced no change in the amount of remittances received while 17 percent had an increase and 5 percent had a decrease. About 28 percent of the households receiving money or food did so on a regular basis (18 percent every month; 10 percent every two months) whereas 32 percent received it

occasionally and 20 percent were provided remittances upon request. Although the majority of receiving households did expect support to continue in the next year (54 percent), 38 percent were not sure if the support would continue.

5.2 EXPENDITURES

The study examined the expenditure patterns of the sampled households. Information was collected on household expenditures using a 30-day recall period for ten food items (including food eaten outside home) and ten non-food items that are frequently bought. A 6-month recall period was used for seven additional non-food items that are less frequently purchased (medical/health care, clothing and shoes, education fees including uniforms, debt repayment, social events including celebrations and funerals, seeds and fertilizers, and agricultural equipment).

The CFSVA is not a comprehensive expenditure survey and absolute values of expenditures are based only on household estimates. However, the expenditure analysis provides an opportunity for relative comparisons of purchasing power among different household groups.

5.2.1 Monthly Expenditure and Expenditure Quintiles

The results in Figure 13 show that the average reported household total expenditure was about MK5,000 per month, while the figure adjusted by the number of household members (per capita) was slightly less than MK1,400 per month. Level of expenditure varied between livelihood profiles. Traders and salaried households reported the highest expenditures for both food and non-food items, with a total of MK9,600 and MK9,300 per month respectively. The lowest average expenditures were found among agricultural wage labourers and households living on non-specified activities (MK2,400 and MK2,700 per month respectively).

Figure 13: Household monthly expenditures by livelihood profile and wealth quintile

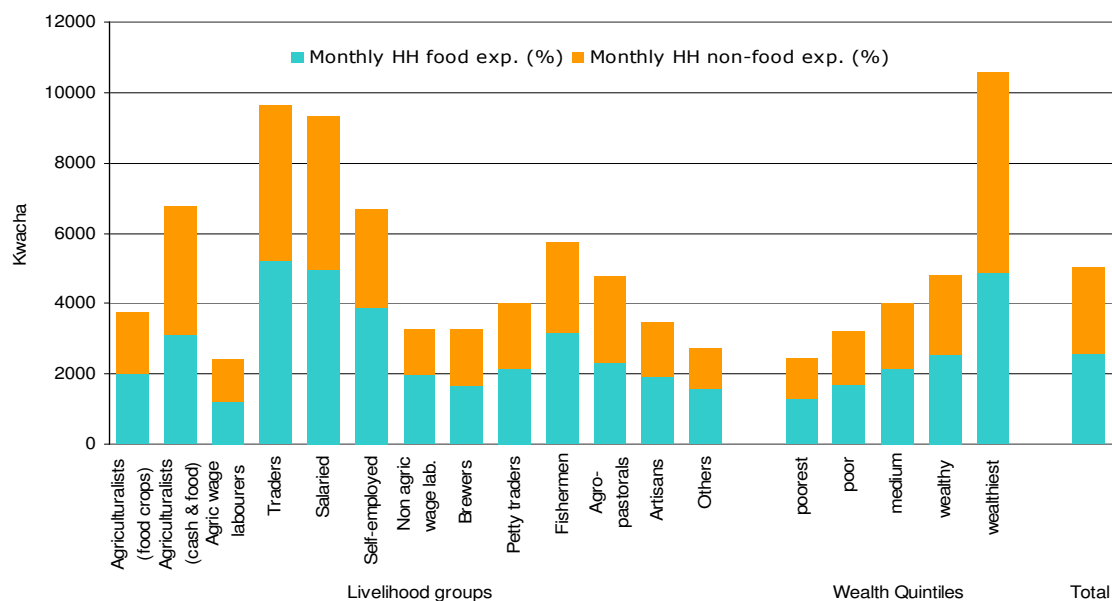


Table 21 shows average expenditure values by livelihood zone. Households in the Lower Shire had the lowest monthly total expenditure (household level: MK 2,700; per capita: MK870). Households in this zone also had the highest share of expenditure for food items (69 percent). Other zones where households reported low purchasing power were Phirilongwe Hills and Middle Shire Valley (household level: MK 3,500; per capita: MK1,000) followed by Shire Highlands and Lake Chirwa/Phalombe Plain (household level: MK3,800; per capita: MK1,300).

Table 21: Household expenditures by livelihood zone

Livelihood Zone	Average monthly expenditure (MK)	Share monthly expenditure for food	Per capita monthly expenditure (MK)	% households in the 4 th and 5 th per capita expenditure quintile
Lakeshore	6,350	58%	1,690	45%
Kasungu Lilongwe Plain	6,150	44%	1,490	45%
Lower Shire	2,720	69%	870	25%
Western Rumphu / Mzimba SS	6,630	44%	1,630	46%
Nkhata Bay Cassava / S. Karonga	4,790	52%	1,530	39%
Rift Valley	5,170	55%	1,400	41%
Shire Highlands	3,770	54%	1,290	36%
Lake Chirwa / Phalombe Plain	3,920	56%	1,350	36%
Middle Shire Valley	3,530	56%	1,100	32%
Thyolo Mulanje Tea Estate	4,500	56%	1,400	42%
Chitipa / NC Karonga / Misuku Hills	4,550	41%	1,340	36%
Phirilongwe Hills	3,570	52%	970	33%
Rural Malawi	5,020	51%	1,400	20%

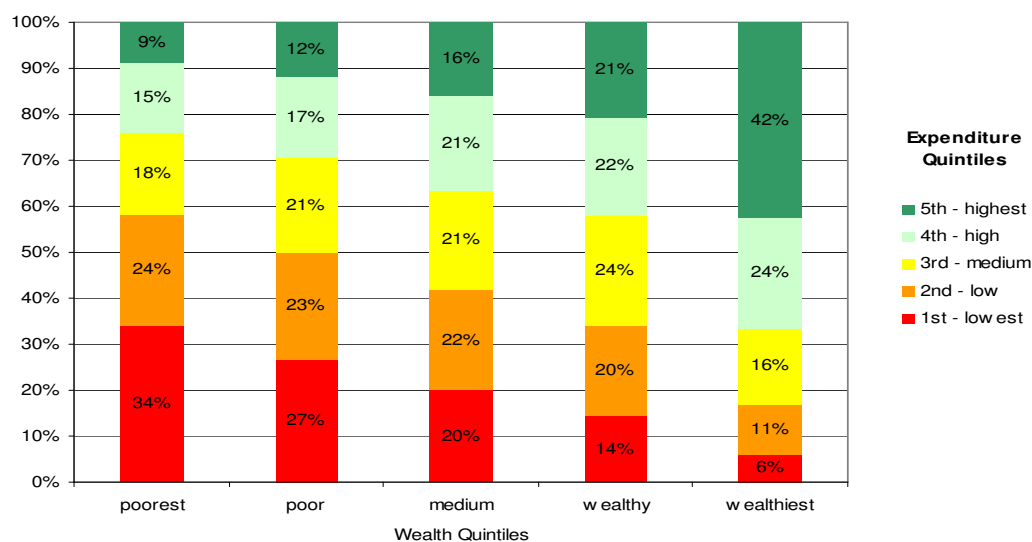
Households were categorized into quintiles on the basis of their per capita expenditures. Table 22 shows per capita (average) monthly expenditures and proportion of household outflow spent on food in each quintile.

Table 22: Per capita expenditure quintiles by share of food and per capita monthly expenditure

Per capita expenditure quintiles	Share food expenditure (percent)	Per capita monthly expenditure (average)
1 st – lowest	39%	MK200
2 nd – low	51%	MK460
3 rd – medium	56%	MK810
4 th – high	58%	MK1,420
5 th – highest	53%	MK4,080
Rural Malawi	51%	MK1,400

The findings in Table 22 show that the monthly per capita expenditure in the lowest quintile averaged only about MK200 – less than half that of the second lowest quintile. The monthly per capita expenditure of the highest quintile was found to be 20 times higher than that of the lowest quintile, with an average of MK 4,000 per capita per month. The share of food expenditure of the total household budget was lowest among households in the lowest quintile (39 percent), which was significantly ($p < 0.05$) lower than each of the other quintiles. This might be related to the fact that most of the poorer households rely on self-production to satisfy their food needs. The average share was significantly higher ($p < 0.05$) among households in the fourth quintile than in the others, followed by the third quintile.

A linear positive and solid relationship between expenditure and wealth was found when the expenditure quintiles were cross-tabulated with the wealth quintiles: the poorest households tended to have lower expenditure levels than wealthier households (see Figure 14).

Figure 14: Household expenditure quintiles by wealth quintiles

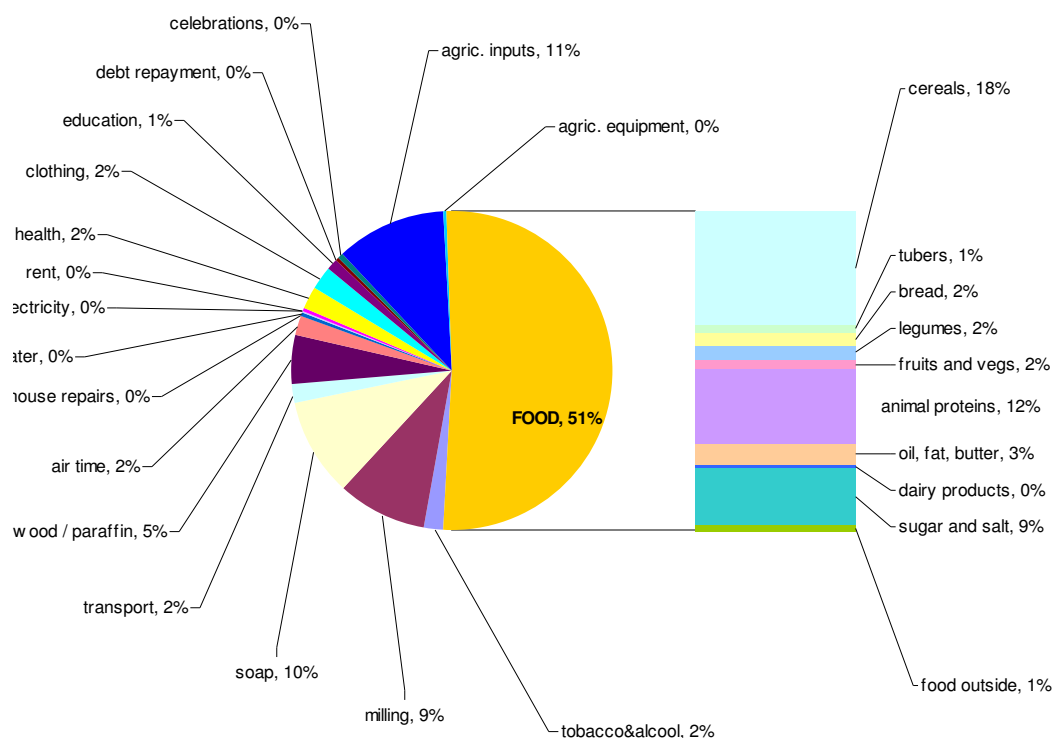
By livelihood profile, traders (69 percent) and salaried workers (66 percent) comprised the largest percentage of households in the two highest expenditure quintiles (fourth and fifth combined), followed by cash and food crop agriculturalists (51 percent). The majority of agricultural wage labourers (65 percent) and artisans (60 percent) were in the two lowest expenditure quintiles; 34 percent of the agricultural wage labourers fell into the lowest expenditure quintile.

By livelihood zone, households in the Lower Shire and Phirilongwe Hills zones were the most likely to be in the lowest two expenditure quintiles (54 percent and 51 percent respectively) while households in the Western Rumpi / Mzimba SS, Lakeshore and Kasungu Lilongwe Plain zones were the most likely to be in the two highest expenditure quintiles (approximately 45 percent each).

5.2.2 Food and Non-Food Expenditures

Figure 15 shows that half of the household expenditures were for food items. Among these, the most was spent on cereals (18 percent of total), animal proteins (12 percent) and sugar and salt (9 percent). For non-food items, the highest share of monthly expenditure was on agricultural inputs like seeds and fertilizers (11 percent), followed by soap (10 percent), milling (9 percent) and wood or paraffin (5 percent). No major difference in food expenditure was found between households headed by women and men. However, the analysis showed that households headed by women had a higher share of monthly expenditure on cereals, milling and soap than those headed by men. Although these differences are not large in magnitude, they were statistically significant ($p < 0.01$). In addition, households headed by men were found to spend a significantly greater ($p < 0.001$) share each month on agricultural inputs (12 percent) than households headed by women (10 percent).

Figure 15: Average composition of total and food expenditures



Regarding livelihood profiles, the analysis showed that the non-agricultural wage labourers devoted the highest share of expenditure on food (60 percent), followed by self-employed households (58 percent) and households living on non-specified activities (57 percent). The lowest food expenditure rates were found among cash and food crop agriculturalists (45 percent), and among agro-pastoralists (48 percent).

When specific food items were analyzed, non-agricultural wage labourers and households relying on non-specified activities spent proportionally more on cereals (28 percent of their budget); the lowest proportions were found for cash and food crop agriculturalists and salaried workers. Salaried workers and traders spent only 5 percent of their total expenditures on milling – half that of agro-pastorals, artisans, food crop agriculturalists and brewers (all between 10 and 12 percent). Agro-pastoralists and cash and food crop agriculturalists were found to dedicate the highest share of expenditures to agricultural inputs (14 percent and 17 percent respectively). The households with the lowest expenditures on seeds and fertilizers were those living on non-specified activities, fishermen and non-agriculture wage labourers (all around 7 percent).

Table 23 disaggregates the share of food expenditures on specific food items by livelihood zone. These data must be interpreted taking into account market prices of food items and the differing importance of auto-consumption in each livelihood zone.

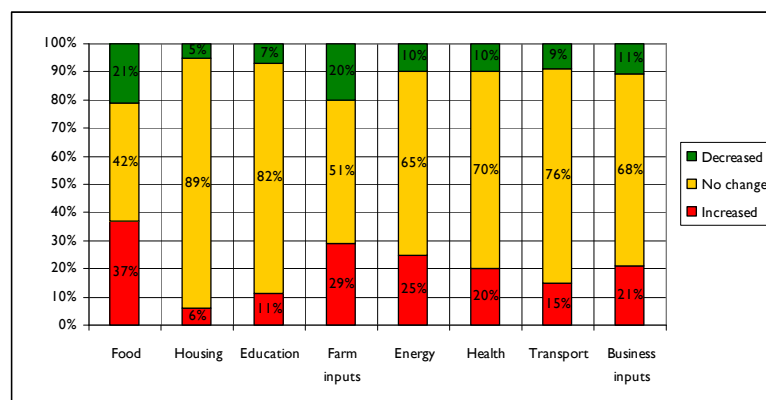
Table 23: Share of expenditure on specific food items by livelihood zone

		Cereals	Tubers	Bread	Legumes	Fruits/veg.	Animal proteins	Oil/fat	Dairy prod.	Sugar/salt	Food outside
Livelihood zones	Lakeshore	22	2	2	3	2	13	3	1	9	1
	Kasungu Lilongwe Plain	14	1	2	1	1	12	3	0	8	1
	Lower Shire	37	1	1	3	2	13	3	0	8	1
	Western Rumpfi / Mzimba SS	11	1	2	2	1	12	5	1	10	1
	Nkhata Bay Cassava / S. Karonga	11	1	1	4	2	15	7	1	11	0
	Rift Valley	19	2	2	5	2	11	4	1	9	1
	Shire Highlands	17	2	2	3	2	13	3	0	10	2
	Lake Chirwa / Phalombe Plain	22	1	2	3	2	12	4	1	9	1
	Middle Shire Valley	23	1	1	3	1	12	3	0	10	1
	Thyolo Mulanje Tea Estate	16	1	3	4	2	13	5	1	11	1
	Chitipa / NC Karonga / Misuku Hills	6	1	1	5	1	11	7	1	10	0
	Phirilongwe Hills	27	1	1	1	1	9	2	0	12	0

5.2.3 Expenditure Change: Household Perception

The CFSVA collected data on household perceptions about changes in expenditure level from one year before the survey to the present. No changes were reported in overall expenditure by 45 percent of households; this result is consistent with the fact that 46 percent of households reported no change in income pattern. Among households that reported a decrease in the expenditure (15 percent of the total), 37 percent stated that the reason for the change was the cost of the items; 28 percent reported a change in household size; and 34 percent attributed the decrease to a change in agricultural production. Most of the households who spent more (40 percent of the total sample) attributed the reason to the cost of the items (78 percent). This implies that farmers were greatly affected by a global price increase for inputs, due to the inelastic demand for agricultural inputs. Increase in expenditures was also attributed to changes in agricultural production (13 percent) and in household size (9 percent), but the impact of these two elements was much less important.

Approximately 80 percent of the households provided an indication about changing expenditures on specific items; the graph below summarizes the overall trend. Figure 16 shows that food and agricultural input expenditures were the most likely have increased over the past year, but were also the two categories in which the highest percentage of households reported a decrease in the same period. Housing and education expenditures were the most likely to have remained the same. Households in Lower Shire were the most likely to have increased expenditures for food (56 percent) over the past year.

Figure 16: Changes in expenditures by expenditure category


6.0 NATURAL CAPITAL

This chapter presents findings on climate, productive land, irrigation, major crops and agricultural inputs, utilization and duration of harvest, and livestock ownership.

6.1 AGRICULTURAL PRODUCTION

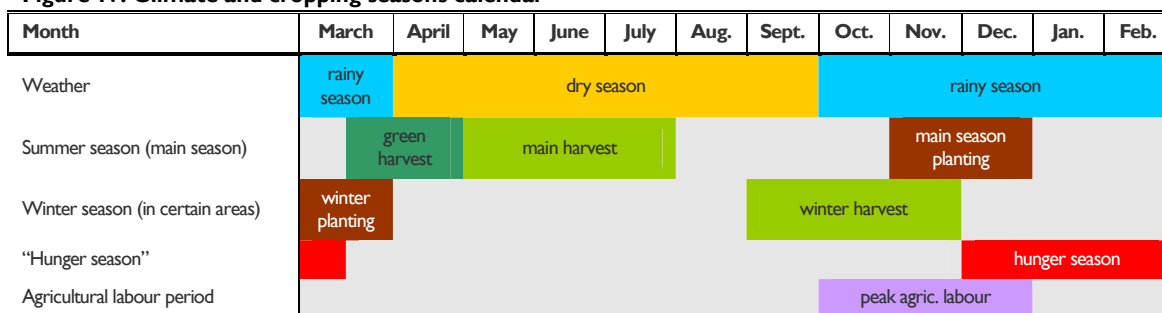
6.1.1 Climate

Malawi has a sub-tropical climate, which is relatively dry and strongly seasonal. The warm-wet season lasts from November to April, during which 95 percent of the annual precipitation takes place. Annual average rainfall varies from 725 mm to 2,500 mm: Lilongwe has an average of 900 mm; Blantyre 1,127 mm; Mzuzu 1,289 mm; and Zomba 1,433 mm. Low-lying areas such as Lower Shire Valley and some localities in Salima and Karonga are more vulnerable to floods than areas at higher elevations.

A cool, dry winter season takes place from May to August, with temperatures falling between 4 and 10 degrees Celsius and frost occurring in isolated areas in June and July. A hot, dry season lasts from September to October with average temperatures varying between 25 and 37 degrees Celsius. Humidity ranges from 50 percent during the drier months of September and October to 87 percent during the wetter months of January and February.²⁰

The Malawian cropping calendar comprises two seasons: the **summer season**, which is the main season, and the **winter season**, present only in certain areas. The summer planting period takes place in November and December; the green harvest occurs in March and April; and the main harvest begins in May and ends at late July or early August. Some areas of the country also have a winter season. The winter planting occurs in March and the related harvest lasts from the end of August to early December. The period from early December to mid-March can be defined as the “**hunger season**”, whereas the peak agricultural labour period is between October and December (Figure 17).

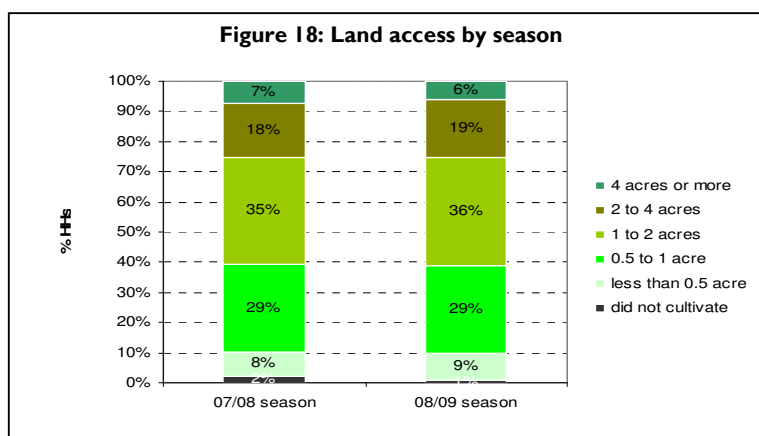
Figure 17: Climate and cropping seasons calendar



6.1.2 Productive Land

Households with land can either use it for production or to gain income through land rentals. For this reason, land entitlement is an important source of livelihood. In Malawi, ownership of land does not appear to be limited to richer households since most land is inherited.

Figure 18 shows that 2 percent of the households did not have land to cultivate during the 2007/08 growing season; 8 percent had



²⁰ Source: Malawi Meteorological Service of the Ministry of Lands and Natural Resources: <http://www.metmalawi.com>.

less than 0.5 acre; 29 percent owned between 0.5 and 1 acre; 35 percent had between 1 and 2 acres; 18 percent had between 2 and 4 acres; and 7 percent owned 4 acres or more. Land cultivation for the 2008/09 season was very similar to the 2007/08 cultivation, suggesting stability in land entitlement.²¹ The table below presents the 2008/09 data disaggregated by livelihood zone; the 2007/08 data are reported in Annex III.

Table 24: Household land access by livelihood zone

	did not cultivate	< 0.5 acre	0.5 to 1 acre	1 to 2 acres	2 to 4 acres	4 acres or more
Lakeshore	3%	12%	31%	37%	14%	4%
Kasungu Lilongwe Plain	0	3%	20%	40%	27%	9%
Lower Shire	3%	12%	49%	25%	9%	2%
Western Rumphu / Mzimba SS	1%	6%	23%	38%	22%	9%
Nkhata Bay Cassava / S. Karonga	0	4%	32%	43%	15%	5%
Rift Valley	1%	13%	31%	36%	14%	5%
Shire Highlands	2%	8%	31%	38%	17%	4%
Lake Chirwa / Phalombe Plain	3%	12%	40%	31%	11%	3%
Middle Shire Valley	1%	12%	28%	37%	19%	2%
Thyolo Mulanje Tea Estate	1%	18%	36%	26%	13%	6%
Chitipa / NC Karonga / Misuku Hills	1%	4%	31%	45%	18%	1%
Phirilongwe Hills	1%	11%	23%	37%	22%	5%
Rural Malawi	1%	9%	29%	36%	19%	6%

Households in the Kasungu Lilongwe Plain zone are the most likely to be cultivating larger plots of land, with 36 percent cultivating 2 or more acres in the 2008/09 season, compared to 25 percent for the entire sample. Households in the Lower Shire and Lake Chirwa / Phalombe Plain zones are the most likely to cultivate smaller plots, with more than half cultivating less than 1 acre in the 2008/09 season and 3 percent not cultivating at all.

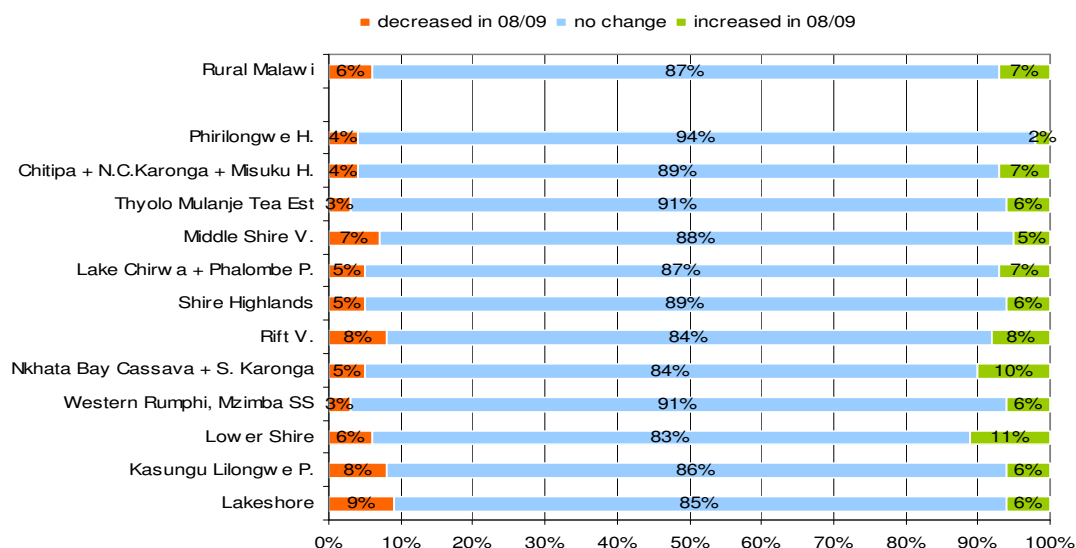
The data show that the amount of land cultivated is positively associated with wealth. In the 2008/09 agricultural season, only 13 percent of households cultivating 2 acres or more were in the poorest quintile. The percentage of households cultivating 2 or more acres increased with increasing wealth.

In terms of livelihood groups, the percentage of households that did not cultivate was highest among the 'other' group. Compared to the national average of 25 percent, 44 percent of agro-pastoralists, 38 percent of cash and food crop agriculturalists and 29 percent of traders cultivated 2 acres or more.

The analysis conducted on the 2007/08 and 2008/09 data demonstrates substantial stability in the amount of land cultivated. This stability is evident at the national level and was also seen in the geographical, wealth and livelihood analysis. To support further this conclusion, a new indicator, 'increase in land cultivated', was created to measure changes in the amount of land cultivated at the household level. The vast majority of households (87 percent) had no change in the amount of land cultivated; 7 percent increased the amount of land; and 6 percent experienced a decrease. None of the differences between livelihood zones was statistically significant.

²¹ Households that did not cultivate at all were asked to report the main reason why. The extremely low number of responses makes these percentages very unreliable, so the results were not included in the report.

Figure 19: Increase in land cultivated (percent of households) by livelihood zone



6.1.3 Irrigation

The presence of efficient irrigation systems is crucial to ensure regular harvests, especially in areas affected by frequent drought. Households with no access to irrigation are exposed to frequent variations in rainfall during the season, while households that practice irrigation are able to harvest two to three times per year. Irrigation farming is encouraged by the Government as a supplement during the lean season.

No irrigation was used by 88 percent of farming households; 10 percent irrigated less than 0.5 acre; 4 percent irrigated between 0.5 and 1 acre; and the remaining 2 percent irrigated 1 acre or more.

Calculations were made to determine the amount of land under irrigation by each farming household. Farms were then classified as totally irrigated, half or more irrigated, less than half irrigated or no irrigation at all. Table 25 below shows the findings by livelihood zone, confirming that irrigation farming is not common in rural Malawi.

Of the households participating, 84 percent did not irrigate at all; 7 percent irrigated less than half of the total land; the same percentage irrigated half or more; and only 2 percent of households irrigated their entire land. Irrigation is least common in the northern zones of Western Rumpi / Mzimba SS (92 percent did not irrigate), Nkhata Bay Cassava / S. Karonga (93 percent) and Chitipa / NC Karonga / Misuku Hills (94 percent used no irrigation). Irrigation was more common among farming households in the Kasungu Lilongwe Plain (20 percent with some) and Shire Highlands (20 percent).

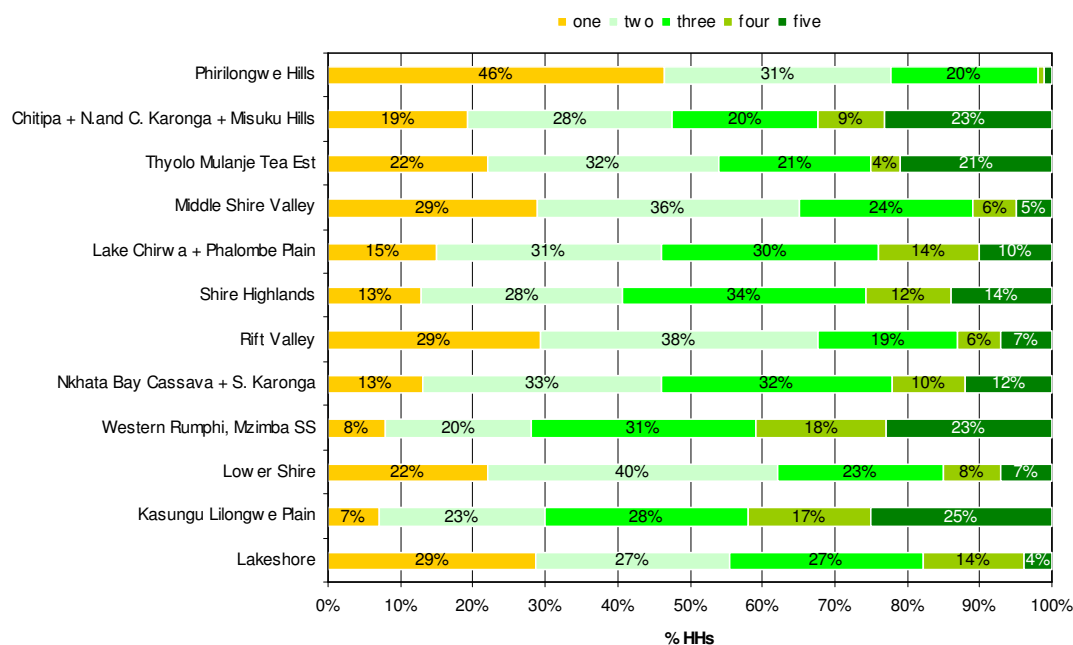
It is interesting to report that **the use of irrigation (regardless of the amount of land irrigated) was positively correlated with the amount of land under cultivation.** This conclusion is supported by the fact that 7 percent of households cultivating less than 0.5 acres were using irrigation, followed by 13 percent of those cultivating 0.5 to 1.0 acres, 16 percent of those cultivating between 1 and 2 acres, and 22 percent of households cultivating 2 or more acres of land.

Table 25: Percent of household by amount of irrigated land (2007/08 season) in each livelihood zone

	Percent of household by amount of land irrigated (2007/08)			
	totally irrigated	half or more	less than half	no irrigation
Rural Malawi	2	7	7	84
Lakeshore	2	5	4	88
Kasungu Lilongwe Plain	2	9	10	80
Lower Shire	5	5	8	83
Western Rumphu / Mzimba SS	0	3	5	92
Nkhata Bay Cassava / S. Karonga	1	4	2	93
Rift Valley	2	3	7	89
Shire Highlands	2	10	8	80
Lake Chirwa / Phalombe Plain	3	5	3	89
Middle Shire Valley	1	5	8	86
Thyolo Mulanje Tea Estates	2	6	4	88
Chitipa / NC Karonga / Misuku Hills	0	2	3	94
Phirilongwe Hills	3	6	4	86

6.1.4 Major Crops and Agricultural Inputs

As part of the assessment, households were asked to report the five main crops cultivated in order of importance. The majority of households (97 percent) cultivated at least one crop; 82 percent cultivated at least two types of crops; 54 percent reported at least three; 28 percent mentioned at least four types; and 16 percent cultivated at least five different types of crops. Figure 20 shows that for households cultivating, the lowest diversity was found in the Phirilongwe Hills, where 46 percent of households cultivated only one crop, followed by households in Rift Valley (29 percent) and Lakeshore (29 percent). The highest diversity was found among households in the Kasungu Lilongwe Plain (7 percent) and Western Rumphu / Mzimba SS (8 percent) zones.

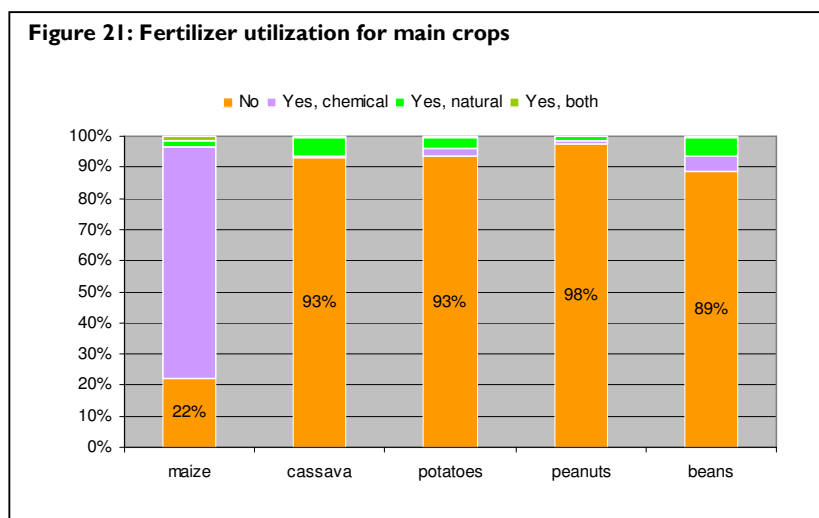
Figure 20: Number of different crops cultivated by livelihood zone


Maize was cultivated by 97 percent of the households, followed by **groundnuts** (39 percent), **beans** (23 percent), **tobacco** (21 percent), **potatoes** (21 percent) and **cassava** (17 percent).²² In particular, maize was the main crop for 93 of the households, followed by cassava (2 percent), sorghum, rice and tobacco (1 percent).²³

Farming households were asked if fertilizers were used in the 2008/09 cropping season and if so, their source. In addition, they were asked to name the source of seeds or planting materials, and if fertilizers and planting materials were subsidized. The graphs below show the national-level results for the six main crops. Main findings from the analysis included the following:

Fertilizers

- Fertilizers were used especially for maize (78 percent of households) and rarely used for the other main crops. Chemical fertilizers were more common (75 percent) than natural products (see Figure 21).
- Overall, 61 percent of the households rely on NGOs, the United Nations or the Government for their fertilizers and 41 percent use agro-dealers. However, 53 percent of maize crop fertilizer comes from NGOs, the United Nations or the Government while half of the groundnut/peanut fertilizer comes from agro-dealers (see Figure 22).
- From the multiple-response analysis, households using their own stock as a source of fertilizer reported using it for cassava (74 percent) and potatoes (37 percent) (see Figure 22).
- It is worth noting that for beans and potatoes, there is more diversification in the sources of fertilizers than for other crops (see Figure 22).
- In terms of livelihood zones, more farming households obtain their fertilizers from NGOs, the United Nations or the Government in



Thyolo Mulanje Tea Estate (85 percent) and Western Rumpi / Mimbza SS (86 percent), whereas agro-dealers are more important for households in Nkhata Bay Cassava / S. Karonga (64 percent) and Chitipa / NC Karonga / Misuku Hills (67 percent).²⁴

Source of fertilizer was analyzed by amount of land cultivated to investigate differences between small- and large-scale farmers. The results of the multiple-response analysis show that the use of agro-dealers is higher among very small farmers (< 0.5 acres) (44 percent of responses) whereas NGOs, the United Nations and the Government are the main sources among large-scale land cultivators.²⁵

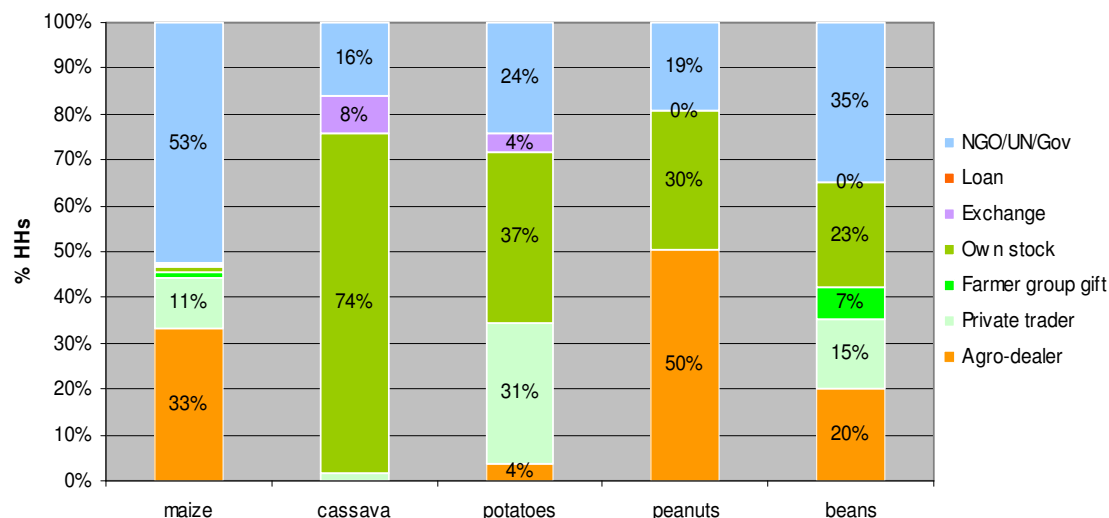
²² These percentages have been computed through a multiple-response analysis conducted on the main 4 crops cultivated. More details on the main crops are reported in the annex.

²³ These percentages have been computed only taking into consideration the most important crop.

²⁴ Findings based on a low number of responses can be considered as indicative of a trend.

²⁵ Large-scale farmers are more likely to cultivate a larger variety of crops. To control for the number of crops under cultivation, response percentages have been used instead of case percentages.

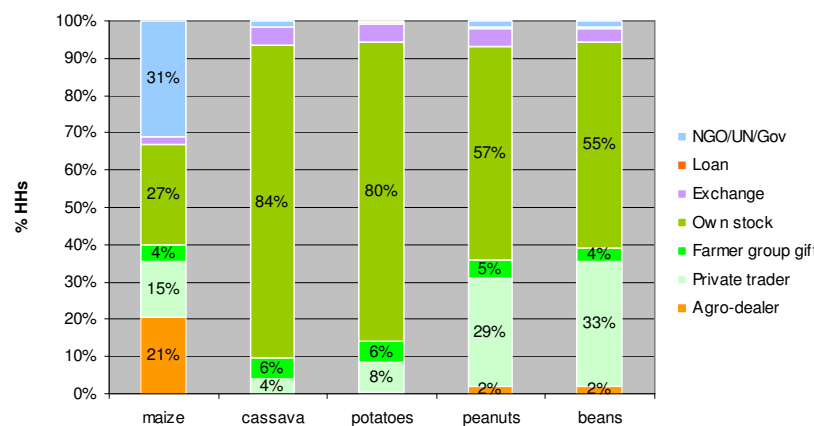
Figure 22: Percent distribution of fertilizers source for main crops



Seeds / Planting material

- **‘Own stock’** was the main source of seeds and other planting materials for the farmers surveyed. Results from the multiple-response analysis show that 100 percent of households used their own supplies of seed for at least one cultivated crop. Farmers’ own stock was especially important for cassava (84 percent of households) and potatoes (80 percent) (see Figure 23).
- Private traders also play a significant role in providing seeds and other planting materials for their crops (37 percent of households). Private traders are especially used for buying groundnut and bean planting materials (29 percent and 33 percent respectively) (see Figure 23).
- Agro-dealers also provided planting materials to 24 percent of households. However, the crop-disaggregated data show that they were mainly used to buy fertilizers for maize.
- Farmers’ own stock was the source for 100 percent of households in Kasungu Lilongwe Plain and Western Rumpi / Mzimba SS whereas private traders were more important for households in the Shire Highlands and Thyolo Mulanje Tea Estate (45 percent).
- Sources of seeds for maize were much more diversified compared with the other crops: 31 percent of maize seeds/planting material was provided by NGOs, the United Nations or the Government; 27 percent came from farmers’ own stock; 21 percent from agro-dealers; and 15 percent came from private traders (see Figure 23).
- The importance of farmers’ own seed supplies is related to the amount of land cultivated: 44 percent of small farmers (< 0.5 acre) relied on their own stocks compared with 53 percent of farmers cultivating more than 4 acres

Figure 23: Source of seed/planting material by main crops



Subsidized seeds and fertilizers

- Subsidized fertilizers were obtained by 80 percent of the households for maize, by 22 percent of households for beans and only rarely for other crops. Similarly, subsidization of planting materials was common only for maize (51 percent of households) and virtually non-existent for other crops (see Figure 24).²⁶

Figure 24: Percent distribution of access to subsidized seeds and fertilizers

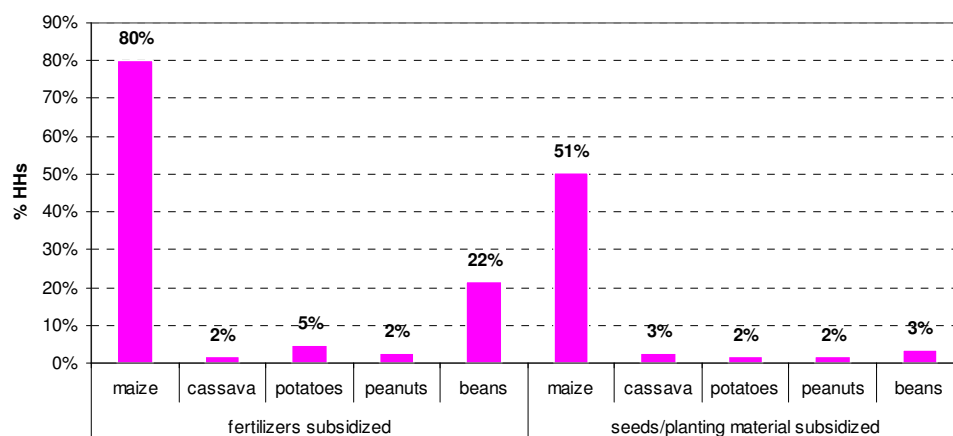
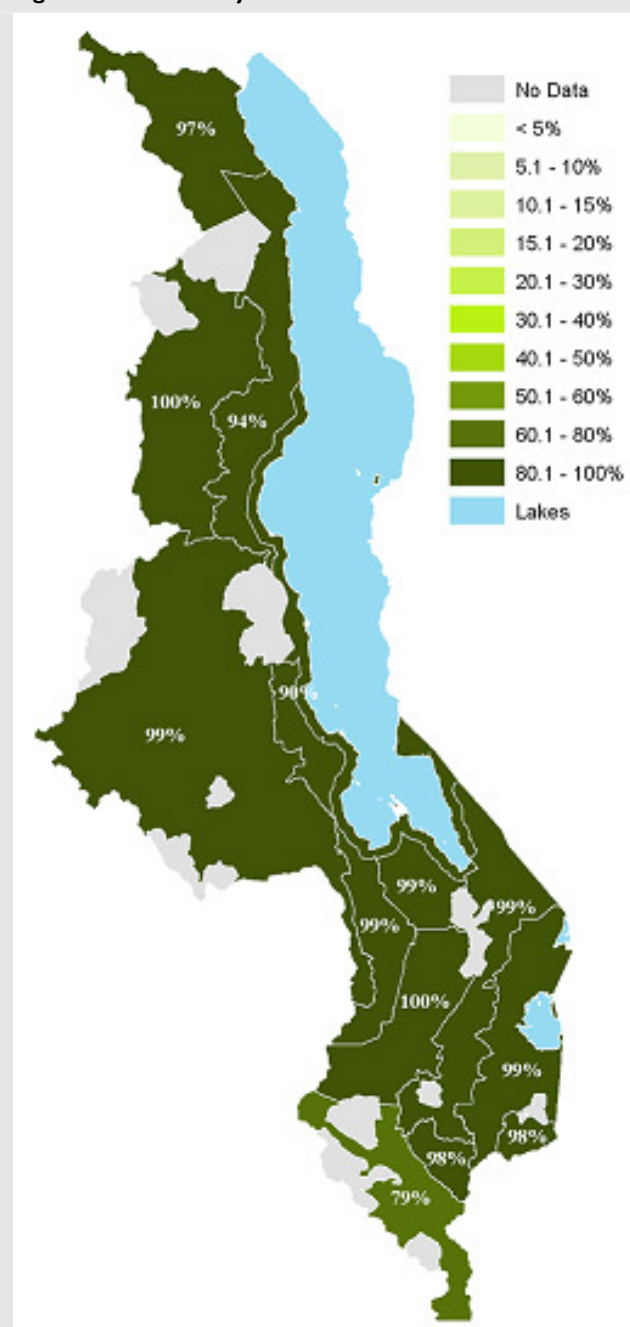


Figure 25 below summarizes the results of a detailed analysis of the geographic distribution of maize; related tables including disaggregated data are reported in Annex III.

²⁶ The data that were collected did not allow for an exploration of the relationship between the source of fertilizers and seeds, and whether they were subsidized.

Figure 25: Maize analysis



Maize cultivation is frequent in each livelihood zone albeit to a lesser extent in Lower Shire (79 percent) than in other zones.

Chemical fertilizers are used by 75 percent of households; 2 percent use natural fertilizers; and 1 percent use both. The remaining 22 percent do not use fertilizers. Households in Lower Shire and Phirilongwe Hills are the least likely to use fertilizers (40 percent and 49 percent respectively). Use of fertilizers is most common in Western Rumpi / Mzimba SS (88 percent), Shire Highlands (85 percent) and Chitipa / NC Karonga / Misuku Hills (85 percent).

Nationwide, 53 percent of households obtain maize fertilizers from NGOs, the United Nations or the Government; 33 percent purchase them from agro-dealers; and 11 percent obtain them from private traders. NGOs, the United Nations and the Government are the main sources in Thyolo Mulanje Tea Estate (84 percent), while agro-dealers are used more in Chitipa / NC Karonga / Misuku Hills (62 percent) and Nkhata Bay Cassava / S. Karonga (61 percent).

The majority of households nationwide (80 percent) reported that their maize fertilizers are subsidized. Zones where households have less access to subsidized fertilizers include the Kasungu Lilongwe Plain (70 percent) and Chitipa / NC Karonga / Misuku Hills (69 percent).

Sources of **seeds for maize** are much more diversified compared with the other crops: 31 percent are provided by NGOs, the United Nations or the Government; 27 percent come from farmers' own stock; 21 percent come from agro-dealers; and 15 percent from private traders. NGOs, the United Nations and the Government are more commonly used in Thyolo Mulanje Tea Estate (63 percent) while farmers' own stock is most common in the Phirilongwe Hills (58 percent).

As reported above, **subsidies** are much more common for maize than for other crops. Subsidized fertilizers are more frequent in Middle Shire Valley (90 percent), Lake Chirwa / Phalombe Plains (89 percent) and Shire Highlands (89 percent) while seed subsidies are more frequent in Lake Chirwa / Phalombe Plains (66 percent) and Nkhata Bay Cassava / S. Karonga (69 percent).

By **livelihood group**, maize represents 39 percent of the total cultivated crops for food-crop farmers. A similar situation is found among agricultural wage labourers (38 percent) and petty traders (38 percent). For cash and food agriculturalists, maize represents only 28 percent of their total cultivated crops. The lower importance of maize for this group is probably related to the higher importance of tobacco (16 percent versus 3 percent of food crop agriculturalists, for instance). Amount of land cultivated also has an impact on variety of crops. Results of the analysis suggest that maize is always the primary crop cultivated, but as the amount of land increases, other crops are cultivated as well. This reduces the relative importance of maize in crop production.

Groundnuts are cultivated by 39 percent of households nationwide, but are cultivated more frequently in the Kasungu Lilongwe Plain (66 percent) and in Western Rumphu / Mzimba (52 percent). In the other zones, the values are below the national average.

Figure 26: Production of groundnuts by livelihood zone

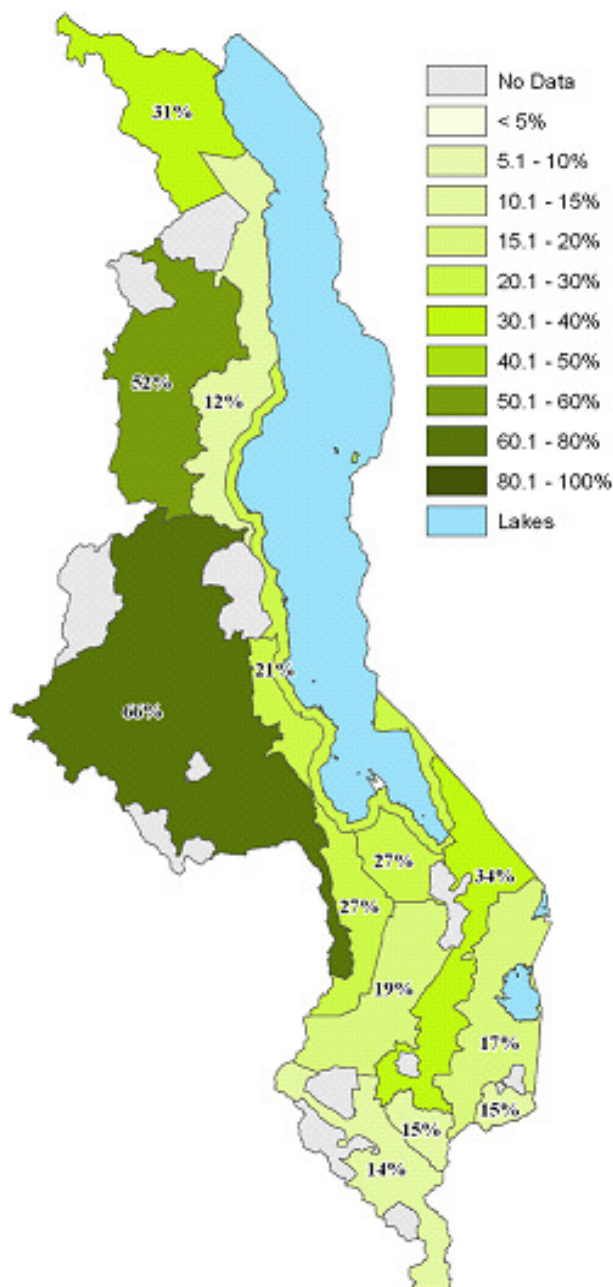


Figure 27: Production of beans by livelihood zone

Figure 28: Production of tobacco by livelihood zone

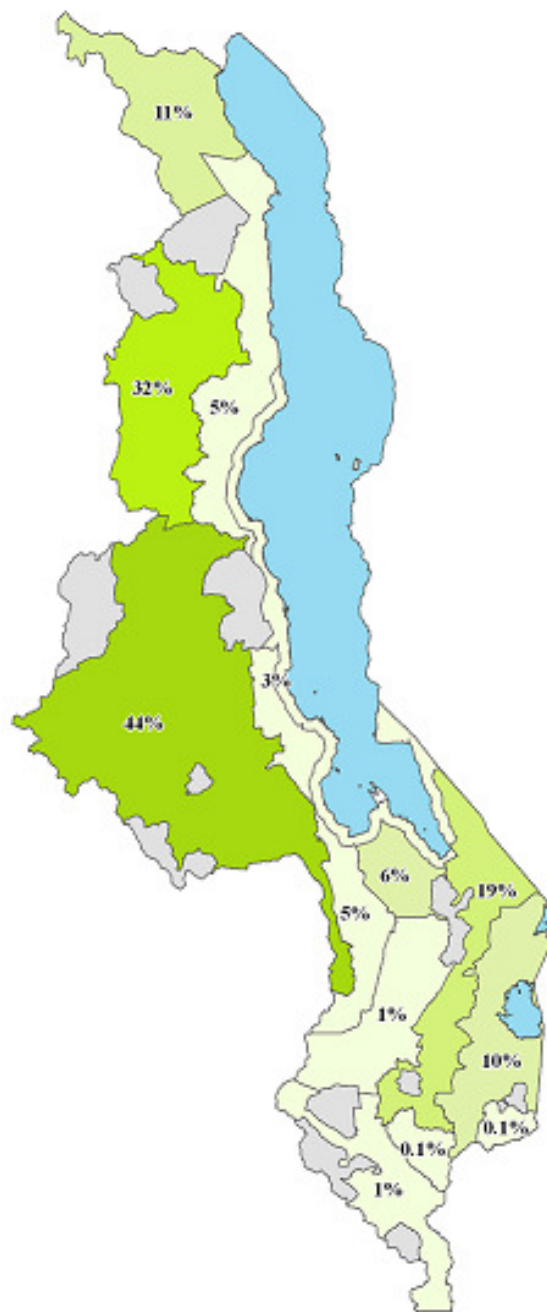
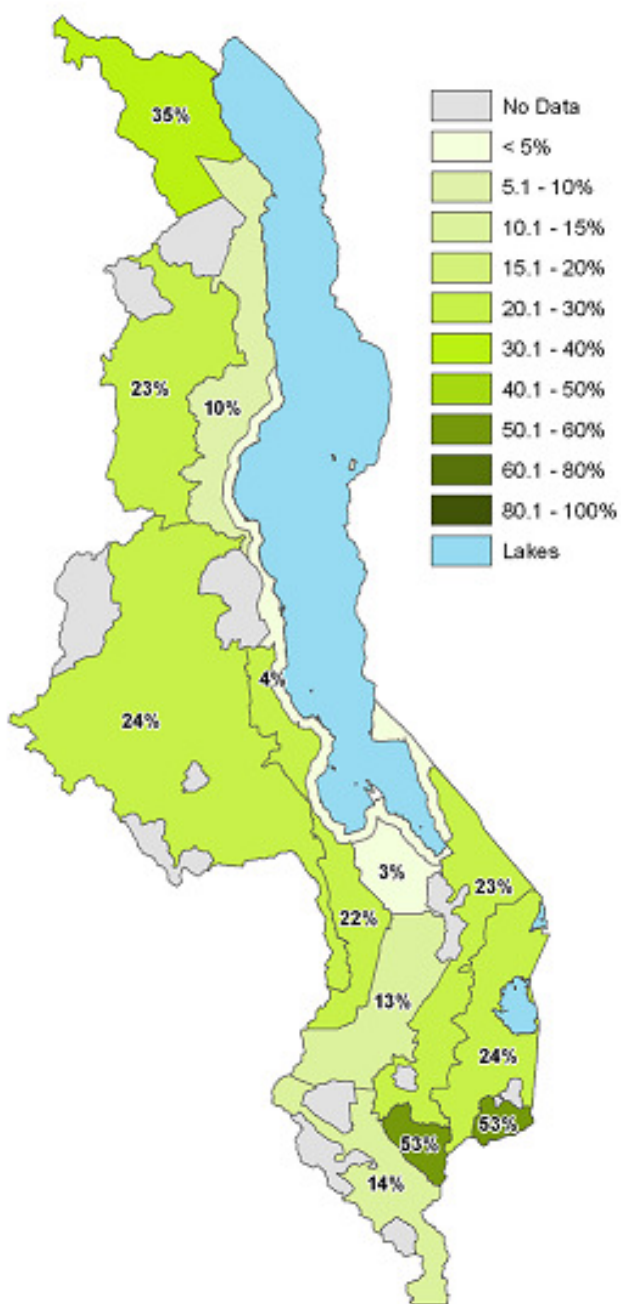


Figure 29: Production of potatoes by livelihood zone

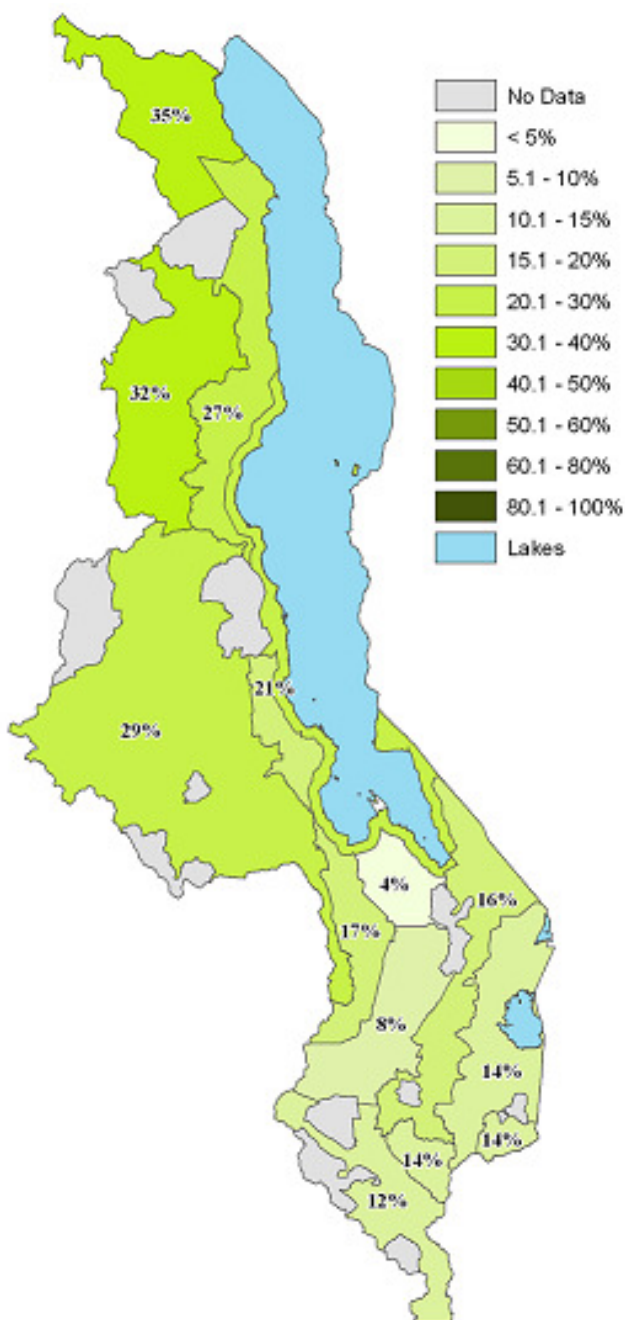
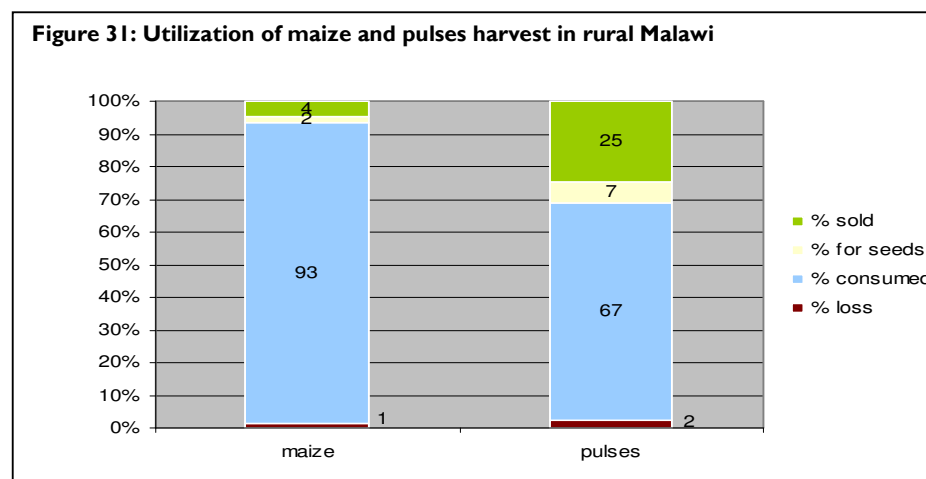


Figure 30: Production of cassava by livelihood zone



6.1.5 Utilization and Duration of Harvest

Utilization of main crops was also assessed during the study: for maize, pulses, and rice, households estimated the total quantity (kg) harvested during the 2007/08 agricultural season, the quantity devoted to consumption or gifts, and the quantity used as seeds, sold and lost. While the vast majority of maize production is used for households' own consumption (93 percent), use of pulses is more diverse. Like maize, most pulses (67 percent)



were devoted to household consumption, but 25 percent were sold and 7 percent were used for seed. In both cases, it appears that a negligible share was lost (Figure 31).

The share of maize production devoted to household consumption was very high throughout Malawi, albeit to a lesser extent in Nkhata Bay Cassava / S. Karonga (85 percent), since this is a cassava-growing zone. In this zone, and in the Phirilongwe Hills, farmers sold more of the maize they produced than in other zones (10 percent and 8 percent respectively). In Lower Shire, high expenditures of income were reported on food procurement (69 percent of the total expenditure – see Chapter 5) in addition to a higher proportion of households selling maize. This could be because most households depend on sorghum and millet as their main staple foods and tend to sell the maize they harvest and buy other food commodities such as sorghum and millet.

Table 26: Use of maize harvest by livelihood zone

	Share loss	Share consumed	Share seeds	Share sold
Lakeshore	1%	92%	2%	5%
Kasungu Lilongwe Plain	2%	92%	2%	4%
Lower Shire	1%	92%	2%	5%
Western Rumphu / Mzimba SS	1%	96%	1%	3%
Nkhata Bay Cassava / S. Karonga	2%	85%	3%	10%
Rift Valley	3%	96%	0	1%
Shire Highlands	1%	94%	2%	3%
Lake Chirwa / Phalombe Plain	2%	91%	3%	4%
Middle Shire Valley	2%	92%	2%	4%
Thyolo Mulanje Tea Estate	1%	96%	1%	2%
Chitipa / NC Karonga / Misuku Hills	2%	94%	2%	2%
Phirilongwe Hills	0	90%	3%	7%
Rural Malawi	1%	92%	2%	5%

Maize production trends in rural Malawi

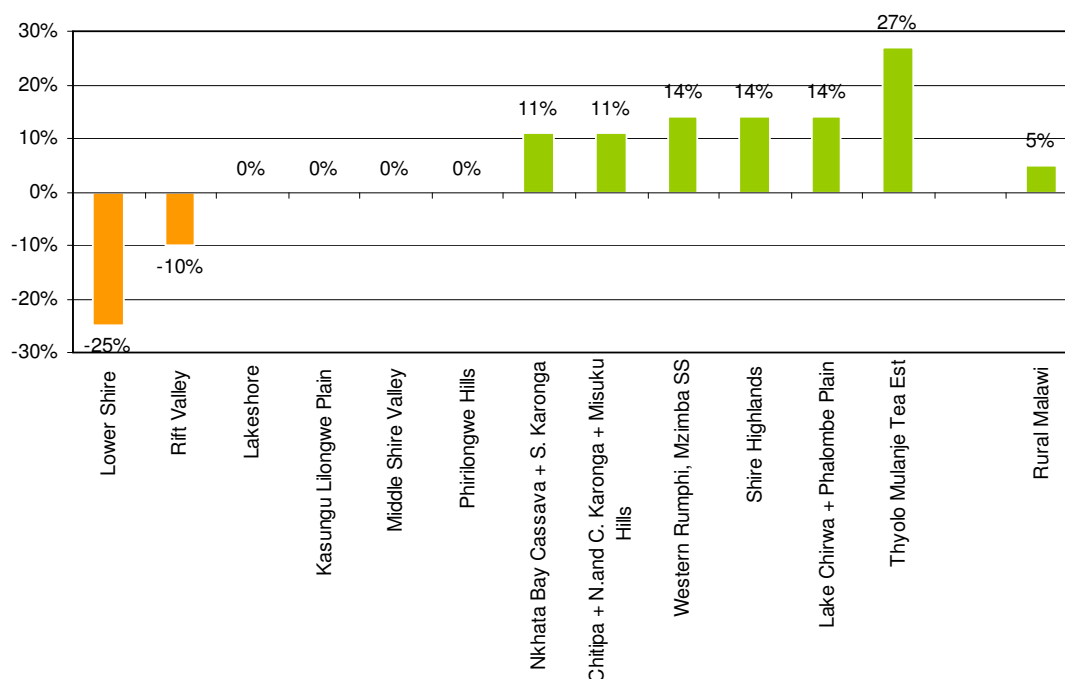
Households were asked to report the quantity of maize, pulses and rice harvested during the 2008/09 season. This information was used to estimate production trends at the household level. There was a 4 percent median

increase in production of maize and a 14 percent median increase in production of pulses.²⁷ According to the data, farmers whose land decreased in the current season had no increase in maize production (median equal to 0 percent); farmers whose land holdings did not change had a median increase of 4 percent; farmers whose land increased in 2008/09 had a median increase of 13 percent. **The increase in maize production is better explained by an increase in the amount of land owned rather than in land productivity.**

An increase in maize production was more evident among the large-scale farmers than among small farmers: there was no increase among farmers with less 0.5 acres or between 0.5 and 1 acre; there was a 5 percent increase among farmers with 1 to 2 acres; a 12 percent increase among farmers with 2 to 4 acres; and a 14 percent increase among farmers with 4 acres or more.

Production change was disaggregated by livelihood zone and median values were used for the comparisons (see Figure 32). Lower Shire is characterized by the greatest reduction in maize production (-25 percent), followed by Rift Valley (-10 percent). Thyolo Mulanje Tea Estate households experienced the highest increase (+27 percent), followed by Lake Chirwa / Phalombe Plain, Shire Highlands and Western Rumphu / Mzimba SS (+14 percent each).

Figure 32: Changes in household maize production by livelihood zone

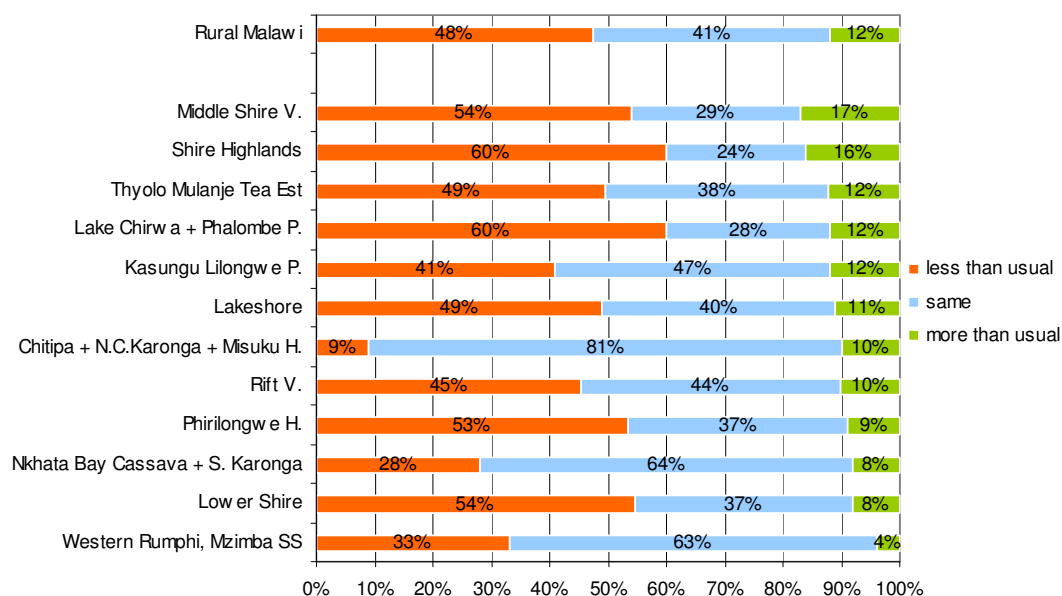


2008 Maize stock compared to a typical year

Households were asked to report how many months the maize stock from their own production *usually* lasts and how many months it lasted in the 2008 season. These data were used to determine if the 2008 stock was higher, lower, or equal to a typical year. Providing a precise estimate of the amount of stock is not easy; these data should be considered an indication, not a precise measure. However, they allow for an assessment of the 2008 season (see Figure 33).

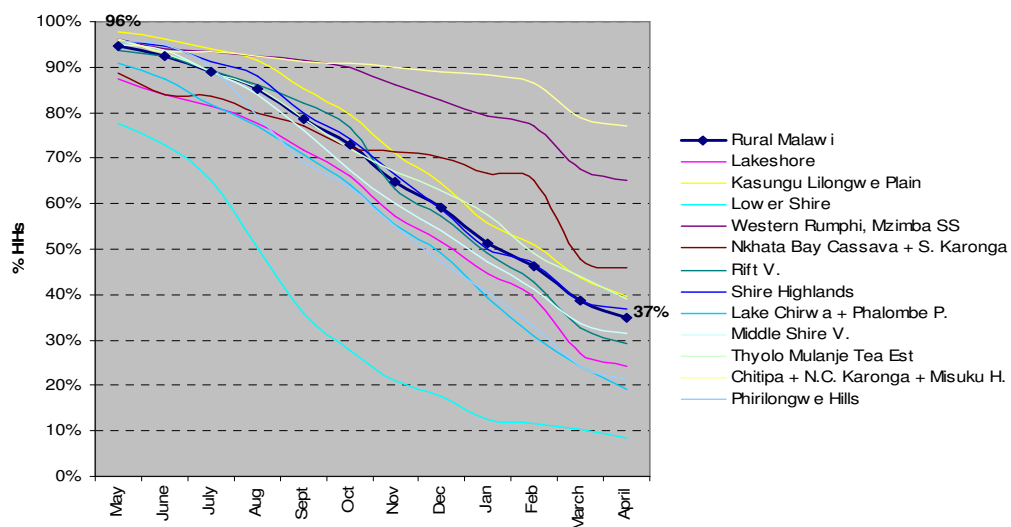
²⁷ Production data have been used at the aggregate level (i.e. national) for pulses (N=755), and at the disaggregate level (i.e. national and livelihood zone) for maize (valid cases = 3357).

Figure 33: Maize stocks in 2008 compared to a typical year by livelihood zone



Of the participating households, 48 percent reported that the 2008 maize stock was lower than in a typical year; 41 percent reported no difference; and the remaining 12 percent responded that the 2008 stock was higher than in a typical year. The highest percentage of households reporting 2008 stock to be less than a typical year were in Shire Highlands and Lake Chirwa / Phalombe Plain (60 percent vs a national average of 48 percent).

Figure 34: Percentage of households with maize stock from own production, by 09 month and livelihood zone



Households were also asked to estimate for how many months their 2009 production would last. The results in Figure 34 show that in May (when the main harvest is in progress), the percentage of households expecting to have maize stocks is highest. In the period from May to the following April, there is a generalized decline in the percentage of households who expect to have maize stocks from their own production (from 96 percent to 37 percent). The decline follows the same pattern across several zones. However while expectations in Lower Shire experienced a rapid decline, those in Kasungu Lilongwe Plain, Western Rumpi / Mzimba SS, and Chitipa / NC Karonga / Misuku Hills remained high until January or February 2010.

6.2 LIVESTOCK OWNERSHIP

With respect to livestock, the study found that 67 percent of households own at least one farm animal. The percentage of households owning livestock was highest in Western Rumphu / Mzimba SS (80 percent) and Chitipa / NC Karonga / Misuku Hills (85 percent), and lowest in Phirilongwe Hills (56 percent). The agropastoralists comprise the greatest number of households owning animals (97 percent) and with the highest average value of Tropical Livestock Units (TLU) (2.09). The data show that the most commonly owned animals are chickens and goats. Chickens are owned by 57 percent of households (with an average 3.5 chickens per household); and goats are owned by 30 percent of households (with an average 1.2 goats per household). Chicken ownership is highest in Chitipa / NC Karonga / Misuku Hills (77 percent) and Western Rumphu / Mzimba SS (74 percent). Goat ownership is highest among households in Lower Shire (37 percent), Kasungu Lilongwe Plain (34 percent) and Chitipa / NC Karonga / Misuku Hills (34 percent).

Table 27: Livestock ownership by livelihood zone

	Any livestock	Cattle	Goats	Sheep	Chickens	Other poultry	Donkeys	Pigs	Other animals	TLU
Lakeshore	63	2	23	2	56	8	0	5	3	0.27
Kasungu Lilongwe Plain	71	5	34	1	62	5	0	11	1	0.46
Lower Shire	72	13	37	1	59	14	1	5	1	0.91
Western Rumphu / Mzimba SS	80	18	29	1	74	9	0	17	3	1.01
Nkhata Bay Cassava / S. Karonga	74	12	29	1	69	4	0	23	1	0.66
Rift Valley	64	2	31	0	56	9	0	10	1	0.37
Shire Highlands	62	1	29	0	49	7	0	3	2	0.14
Lake Chirwa / Phalombe Plain	61	2	21	1	51	7	0	6	2	0.20
Middle Shire Valley	60	3	27	1	47	11	0	3	1	0.22
Thyolo Mulanje Tea Estate	63	2	20	1	55	5	0	5	4	0.14
Chitipa/NC Karonga/ Misuku Hills	85	27	34	0	77	6	0	25	2	1.02
Phirilongwe Hills	56	3	28	1	43	9	0	1	0	0.22

Figure 35 shows the percentage of households not owning livestock by wealth quintiles. For cattle, goats, chickens and pigs, the level of ownership increased with increasing wealth. The data also show that even some of the poorest households own goats or chickens while hardly any households own sheep.

Figure 35: Percentage of households not owning livestock by wealth quintiles

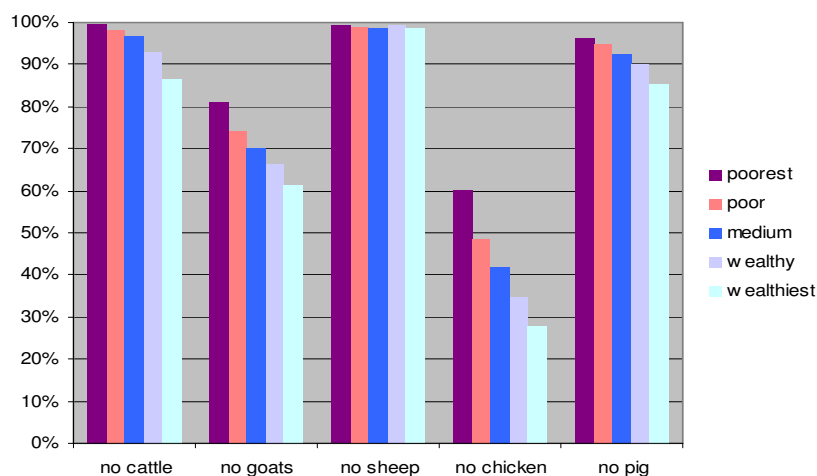
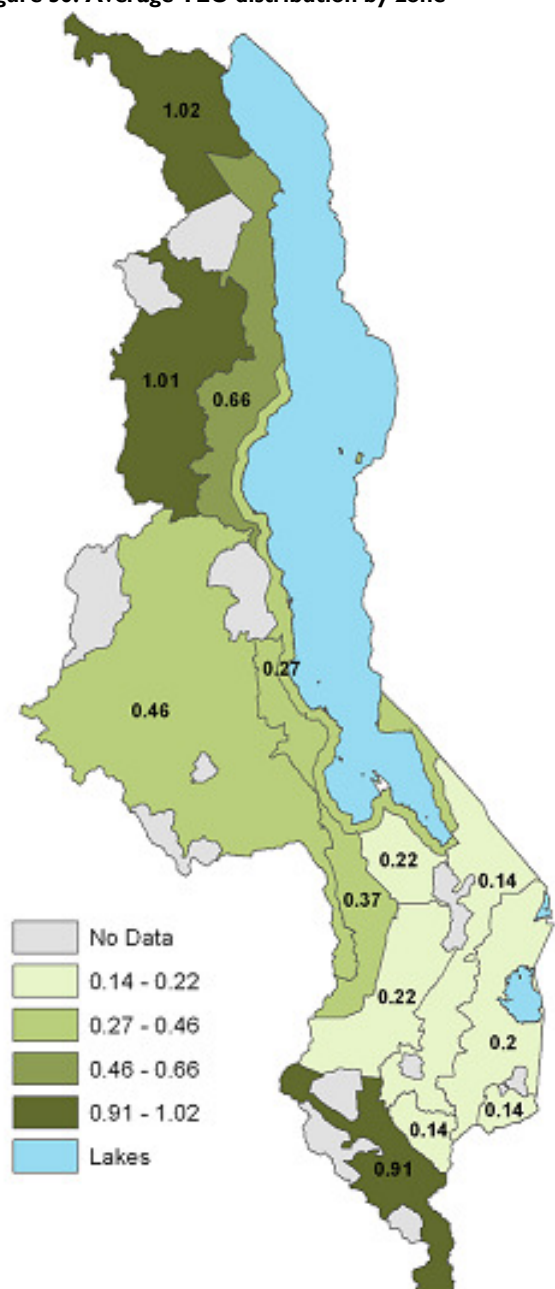


Figure 36: Average TLU distribution by zone



Livestock assets were converted into TLUs.²⁸ The average TLU per household was 0.4. Overall, 33 percent of the households had a TLU of zero (no animals); 55 percent had a TLU between 0 and 0.7 (equivalent to one head of cattle); and the remaining 12 percent had a TLU above 0.7. By livelihood zone, the lowest TLUs were found among households in the Shire Highlands and Thyolo Mulanje Tea Estate (0.14), while the highest were found among households in Western Rumpi / Mzimba SS and Chitipa / NC Karonga / Misuku Hills (TLU=1). These are illustrated in Figure 36 on the left.

²⁸ One TLU is equivalent to one head of cattle of 250 kg at maintenance. The index used the following standard weights: cattle: 0.8, goat: 0.1, sheep: 0.1, pork: 0.3, poultry: 0.007, rabbit: 0.007. The coefficients have not been specifically validated for Malawi.

7.0 FOOD CONSUMPTION

This chapter presents findings on diet diversity, current consumption, seasonal dependency on markets, household food consumption groups and their geographic distribution, and analyzes factors associated with food consumption.

7.1 DIET DIVERSITY AND FOOD SOURCES

7.1.1 Diet Diversity

Households were asked to report the frequency with which a list of food items was consumed. The purpose of this question was to collect information on the diversity of their diets and the frequency of food consumption. Table 28 shows that children under 5 consumed an average of 2.4 meals per day; children between 6 and 13 years old ate 2.6 meals a day; and adults consumed 2.5 meals a day.

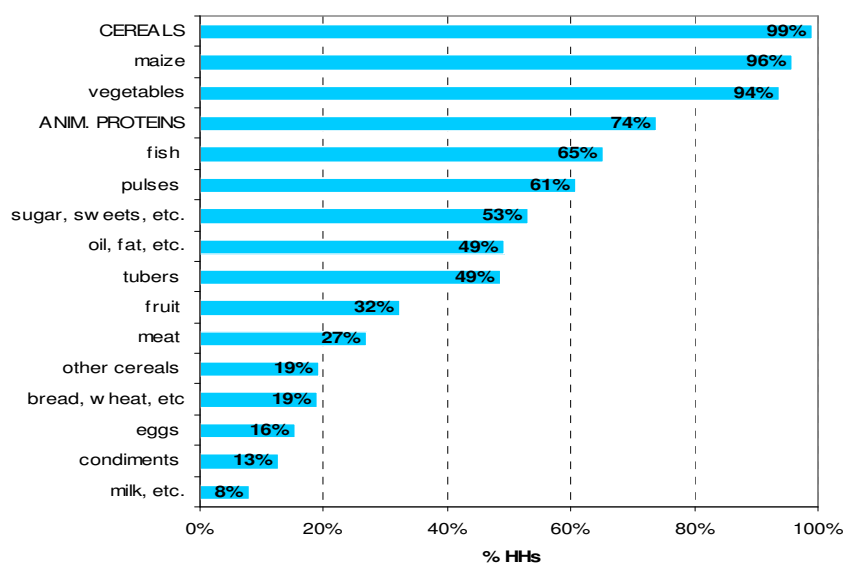
Table 28: mean number of meals per day by age group

	# meals per day
Children under 5	2.4
Children between 6-13	2.6
Adult 14 years or older	2.5

Consumption of 14 food items was also evaluated.²⁹ To facilitate the interpretation of results, maize/maize porridge, bread/wheat and other cereals were grouped into 'cereals', and meat, fish and eggs were grouped into 'animal proteins'. Figure 37 shows that the most commonly consumed food items are: cereals,

which are eaten at least one day per week by 99 percent of the households; and vegetables, which are eaten at least one day per week by 94 percent of households. Cereals and vegetables are consumed on average 6.6 and 5.6 days per week respectively. Within the 'cereals' group, maize (including maize porridge) is eaten by 96 percent of households, an average of 6.4 days per week. Tubers are eaten only once a week by 49 percent of the households, and consumed on average 1.5 days a week. Animal proteins are consumed more than vegetable proteins. Pulses are consumed at least once per week by 61 percent of households (average consumption 1.5 days a week). Animal proteins are consumed at least once a week by 74 percent of the households, with an average weekly consumption of 2.5 days. Fish is the most popular animal protein, with an average weekly consumption of 1.8 days compared with 0.5 days for meat and 0.3 days for eggs. Milk is consumed in smallest amount (average consumption 0.3 days) (Figure 38).

Figure 37: Percentage of households consuming food items at least once per week³⁰

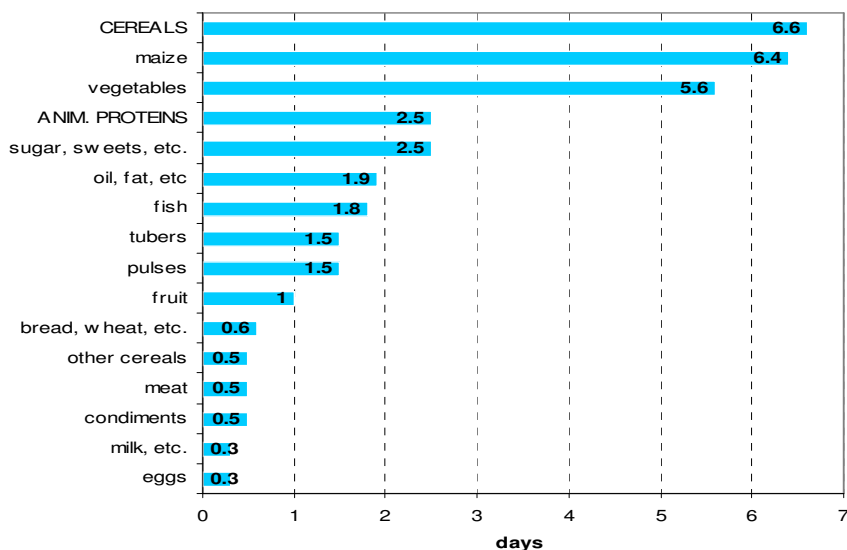


²⁹ The list included: maize/maize porridge, other cereals, wheat/bread, cassava, sweet potatoes, bananas, beans, peas, vegetables, fruits, meat, fish, eggs, milk/yogurt/other dairy, oils/fats/butter, sugar or sugar products and condiments/spices.

³⁰ 'Cereals' comprise maize, bread/wheat and other cereals. 'Animal Proteins' include meat, fish and eggs.

Fruit consumption is less regular than vegetable consumption. Only one third of households (32 percent) reported eating fruits at least once per week and the average weekly consumption was 1 day. The agricultural production data reveals that only 4 percent of the total sample owns an orchard – this can partially explain the low consumption of fruits.

Figure 38: Average number of days per week in which food items are consumed



Average weekly consumption was analyzed by livelihood zone, livelihood profile and wealth group.³¹ Figure 39 shows that households in Chitipa / NC Karonga / Misuku Hills and Thyolo Mulanje Tea Estate consume more diverse food items more frequently. The first zone is characterized by a higher consumption of tubers (1.1 days a week), sugar (0.9 days a week) and oil (2.1 days a week) than other zones; the second is characterized by a higher consumption of fruit (+1.9 days a week) and oil (0.8 days a week).³² Households in the Middle Shire Valley, Lake Chirwa / Phalombe Plain and Phirilongwe Hills exhibited the least diversified consumption. In these areas, consumption of tubers is generally low and the Middle Shire Valley is also characterized by low oil consumption (0.6 days). Households in Lake Chirwa / Phalombe Plain also reported relatively low consumption of pulses (0.7 days a week) and vegetables (0.6 days a week), while Phirilongwe Hills households reported low consumption of fruits and oil (0.9 days a week).

These findings are consistent with those on crop diversity (see Chapter 6) whereby 23 percent of households in Chitipa / NC Karonga / Misuku Hills and 21 percent in Thyolo Mulanje Tea Estate grow five different crops in a season. Clearly, these households are more likely to diversify their diets. In the Middle Shire Valley, Lake Chirwa / Phalombe Plain and Phirilongwe Hills, where a small percentage of households grow five different types of crops (5 percent, 10 percent, and 1 percent respectively), households are obviously less likely to diversify their diets.

³¹ Cumulative distributions are used to represent diet; higher bars correspond to diets in which more food items are eaten more frequently.

³² Numbers in brackets indicate differences from the national average.

Figure 39: Average days per week in which different foods are consumed, by livelihood zone

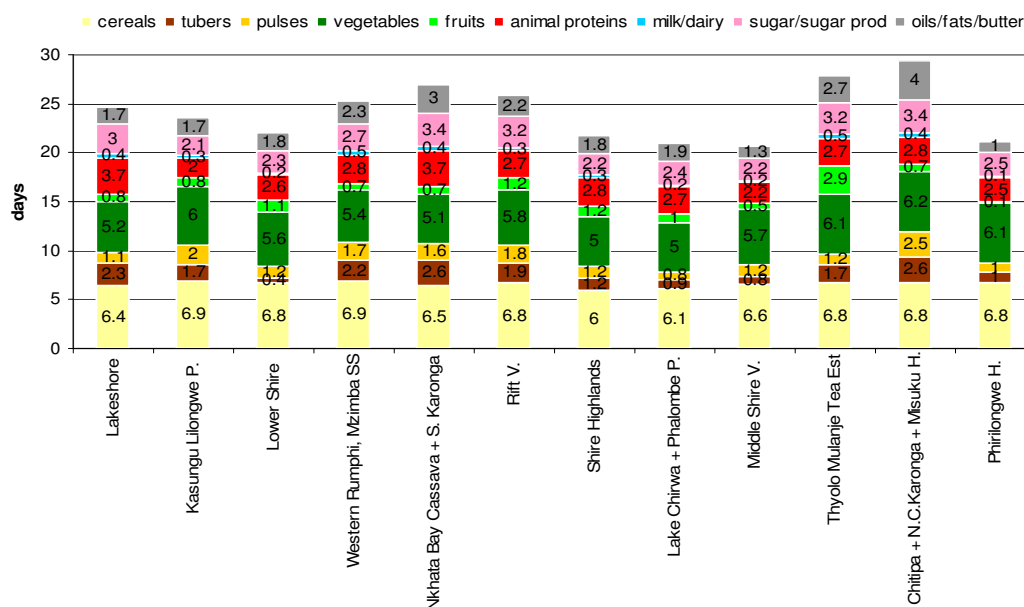
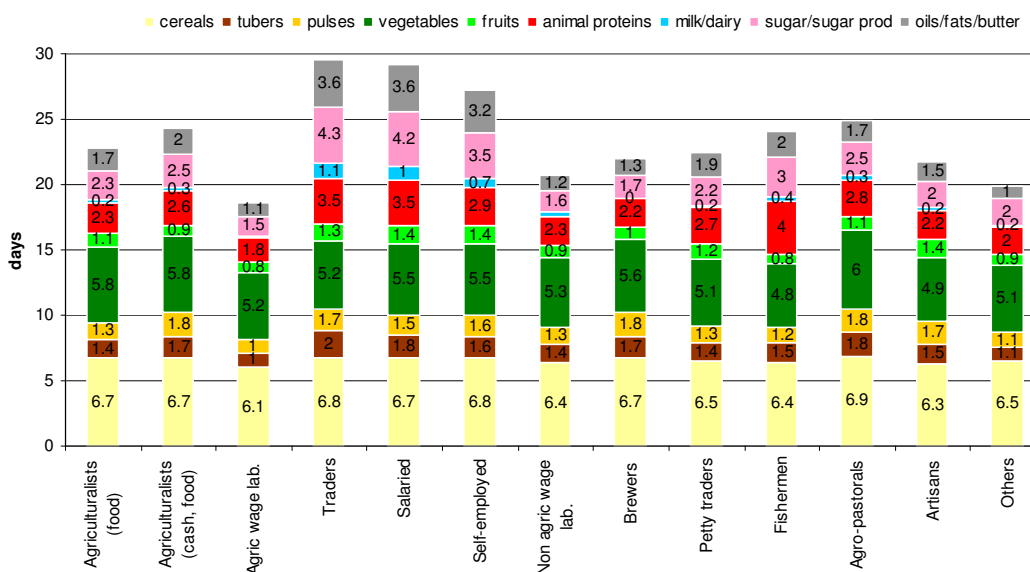


Figure 40 shows that by livelihood profile, agricultural wage labourers have the most limited diet, followed by non-agricultural wage labourers. With respect to the overall values, agricultural wage labourers show restricted consumption of all items, particularly animal proteins, sugar, oil and fat; the animal protein consumption of non-agricultural wage labourers does not fall far below the national average. Traders and salaried workers have richer diets: their consumption of cereals, tubers, pulses, vegetables and fruits is close to the national average, but they tend to eat more animal proteins (+1), more milk and milk products (+0.8 and +0.7 respectively), more sugar and sugar products (+1.8, +1.7 respectively), and more oil and fats (+1.7) (see Figure 40).

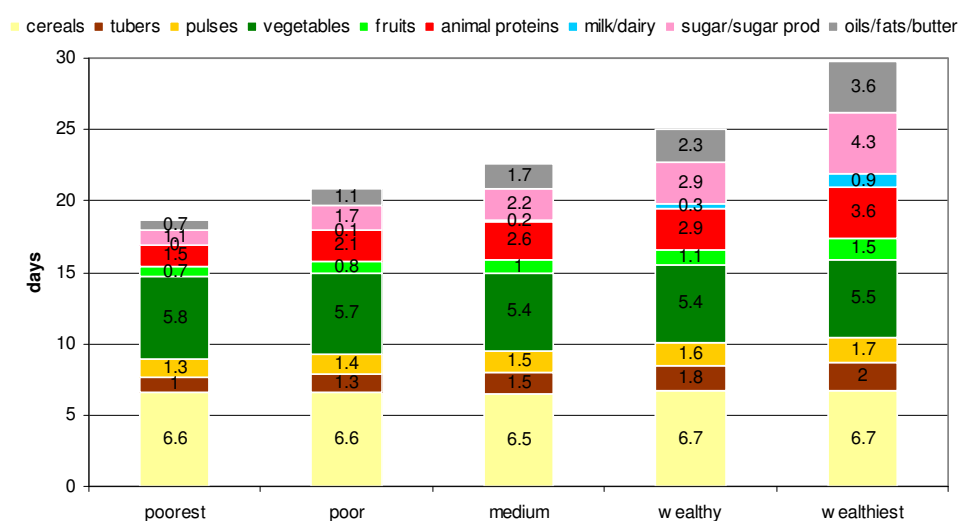
Figure 40: Average days per week in which different foods are consumed, by livelihood profile



Results in Figure 41 below show that food consumption increases as wealth increases. While consumption of cereals and vegetables does not vary considerably across wealth categories, consumption of the other food items progressively rises. For example, oil, fat and sugar are very rare among the poorest households (0.7 and 1.1 days per week respectively) but are consumed fairly often by the wealthiest households, where oil and fat are consumed 3.6 days per week and sugar 4.3 days per week. Consumption of animal proteins also shows an increase with wealth (poorest households consume animal proteins 1.5 days a week; the wealthiest 3.6 days a week).

These results are also consistent with the per capita expenditure data, in which the highest wealth quintile group has the highest average per capita expenditure and the lowest quintile group has the lowest average per capita expenditure (see Chapter 5, Table 22). Figure 41 shows an increase in food consumption, especially on items with higher market value (e.g. meat). It is clear that households in the highest wealth quintile are able to procure animal protein for their diets than the lower quintiles, and this contributes to increasing their expenditures.

Figure 41: Average days per week different in which different foods are consumed, by wealth quintile

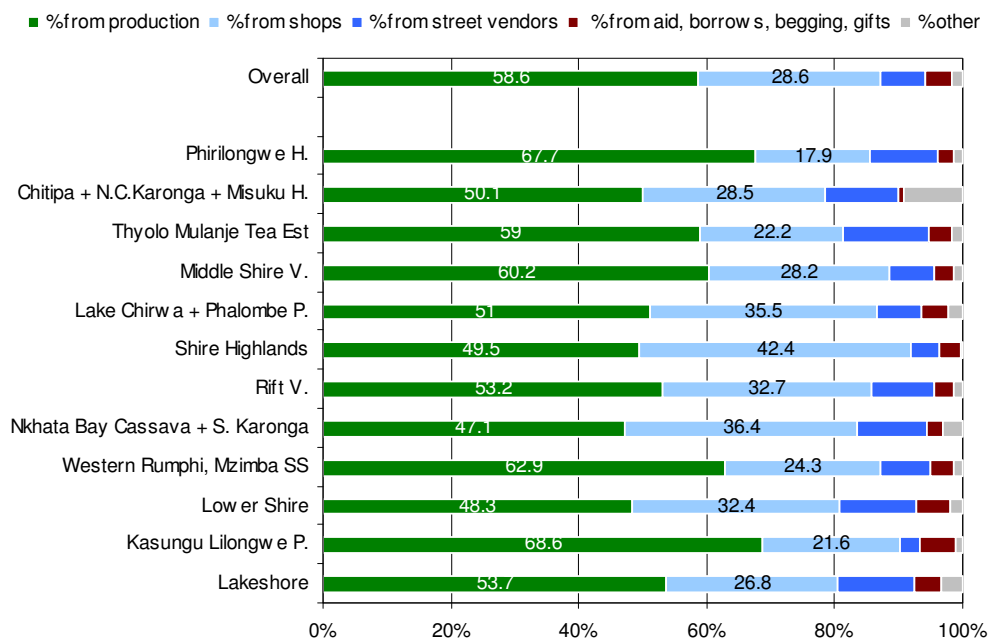


7.1.2 Food Sources: current consumption

Food sources were analyzed to estimate their relative importance to overall diets. Figure 42 shows the importance of farmers' own production. Almost 60 percent of households consumed food that they produced themselves and 35 percent consumed food they purchased (29 percent from shops and 7 percent from street vendors). Begging, aid, bartering and borrowing contributed 4 percent.

Interesting differences exist between the livelihood zones: farmers' own production was more important in the Kasungu Lilongwe Plains and Phirilongwe Hills (69 percent and 68 percent respectively), whereas purchase played a greater role for households in the Lower Shire and Nkhata Bay Cassava / S. Karonga (47 percent and 44 percent respectively). These findings are particularly relevant to a price analysis, which examines the impact of price increases in different areas of the country.

Figure 42: Sources of foods consumed, by livelihood zone



The study analyzed the main sources of food by means of procurement (see Figure 43). The data indicate that farmers' own production plays a more dominant role for maize and vegetables (90 percent and 81 percent respectively) than for fish (90 percent), where purchase is the main source. The fact that agriculture is practiced by the vast majority of the households – whereas fishing is not – explains this difference. Most purchases are made at shops rather than from street vendors. In fact, shops are used three times more than vendors for fish, vegetables and maize (see Figure 43).

Figure 43: Sources for fish, vegetables and maize: percent contribution

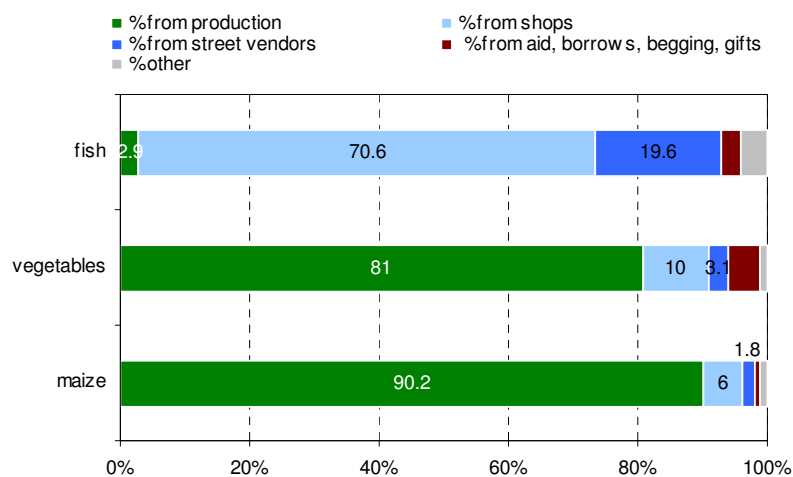


Table 29 presents key findings for the livelihood zones. For the three main food items, it highlights the livelihood zones where production (or purchase) is more relevant. The results show that 97 percent of the maize consumed by households in *Kasungu Lilongwe Plain* and 96 percent in *Phirilongwe Hills* comes from farmers' own production, while in *Lower Shire*, 34 percent of the maize consumed by households is purchased.

Table 29: Maize, vegetables and fish: percent contribution of production and purchase by livelihood zone

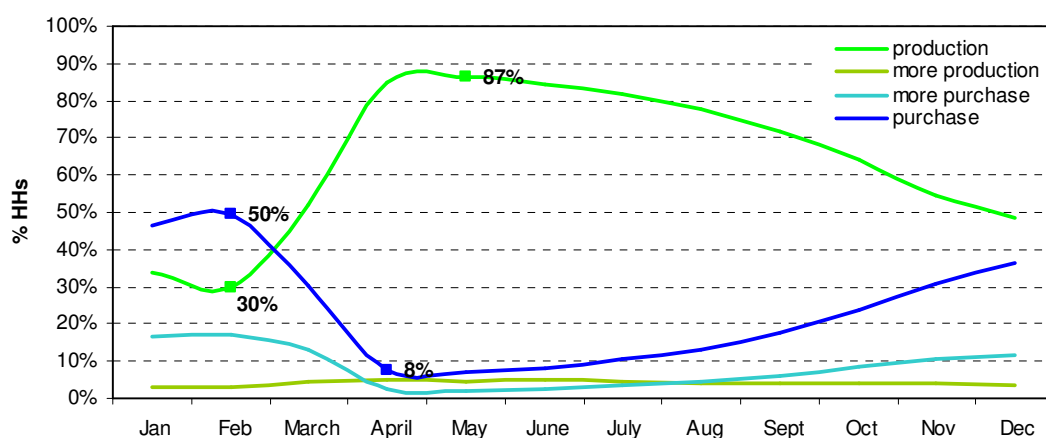
	<i>Maize</i>	<i>Vegetables</i>	<i>Fish</i>
Production more relevant in:	<ul style="list-style-type: none"> • Kasungu Lilongwe Plain (97) • Phirilongwe Hills (96) 	<ul style="list-style-type: none"> • West Rumphu / Mzimba SS (89) • Middle Shire Valley (88) 	<ul style="list-style-type: none"> • Lakeshore (7) • Phirilongwe Hills (11)
Purchase more relevant in:	<ul style="list-style-type: none"> • Lower Shire (34) 	<ul style="list-style-type: none"> • Lower Shire (25) • Nkhata Bay Cassava / S. Karonga (25) • Rift Valley (24) 	<ul style="list-style-type: none"> • Chitipa / NC Karonga / Misuku Hills (100) • Shire Highlands (94)

7.1.3 Food Sources: seasonal dependency on market

Households reported the months that they most rely on their own production and when they use purchases or gifts.³³ These data refer to the twelve months prior to the survey, allowing for seasonal analysis of market dependency.

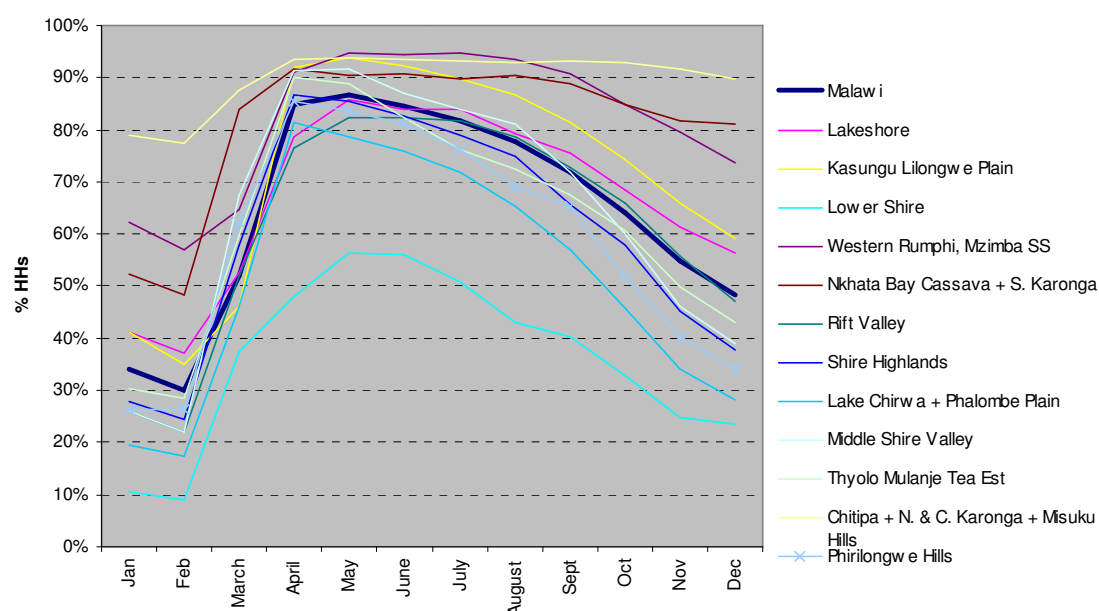
Figure 44 shows that the role of the market depends on the season. For example, in February, households depended most on the market (50 percent of households rely on purchase for maize) and the least on their own production (30 percent). Later in the calendar year, there was a decline in the extent to which households relied on purchase: maize purchases decreased from 50 percent to 8 percent between February and April. By May, 87 percent of households relied on their own production. These results are consistent with the cropping calendar (see the “Climate” paragraph in Chapter 6). But despite seasonal fluctuations, purchase does not have the same importance overall as farmers’ own production.

Figure 44: Seasonal dependency on the market



In the chart below (see Figure 45), the seasonal dependency of farmers’ own production is disaggregated at the livelihood-zone level, with the bold line representing the national average. The data indicate that the patterns in Chitipa / NC Karonga / Misuku Hills and Nkhata Bay Cassava / S. Karonga are different from those in the other livelihood zones. In these zones, the reliance on farmers’ own production is more stable over the time (lines are flatter). Lower Shire stands out for its relatively low dependence overall on farmers’ own production.

³³ Since gifts are not a major source of maize, the data provided simply refer to purchase.

Figure 45: Seasonal dependency on the market by livelihood zone


7.2 HOUSEHOLD FOOD CONSUMPTION SCORE

7.2.1 Food Consumption Score Methodology

The analysis of the consumption of various foods does not take into account the nutritious values of the items consumed. Food consumption scores (FCS) were computed to reflect the diversity and frequency (number of days per week) of the food items consumed by households. FCS is a standardized frequency weighted diet diversity score. Diet diversity is correlated with nutrient adequacy, children's and women's anthropometry and socio-economic status.³⁴ It is therefore a good proxy indicator of food access and nutrition intake. FCS is computed by grouping together the food items for which consumption was assessed over a seven-day recall period. The frequency represents the number of days an item from each food group was consumed, with a range from 0 (never) to 7 (every day). A weight is assigned to each food group representing its nutritional importance. All food groups and weights are presented in the following table. The FCS is the sum across food groups of the product of frequency by weight.³⁵

Table 30: Food items, groups and weights for calculation of FCS

	Food Items	Food Group	Weight
1.	Cereals: corn, wheat, sorghum, rice, bread; Roots and tubers: manioc, sweet potatoes; Banana	Staples	2
2.	Pulses: peanuts, beans	Pulses	3
3.	Vegetables: including green leafy vegetables, shoots	Vegetables	1
4.	Fruits	Fruits	1
5.	Animal Proteins: fish, meat, eggs	Meat & fish	4
6.	Milk & milk products	Milk	4
7.	Oil and fats	Oil	0.5
8.	Sugar	Sugar	0.5

³⁴ Ruel M. 2003. Operationalizing Dietary Diversity: A Review of Measurement Issues and Research Priorities. *Journal of Nutrition* 133 (11 suppl. 2) 3911S-3926S.

³⁵ Quantities consumed are not included in the FCS. Only food items consumed as a substantial meal during the seven-day recall period were recorded. However, it is possible that some food items consumed in small quantities, especially meat and fish, were recorded. This may have lead to an over-estimation of the FCS.

FCS is a continuous variable that is difficult to interpret. Two thresholds (21 and 35) are used to distinguish consumption level. The thresholds define three groups: poor consumption (≤ 21); borderline consumption (> 21 and ≤ 35); and acceptable consumption (> 35).

7.2.2 Food Consumption Score Groups

Using the food consumption score and the 21/35 thresholds, 51.8 percent of the households exhibited acceptable food consumption; 36.7 percent exhibited borderline food consumption; and 11.5 percent showed poor food consumption.

Table 31: Percent distribution of weekly consumption (by food group) of the food consumption groups

Food consumption groups	Percent	Food groups (weekly consumption)									FCS average
		Tubers	Cereals	Pulses	Vegetables	Fruits	Animal protein	Oil	Sugar	Milk	
Poor	11.5 %	0.6	5.3	0.1	4.2	0.1	0.4	0.2	0.4	0	17.5
Borderline	36.7 %	1.1	6.7	1.1	5.6	0.6	1.1	0.8	1.3	0	28.8
Acceptable	51.8 %	2	6.9	2.1	5.8	1.6	4	3	3.7	0.6	49.2
Rural Malawi	100 %	1.5	6.6	1.5	5.6	1	2.5	1.9	2.5	0.3	38.1

The diet of the **poor food consumption** households was mainly based on cereals (consumed five days per week) and vegetables (consumed four days per week). Animal and vegetable proteins were essentially absent from the diet of this group (averages are 0.1 for pulses, 0.4 for animal proteins and 0 for milk).

The **borderline consumption** households showed greater consumption of all food items compared to households with poor consumption: this was especially evident for pulses (1 day/week compared to 0 days/week for the poor consumption group), followed by fruit, oil, sugar and animal protein. The borderline consumption households reported eating cereals and vegetables on daily basis, similar to the poor-consumption households. Compared with the poor consumption group, the diet of borderline consumption group was characterised by greater diversity and frequency, with some proteins in the diet.

In the **acceptable food consumption**, group there was a further increase in consumption of all food items, especially oil (3 days/week compared 0.8 days/week in the borderline group) and animal proteins (from 1.1 day/week to 4). The acceptable consumption households ate cereals and vegetables daily, and frequently consumed animal proteins, oil and sugar. Milk (0.6 days/week), fruits (1.6 days/week) and tubers (2 days/week) had a minor role in their diet.

Figure 46: Progressive increase in diet by FCS value

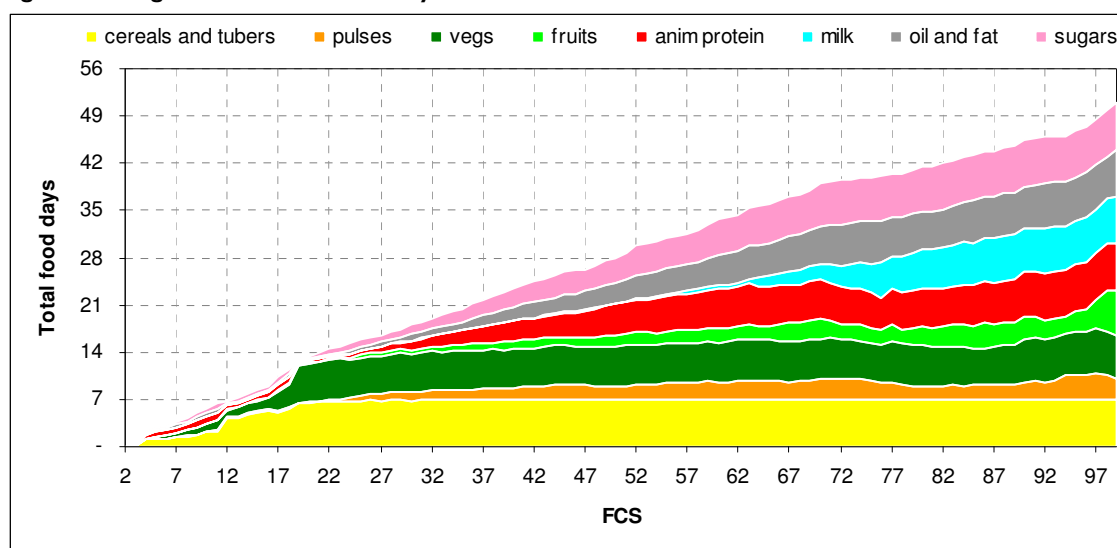
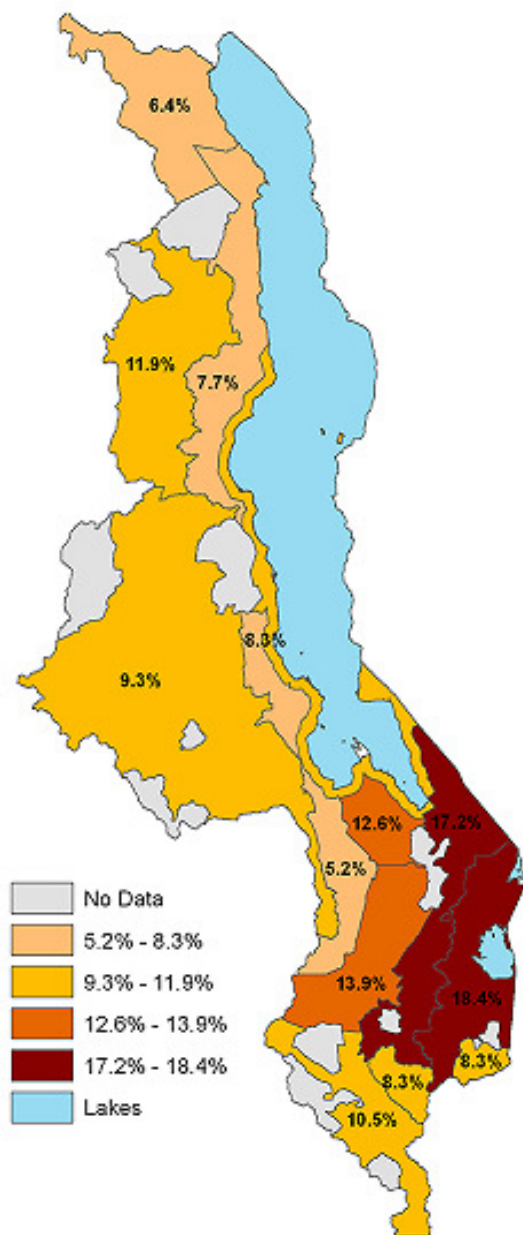


Figure 47: Geographic distribution of households with poor food consumption



Clear differences exist between the livelihood zones. The percentage of households with poor food consumption is highest in Lake Chirwa / Phalombe Plain where 18 percent of households showed poor consumption, followed by the Shire Highlands (17 percent).

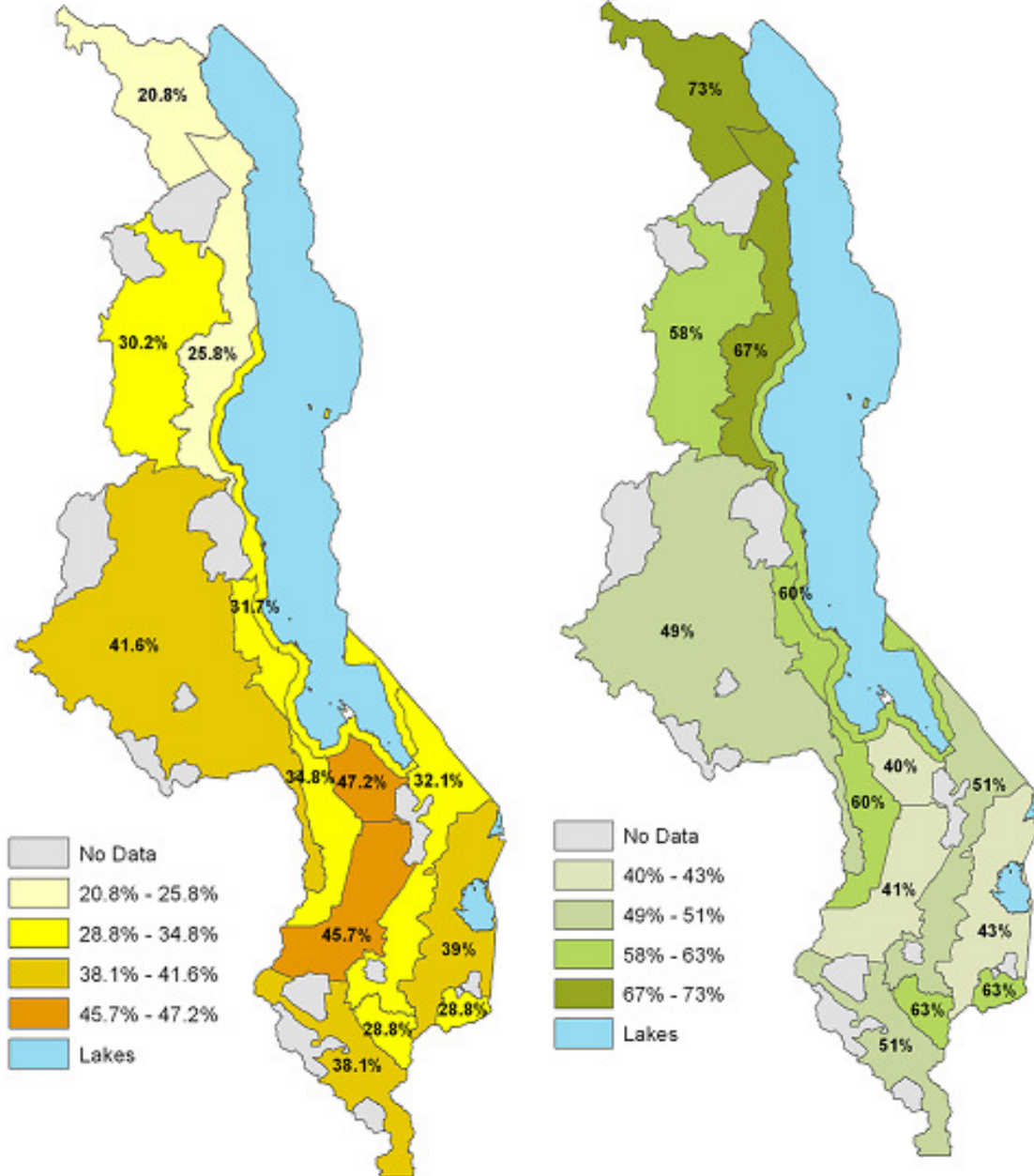
In the Phirilongwe Hills and Middle Shire Valley, the percentage of households with poor consumption is just above the national average (14 percent and 13 percent respectively), but these zones also distinguish themselves by the high percentage of households with borderline consumption (47 percent and 46 percent respectively). This makes their food security profile more tenuous.

Figure 47 shows the distribution of the households with poor consumption by livelihood zone. It effectively confirms that poor consumption is primarily found in the south-eastern part of the country.

The percentage of households with **acceptable** consumption is greatest in Chitipa / NC Karonga / Misuku Hills (73 percent) and in Nkhata Bay Cassava / S. Karonga (67 percent). These two zones are next to each other in the north-western part of the country. The first is at the northern tip of the country and the second forms a long strip along the very large Lake Malawi. The percentage of households with acceptable consumption is also above the national average in Lakeshore (60 percent), Rift Valley (60 percent) and Thyolo Mulanje Tea Estate (63 percent).

Figure 48: Distribution of households with borderline consumption

Figure 49: Distribution of households with acceptable consumption



7.2.3 Food Consumption and Livelihoods

The distribution of the food consumption groups was analyzed by livelihood profile. More attention was given to the main livelihood groups whereas the smaller groups (5 percent or less of total) received less consideration.³⁶

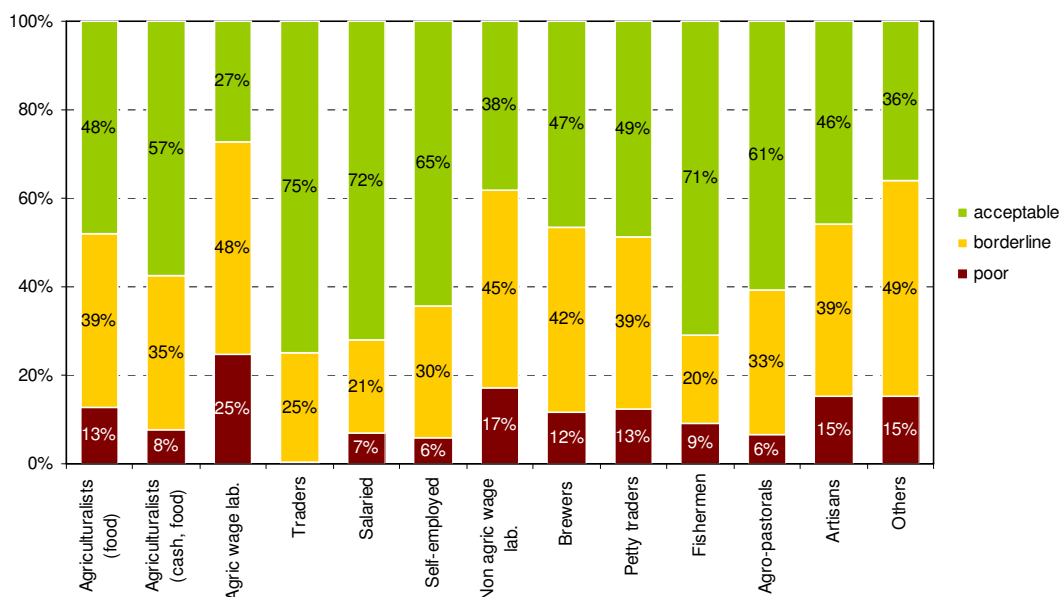
Figure 50 shows that households relying primarily on agricultural wage labour are most likely to have poor food consumption (at 25 percent, this value is 13 percent points above the national average). In addition, 48 percent agricultural wage labourers households exhibited borderline consumption.

The percentages of households with poor (13 percent), borderline (39 percent) and acceptable (48 percent) consumption among food crop agriculturalists are similar to the national average. This group includes only a moderately lower percentage of households with acceptable consumption, with a slight increase in the prevalence of poor and borderline households.

The food consumption profile of petty traders is very similar to food-crop agriculturalists' profile. Indeed, 12 percent of petty traders have poor consumption, 39 percent have borderline consumption and less than 1 percent have acceptable consumption.

Among the cash and food crop agriculturalists, 8 percent of households exhibited poor consumption, 35 percent showed borderline consumption and 57 percent had acceptable consumption.

Figure 50: Food consumption groups by livelihood group



As mentioned above, most of the researchers' attention was focused on the main four groups. However, it is worth highlighting that: (i) the non-agricultural wage labourers (4 percent of the total sample) are also exposed to poor food consumption (second highest percentage after agricultural wage labourers); (ii) traders (3 percent of the total sample) had the best consumption profile; and (iii) they are followed by salaried workers (5 percent of the total sample), who exhibited only 7 percent poor consumption.

7.2.4 Major Factors associated with Food Consumption

During the analysis, household characteristics associated with food consumption were explored at the bivariate level. This paragraph presents only the associations with statistical significance; they provide warnings of the vulnerability factors associated with food insecurity. A more in-depth analysis of the underlying causes of food insecurity is reported in Chapter 10.

³⁶ As reported in the previous chapter, the main livelihood groups are: food crops agriculturalists (32 percent), cash and food crop agriculturalists (26 percent), agricultural wage laborers (7 percent) and petty traders (6 percent).

Human and Social Capital

- **Households headed by women** are more likely to have poor consumption. Of all households with poor consumption, 47 percent are headed by women compared to 34 percent of borderline households and 24 percent of households with acceptable consumption (see Table 32). Moreover, 18 percent of households headed by women exhibited poor consumption compared to 9 percent of households headed by men.
- Consumption is also associated with the **age of the household head**. Of the households with poor consumption, 29 percent are headed by an elderly person (+59 years) compared to 28 percent of the borderline households and 20 percent of the acceptable households. In addition, 14 percent of households headed by elderly people showed poor food consumption compared to 11 percent of other households.
- The presence of at **least one orphan** in the household is associated with household food consumption: 21 percent of households with poor consumption host at least one orphan compared with 17 percent of the borderline and 16 percent of acceptable consumption households (see Table 32). It is interesting to report that 55 percent of children with both parents alive live in households with acceptable consumption; this percentage shows a small decline among maternal orphans (53 percent), diminishes further among the paternal orphans (48 percent) and reaches its lowest point among double orphans (46 percent). This confirms that double orphans are more exposed to food insecurity than single orphans and indicates that the death of the father has more severe consequences on children's food security status than the mother's death.
- The percentage of households with poor or borderline consumption increases with increased number of orphans, but the association is not statistically significant (47 percent among households with no orphans, 50 percent among households with one orphan and 54 percent among households with two or three orphans).
- Disability and recent death of a family member are not significantly related to consumption. The presence of at least one chronically ill household member and the recent death of the household head are significantly associated – although the difference is small (see Table 32).
- The presence of many dependents, illiteracy of the household head and out-migration are related to consumption. Of households with poor food consumption, 28 percent have a high percentage of dependents³⁷ compared to 15 percent of households with acceptable consumption. In addition, 52 percent of the households with poor consumption are headed by an illiterate person compared to 31 percent of those with acceptable consumption.

Table 32: Food consumption groups by key demographic indicators

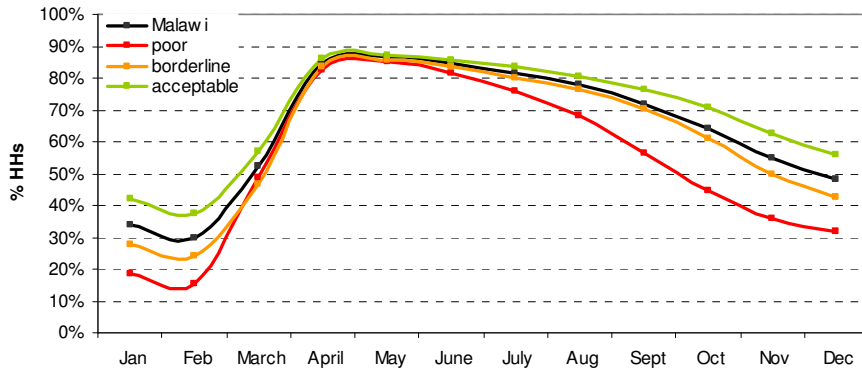
	HHs headed by women	HHs headed by elderly person	Orphan(s)	Chronically ill member(s)	Disabled member(s)	Recent deaths	Main earned died	80 % or more dependents	Illiterate HH head	Members migrated
Rural Malawi	30	24	17	5	10	7	3	19	38	11
poor	47	29	21	6	10	8	5	28	52	8
borderline	34	28	17	6	10	6	3	23	44	9
acceptable	24	20	16	4	10	7	3	15	31	13
<i>p < 0.05</i>	(*)	(*)	(*)	(*)			(*)	(*)	(*)	(*)

Dependency on market and FCS

Market data disaggregated by consumption level allowed researchers to identify differences in market dependency between the food consumption groups (see Figure 51). As expected, the three groups are affected by seasonality. However, a relationship was observed between consumption score and production: poor consumption households rely less on production compared with borderline and the acceptable households. This difference is small between April and June – when 81 percent of the households with poor consumption depend on production versus 86 percent of the households with acceptable consumption ($p > 0.05$). The difference becomes larger between July and February however, when 15 percent of households with poor consumption depend on production compared to 37 percent of those with acceptable consumption ($p < 0.05$).

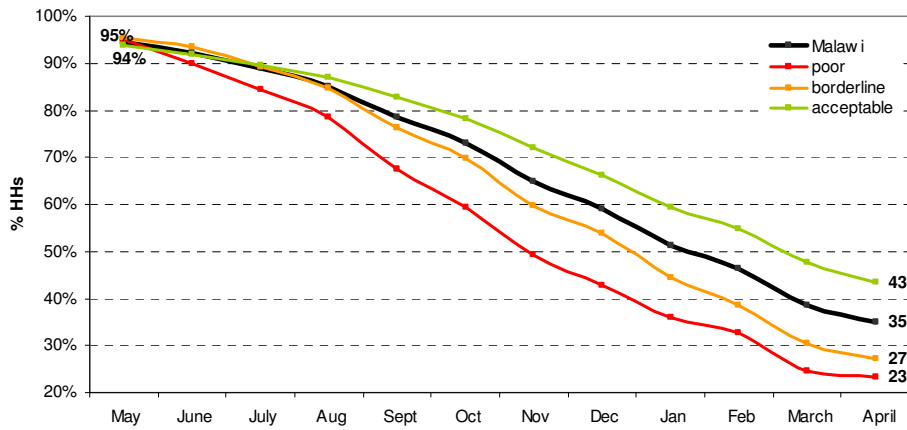
³⁷ i.e. 80 percent of dependents or more

Figure 51: Seasonal dependency on market by food consumption group



Data on expectations of the duration of 2009 maize production confirm these findings, and provide evidence of a relationship between the sustainability of maize source and consumption (see Figure 52). As expected, the three groups all experienced a linear decline in the proportion of households who expected to have maize. In May, almost all the households expected to have maize available and there was no difference between the groups. All the groups experienced a decline almost immediately thereafter, but the decline was more pronounced for the poor-consumption group, followed by the borderline group. Using respondents' predictions, it has been estimated that in April 2010 (when the next harvest start), only 23 percent of poor households will have maize available as opposed to 27 percent of the borderline and 43 percent of the acceptable food consumption group ($p < 0.001$).

Figure 52: Expectations of the duration of 2009 maize production (overall and by FCG)



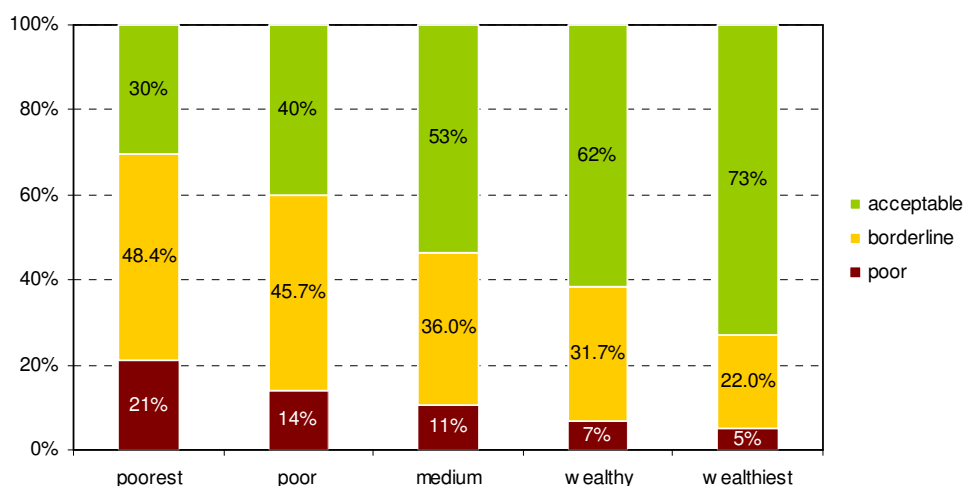
Physical, Natural and Economic Capital

A significant association was found between the food consumption score and the wealth index (*Pearson's r = 0.4, p < 0.001*). The distribution of the food consumption groups across the wealth quintiles (Figure 53) and the allocation of the mean FCS across the wealth quintiles (Table 33) confirm this association. The percentage of households with poor consumption was highest for the poorest households (21 percent) and decreased as wealth increased (5 percent for the wealthiest households). The percentage of households with acceptable consumption showed a steady increase from 30 percent among the poorest households to 73 percent among the wealthiest households.

Table 33: Mean FCS by wealth quintile

	Mean FCS
poorest	30.1
poor	34.0
medium	37.1
wealthy	40.3
wealthiest	47.9
Rural Malawi	38.1

Figure 53: Food consumption groups by wealth quintiles



Consumption is significantly associated with: amount of land cultivated in the previous and current season; variety of cultivated crops;³⁸ and the share of maize harvest devoted to consumption and sale.

- In the previous season, FCS averaged 35 among farmers cultivating less than 0.5 acre and increased to 44.9 among farmers cultivating 4 acres or more. With little exception, differences between all the groups were statistically significant ($p < 0.05$). Similar results were obtained for the current season.
- FCS averaged 36.4 among farmers cultivating only one crop. It showed a slight decline among farmers cultivating two crops (36), but then increased to 43.1 among farmers cultivating five crops or more. Differences are statistically significant for farmers cultivating four or five crops.
- The correlation between FCS and the share of maize harvest devoted to consumption is equal to -0.12 ($p < 0.001$). The correlation between FCS and the share of maize harvest sold is 0.16 ($p < 0.001$). These correlations are not extremely strong, however, suggesting that households with greater consumption are also more likely to devote a larger part of their harvests to trade.

³⁸ Variety of crops and amount of cultivated land are interrelated indicators.

8.0 HEALTH AND NUTRITION

The rural Malawi CFSVA provides an updated snapshot of the health and nutrition of vulnerable groups – particularly young children (0-59 months) and women of reproductive age (15-49 years). This chapter focuses on both the children's and women's nutrition and health.

Malnutrition can occur even when access to food and healthcare is sufficient and the environment is reasonably healthy. The social context and care environments within households and communities also directly influence nutrition. Factors influencing nutritional status include:

- breastfeeding practices – exclusive breastfeeding up to 6 months of age;
- weaning practices – timely introduction of nutritious weaning foods;
- maternal hygiene behaviours – hand-washing, bathing, etc.;
- relationships between morbidity and water and sanitation;
- pregnancies and antenatal care – birth spacing, tetanus toxoid injections and vitamin A supplementation; and
- HIV and AIDS.

According to the 2006 Multiple Indicator Cluster Survey (MICS), malnutrition in Malawi is chronic, with 46 percent of children under 5 stunted, 4 percent acutely malnourished (wasted) and 21 percent (NCHS) or 15 percent (WHO) with low weight for age (underweight).

8.1 CHILD NUTRITION AND HEALTH

The main findings of the household survey for child nutrition and health are presented by sex and age group as well as by region. In some cases, indicative findings are presented by livelihood zone.

Four indicators were used to assess the nutritional status of children aged between 6 and 59 months old:

- **Height by age (stunting):** Height by age is a measure of linear growth, and can be an indicator of the long-term effects of undernutrition.
- **Weight by Height (wasting):** Weight by height is an indication of the current nutritional status of a child, reflecting recent nutritional intake and episodes of illness. Severe wasting is often linked to acute food shortage.
- **Weight by age (underweight):** Weight by age combines information from stunting and wasting. Children can therefore be underweight because they are stunted, wasted or both.
- **Presence of Oedema:** Presence of bilateral pitting oedema is an indication of severe acute malnutrition. A child with bilateral oedema needs immediate treatment.

The software WHO Anthro 2005 was used to compute levels of stunting, wasting, and underweight.³⁹ The new WHO reference standards were used, with cut-offs set at -2 SD and -3 SD.

8.1.1 Malnutrition in Children 6-59 months of age

Malnutrition by sex

Half of the children in the sample were boys and the other half girls. In general, girls are less likely to be malnourished than boys in rural Malawi.

Only 3 percent of girls aged 6-59 months were wasted compared to 4.3 percent of boys; 10.2 percent of girls were underweight, compared to 12.5 percent of boys. These differences were not statistically significant. However, the prevalence of stunting in girls (55.7 percent) was significantly lower ($p < 0.01$) than that in boys (62.3 percent), which reflects long-term differences in feeding and caring practices for girls and boys.

Malnutrition by region

The study found lower levels of wasting in the North (2.6 percent) than in the Centre (3.9 percent) and South (3.6 percent); a similar pattern was observed for weight by age (9.6 percent). The prevalence of wasting⁴⁰ was

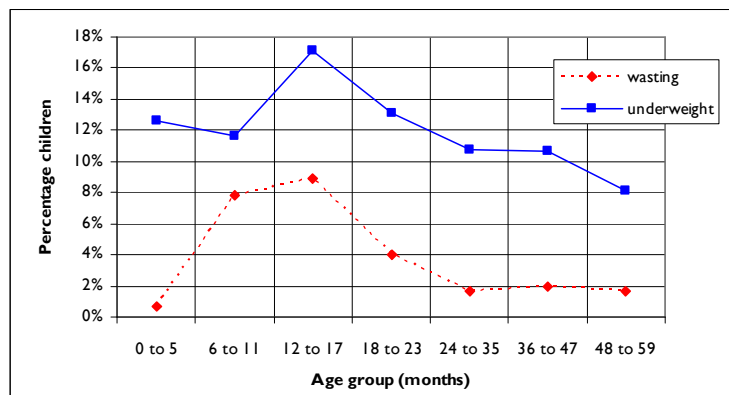
³⁹ WHO Anthro for personal computers, Version 2, 2007. This software was designed for assessing growth and development in the world's children. Geneva: WHO, 2007. (<http://www.who.int/childgrowth/software/en/>)

similar to the 3.3 percent found in rural households in the MICS. Prevalence of underweight was highest in the South (12.2 percent) followed by the Centre (10.7 percent). The prevalence of stunting, however, was highest in the North (65.3 percent) compared to the Centre (57.6 percent) and South (59.1 percent). The general prevalence of stunting⁴¹ (59.7 percent), however, was higher than the 47 percent found in the MICS. Regional findings also differed from the 2006 MICS, which reported the lowest levels of chronic malnutrition in the North.

Malnutrition by age group

The likelihood of being malnourished varies greatly by age, with different factors influencing health and nutrition status at different ages. Figure 54 shows the prevalence of wasting and underweight by age group. The prevalence of wasting was relatively low for the youngest age group, peaking at 12-17 months and then decreasing to 2 percent for children 24-35 months and older. The higher level for children 6 to 23 months is typical, reflecting the difficulties of weaning and giving appropriate and timely complementary foods. The prevalence of underweight peaks in children 12-17 months and then decreases gradually to 8 percent in children 48-59 months.

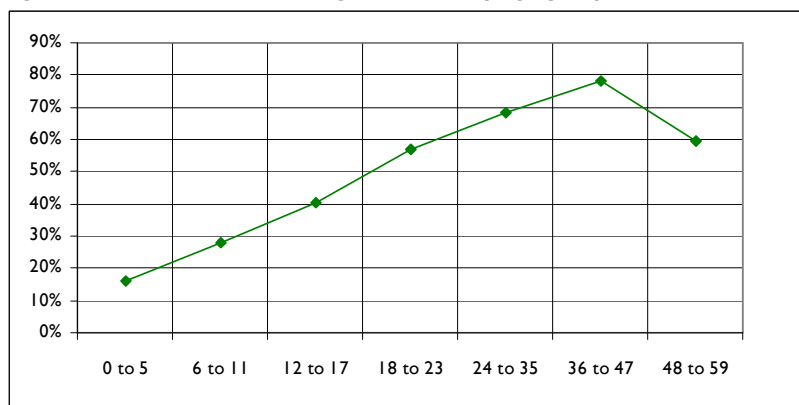
Figure 54: Prevalence of wasting and underweight in children by age group



In these measures, children 18-23 months appear to be the most vulnerable; this could reflect problems in providing appropriate weaning foods and the fact that these children are more independent and mobile, and thus more susceptible to illness and infection. In addition, this is the age where a younger brother or sister may be born and the mother's attention is taken elsewhere.

Stunting shows a different trend, as indicated in Figure 55 below. The results show that the prevalence of stunting peaks in children 36-47 months. Despite the challenges of age determination, this could illustrate a new trend in malnutrition in a country that has benefited from surplus production over the past three agricultural seasons. Consumption patterns and feeding practices may have changed in rural areas to focus more on maize, which alone is not nutritious enough to meet the needs children born within the last three years.

Figure 55: Prevalence of stunting in children by age group



This could be reflected in the high levels of stunting in those children born 3 years ago.

⁴⁰ A wasted child has a weight-for-height Z-score below -2 SD, based on the NCHS/CDC/WHO reference population. Wasting or acute malnutrition is the result of recent inadequate nutrition and may be affected by acute illness, especially diarrhoea.

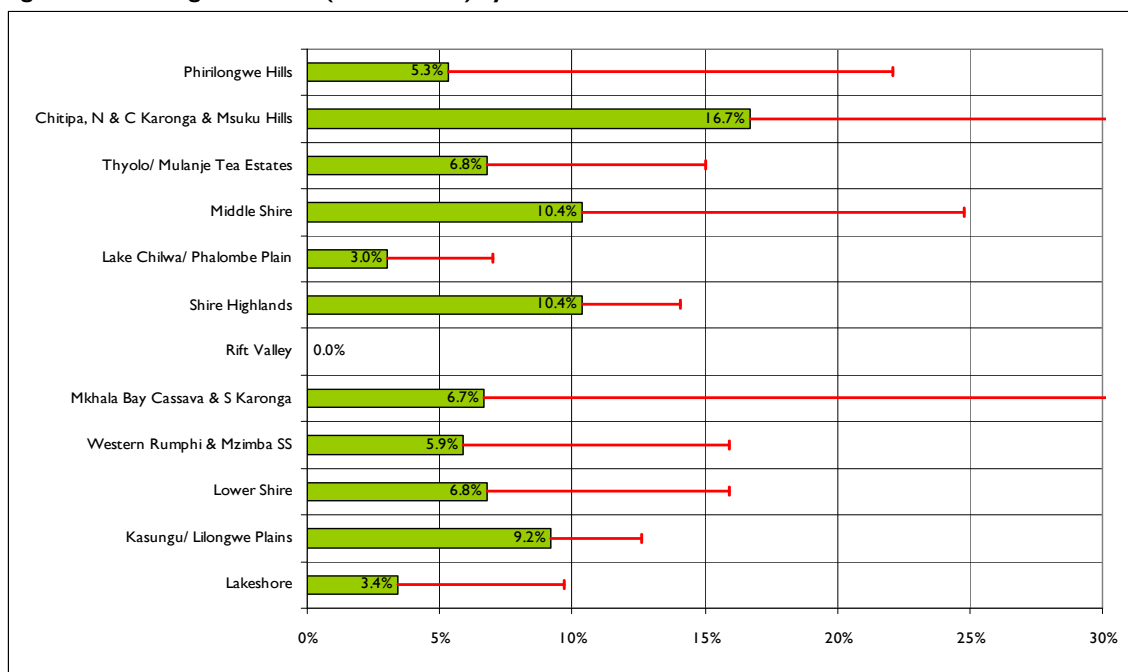
⁴¹ A **stunted child** has a height-for-age Z-score that is below -2 SD based on the NCHS/CDC/WHO reference population. Stunting or chronic malnutrition is the result of an inadequate intake of food over a long period and may be exacerbated by chronic illness.

8.1.2 Malnutrition in Children by Age Group and Livelihood Zone

Too few children were included in some livelihood zones for an adequate comparison of malnutrition by age group across zones, so an analysis was conducted for children 6-23 months and 24-59 months of age.

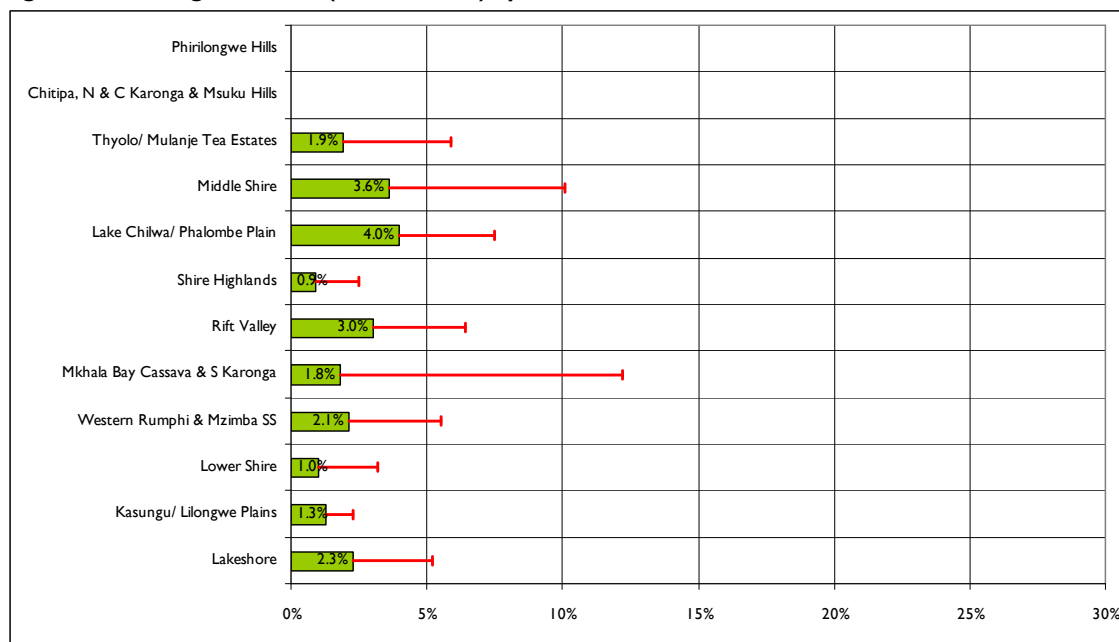
Figure 56 below shows that for children under 2 years, the highest prevalence of stunting was found in the Chitipa / NC Karonga / Misuku Hills zone, followed by Middle Shire and Shire Highlands. When considering the upper limit of the 95% confidence interval, the Nkhata Bay Cassava / S. Karonga zone also could have a high prevalence of wasting, but the sample size was too small to yield reliable results (see Figure 56).

Figure 56: Wasting in children (6-23 months) by livelihood zone



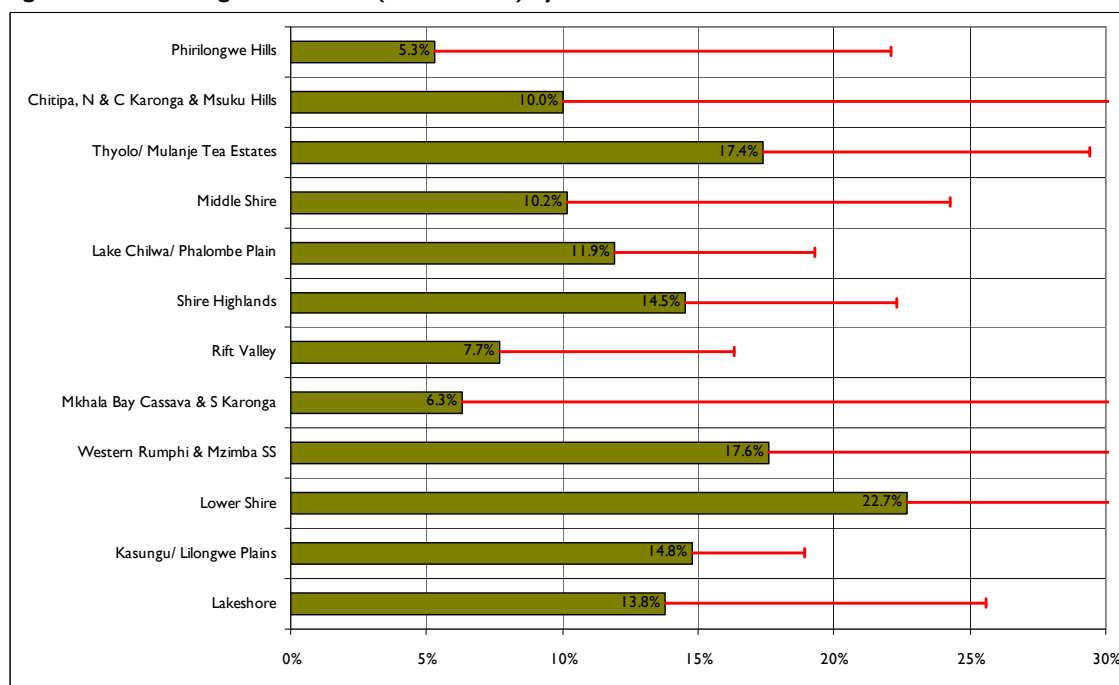
For children 24-59 months, the prevalence of wasting was highest among children in Lake Chirwa / Phalombe Plain and Middle Shire (and if a 95 percent confidence interval is used, the highest was found in Nkhata Bay Cassava / South Karonga.) There was no wasting among older children in the Phirilongwe Hills or Chitipa / NC Karonga / Misuku Hills (see Figure 57).

Figure 57: Wasting in children (24-59 months) by livelihood zone



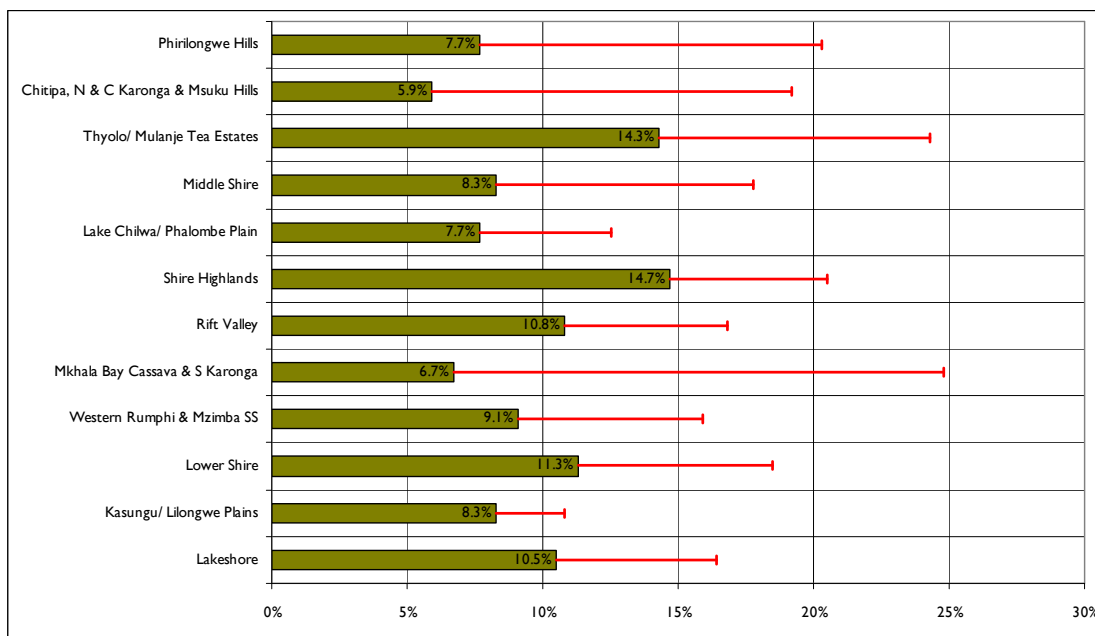
The highest prevalence of underweight children under 2 years was found in the Lower Shire zone, while the lowest was found in Phirilongwe Hills. At the upper end of the 95 percent confidence interval, children in the Chitipa / NC Karonga / Misuku Hills, Nkhata Bay Cassava / South Karonga, Western Rumphu / Mzimba SS and Lower Shire zones had the highest levels (see Figure 58).

Figure 58: Underweight in children (6-23 months) by livelihood zone



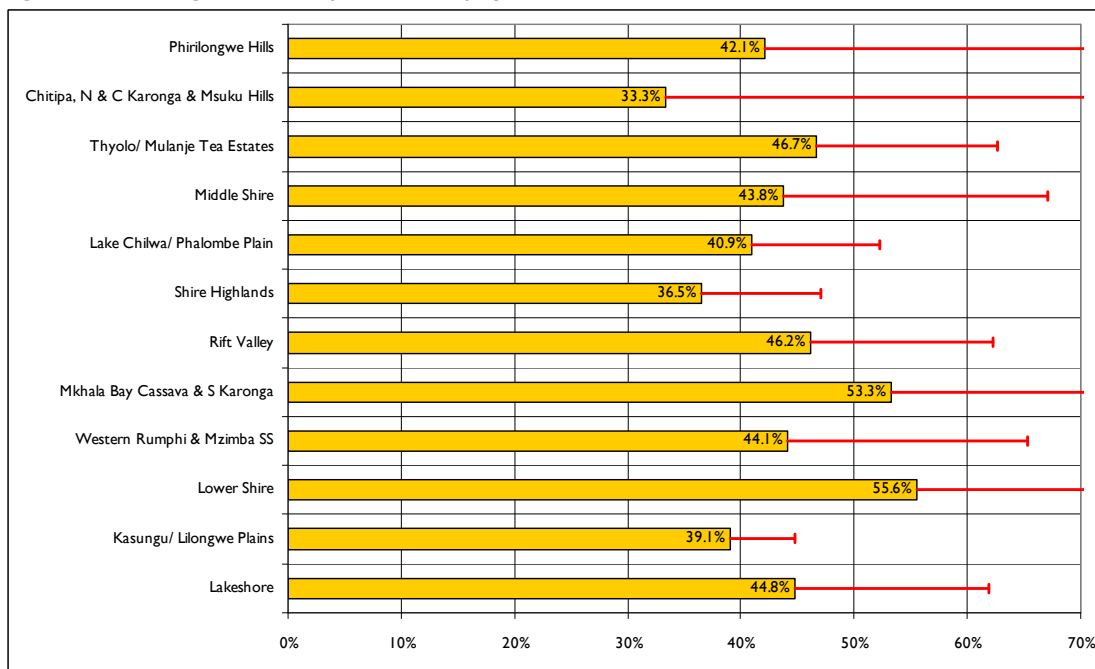
For children 2-5 years, the highest prevalence of underweight was found in the Thyolo / Mulanje Tea Estates and the Shire Highlands, while the lowest was found in Kasungu / Lilongwe Plains (when considering the 95 percent confidence interval) (see Figure 59).

Figure 59: Underweight in children (24-59 months) by livelihood zone



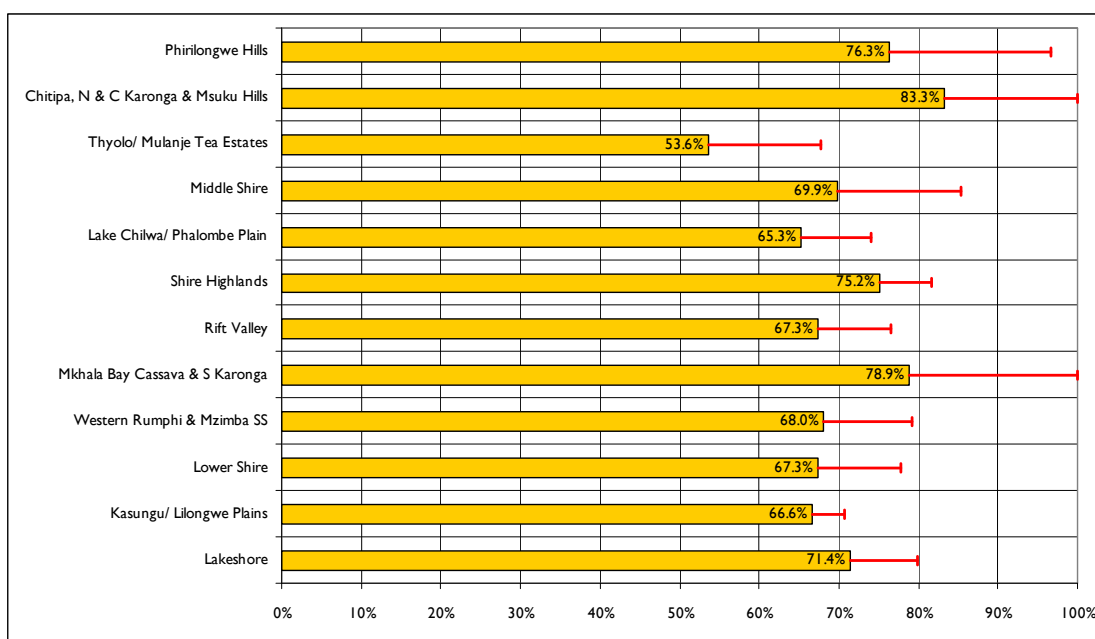
The prevalence of chronic malnutrition was higher in older children but for children 6-23 months of age, the highest prevalence of stunting was found in Lower Shire, followed by the Nkhata Bay Cassava / South Karonga. When considering the 95 percent confidence interval, more than 70 percent of children in Phirilongwe Hills and Chitipa / NC Karonga / Misuku Hills were stunted (see Figure 60).

Figure 60: Stunting in children (6-23 months) by livelihood zone



For children 2-5 years of age, the highest prevalence of stunting was found among children in Chitipa / NC Karonga / Misuku Hills and Nkhata Bay / South Karonga. The lowest prevalence of stunting in older children was found in Thyolo/Mulanje Tea Estate (see Figure 61).

Figure 61: Stunting in children (24-59 months) by livelihood zone



Additional analysis was conducted to provide indicative information on malnutrition in children throughout the country. Since the sample was not representative across livelihood zones, some like Nkhata Bay Cassava / South Karonga have only 18 children while others like the Kasungu / Lilongwe Plain have 887 children. Figure 62 shows the prevalence of wasting by livelihood zone and includes the upper limit of the 95 percent confidence interval. Usually a wider confidence interval is associated with a smaller sample size in this type of analysis. Therefore, it appears that the highest absolute prevalence of wasting in children 6-59 months is in the Middle Shire livelihood zone, while the highest level is in the Chitipa / NC Karonga / Misuku Hills zone (which could be as high as 16 percent). The lowest absolute prevalence of wasting was found in the Phirolongwe Hills zone (1.8 percent), but when taking into account the upper limit of the 95 percent confidence interval, the lowest was found in the Rift Valley.

Figure 62: Wasting in children (6-59 months) by livelihood zone

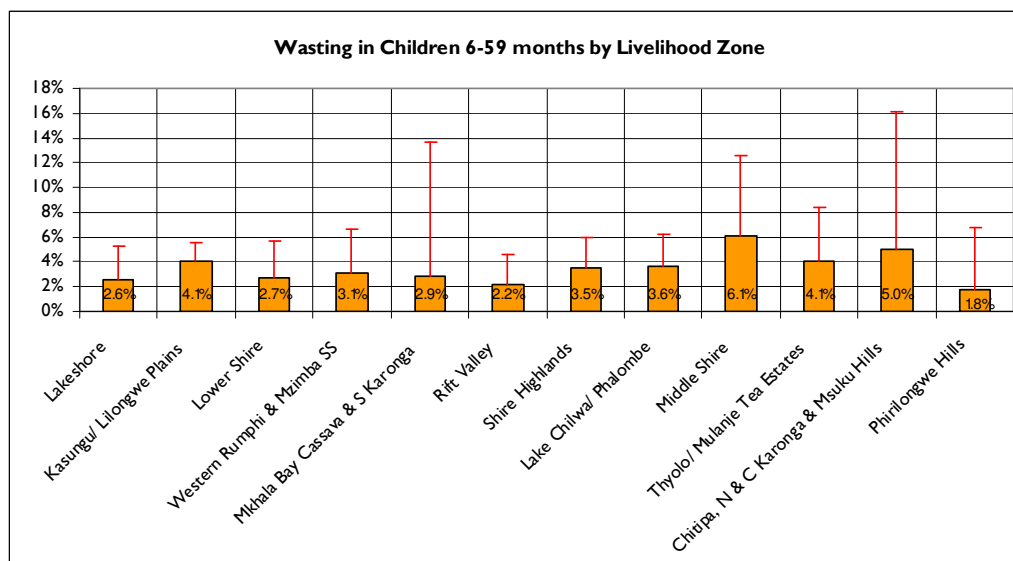
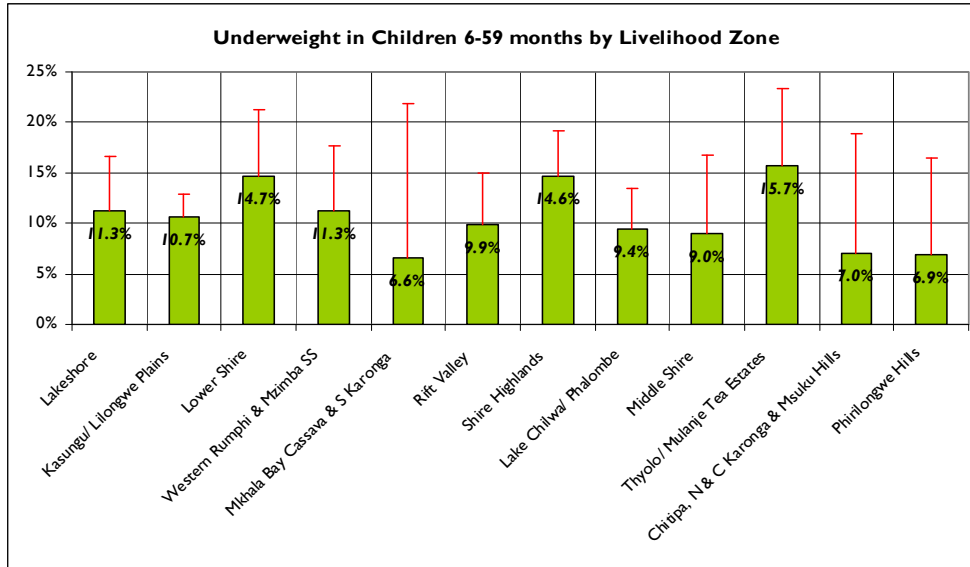


Figure 63 shows the prevalence of underweight in children by livelihood zone, indicating that children in Thyolo / Mulanje Tea Estate are the most likely to be underweight. The Shire Highlands and Lower Shire also have high

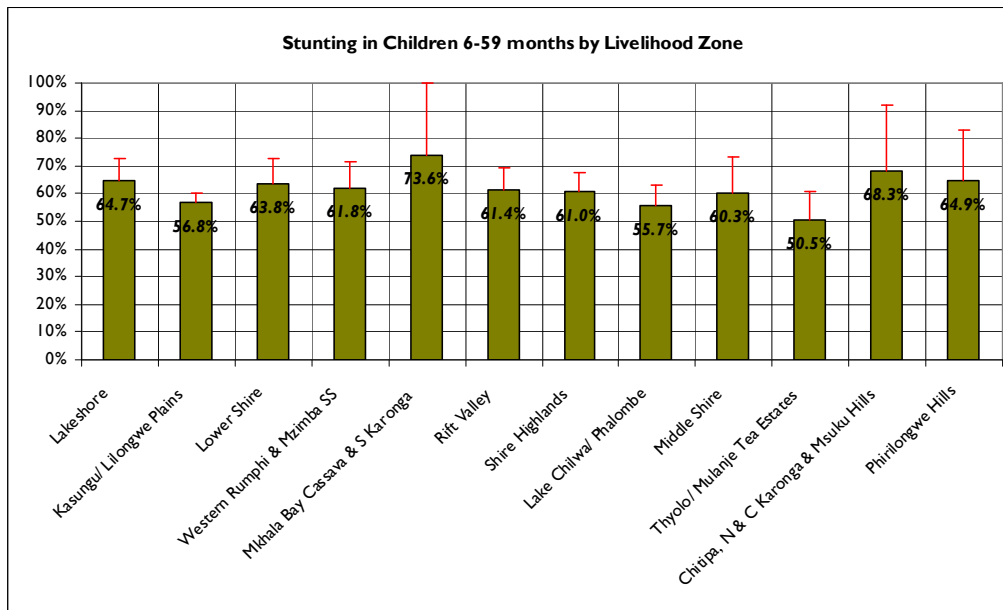
absolute prevalence of underweight. Nkhata Bay Cassava / S. Karonga has the lowest absolute prevalence, but one of the highest estimates when considering the 95 percent confidence interval. Overall, the lowest prevalence of underweight was found in the Kasungu / Lilongwe Plains when considering the upper limits of the estimate.

Figure 63: Underweight in children (6-59 months) by livelihood zone



The highest prevalence of chronic malnutrition was found in Nkhata Bay Cassava / S. Karonga, where 75 percent to 100 percent of the children measured were stunted. In addition, children in Chitipa / NC Karonga / Misuku Hills were also highly likely to be stunted. The lowest prevalence of stunting was found in the Thyolo / Mulanje Tea Estate and Kasungu / Lilongwe Plains.

Figure 64: Stunting in children (6-59 months) by livelihood zone

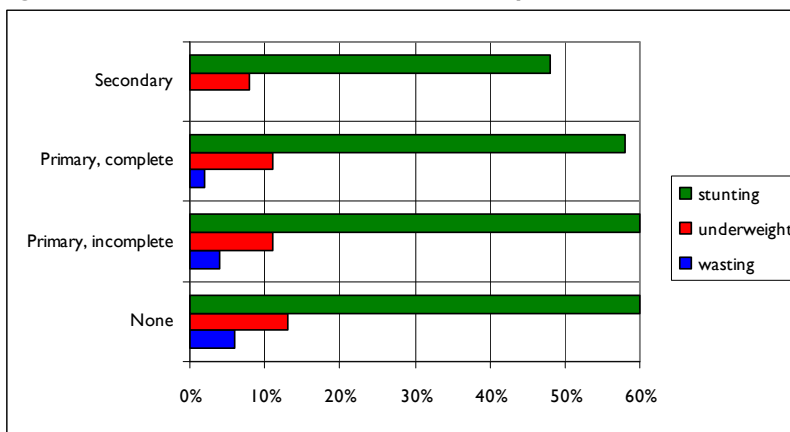


8.1.3 Household Characteristics and Malnutrition

Some household characteristics are significantly related to child malnutrition. As illustrated in Figure 65, malnutrition is strongly related to the mother or caretaker's education level. This relationship was found for all measures and is especially

linear for wasting: 6 percent of children from mothers with no education suffer from wasting along with 4 percent from mothers with incomplete primary education, 2 percent from those who completed primary school and no children from mothers with secondary education or higher. The prevalence of stunting among children whose mothers have secondary education or higher is only 48 percent compared to 60 percent for those with no education.

Figure 65: Malnutrition in children 6-59 months by mother's education



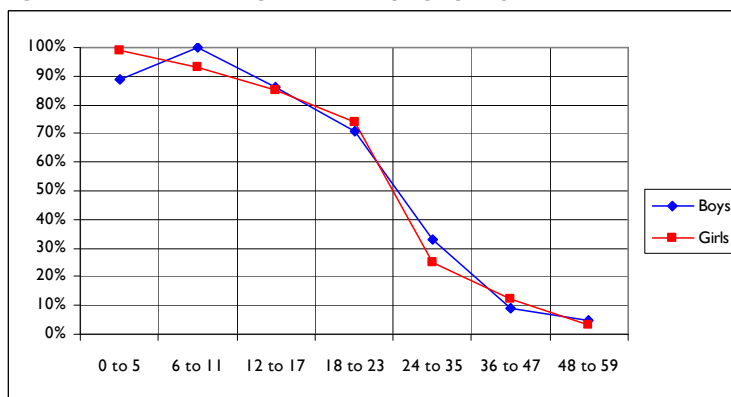
The analysis also looked at the relationship between households with particular demographic characteristics and malnutrition. Children from households with an elderly head, chronically ill member or those hosting orphans were more likely to be underweight, but this relationship was not significant. Children from households with a chronically ill member or the recent death of a household member were more likely to be stunted.

By region, the following significant relationships were found between household demographics and malnutrition:

- In the North, children from households hosting orphans were significantly ($p < 0.001$) more likely to be wasted (15 percent vs 1 percent) and significantly more likely ($p < 0.05$) to be underweight (23 percent vs 8 percent).
- In the Central region, children from households hosting orphans were also significantly ($p < 0.05$) more likely to be wasted (4 percent vs 0 percent).
- In the South, children from households with a chronically ill member were significantly ($p < 0.05$) more likely to be stunted (75 percent vs 58 percent) and children from households with a disabled member were significantly ($p < 0.05$) more likely to be wasted (95 percent vs 3 percent).

8.1.4 Breastfeeding Practices

Figure 66: Children being breastfed by age group and sex



For each child in the survey, information was collected on breastfeeding initiation, duration and weaning practices. Almost all of the children had been fed breast milk, ranging from 96 percent in the North and South to 98 percent in the Central region, with no differences between boys and girls. Figure 66 shows the percentage of boys and girls who were still breastfed at the time of the survey, by age group. Nearly all of the girls in the 0-5 month age group were

breastfed compared only 89 percent of the boys. However, the percentage increased to 100 percent for boys in the 6-11 month group, which was significantly ($p < 0.05$) higher than for girls (93 percent). By 18-23 months, about 70 percent of children were still being breastfed, but the number dropped to about 30 percent in the 24-35 month age group, indicating that most children are completely weaned by two years of age. The age for introduction of complementary foods was around 6 months in all regions.

8.1.5 Recent Child Morbidity

During the interviews, mothers were asked if their children had experienced at least one episode of fever, coughing (and if yes, if they had faster-than-normal breathing) or diarrhoea in the two weeks prior to the survey.

Overall, 21 percent of the children had experienced at least one episode of diarrhoea and 52 percent had a non-specific fever in the past two weeks. Coughing with fast breathing is a sign of acute respiratory infection (ARI), which is a major childhood illness in the developing world. In the two-weeks before the survey, there was a 10 percent prevalence of ARI in children under 5.

Boys were slightly more likely to have had recent fever and diarrhoea than girls, while girls were slightly more likely to have had recent ARI than boys.

Children in the Central region were the most likely to have had recent fever (55 percent), followed by those in the South (51 percent) and the North (43 percent). Diarrhoea was most common among children in the Central region (22 percent), followed by the South (21 percent) and the North (15 percent). The

highest prevalence of ARI was found in the North and South, with 12 percent each, followed by 8 percent in the Centre.

The analysis by livelihood zone is only indicative because of small sample sizes in some zones; findings are presented in Figure 68. Children in Lake Chirwa / Phalombe Plain were the most likely to have had recent fever (58 percent), followed by those living in the Shire Highlands (56 percent). Children in the Chitipa / NC Karonga / Misuku Hills zone were the least likely to have experienced fever (35 percent), followed by Western Rumphu / Mzimba SS (38 percent). Diarrhoea was most common among children living in the Thyolo / Mulanje Tea Estate (35 percent), and least common among children in Chitipa / NC Karonga / Misuku Hills (7 percent) and the Rift Valley (9 percent). The highest prevalence of ARI was found in children living in the Lakeshore and Phirilongwe Hills zones (18 percent each) while no children in the Thyolo / Mulanje Tea Estate had suffered from ARI in recent weeks.

Figure 67: Morbidity by age group over a two-week period

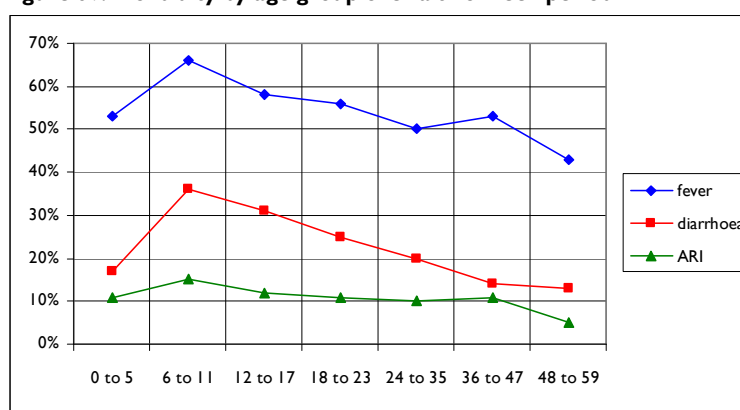
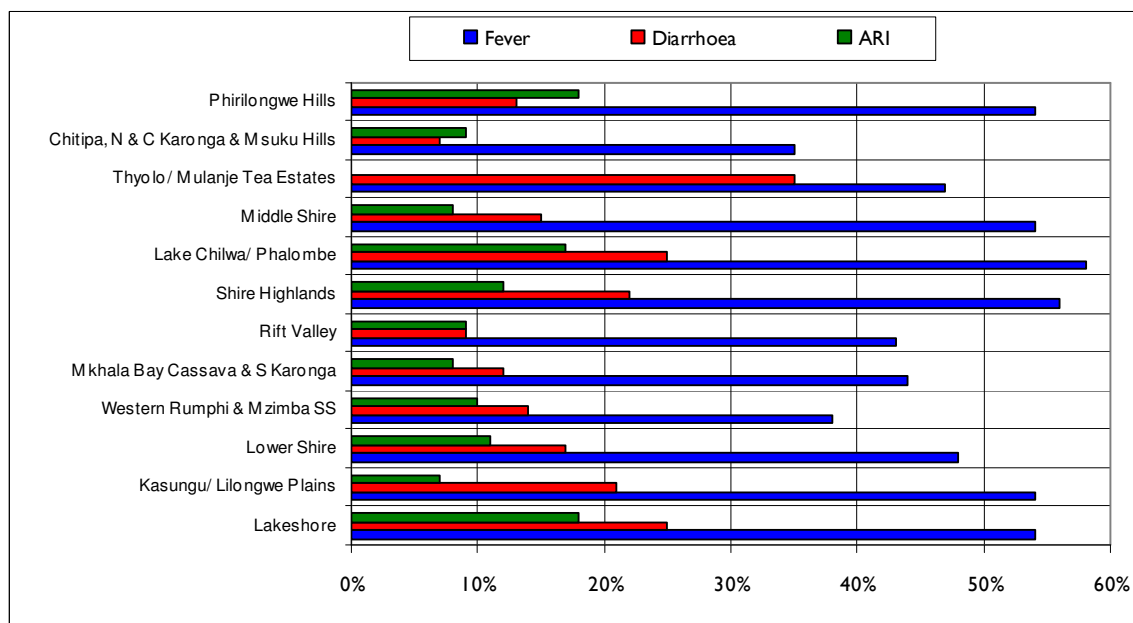


Figure 68: Percentage distribution of illness by livelihood zone

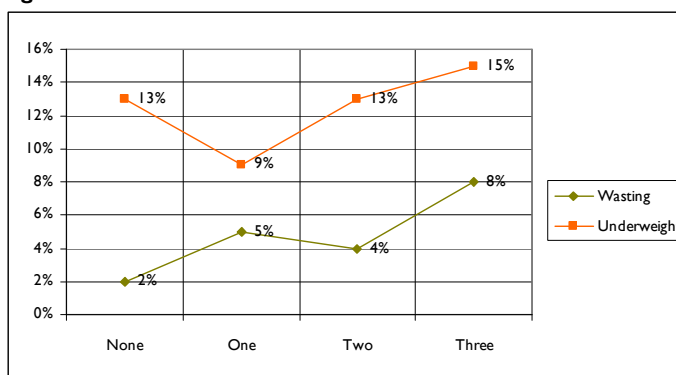


The type and number of illnesses children have can impact their nutritional status. When comparing prevalence of illness by current nutritional status, the following were observed:

- Children with recent fever or diarrhoea were slightly more likely to be wasted than those who were not ill.
- Children with recent ARI were more likely to be underweight (15 percent) than those without (11 percent).
- In the Central region, children with recent fever were significantly ($p < 0.05$) more likely to be wasted (5 percent) than those without (2 percent).
- Also in the Central region, children with recent ARI were significantly ($p < 0.01$) more likely to be underweight (20 percent) than those without (10 percent).

Figure 69 shows the relationship between number of illnesses and child nutritional outcomes. This relationship is much clearer for acute malnutrition: there was a regular increase in the prevalence of wasting with increased number of illnesses. For underweight, the relationship is similar but only for those children experiencing the illness. However, the greatest increases were seen for children that suffered from three recent illnesses. This linear relationship does not exist for chronic malnutrition (stunting).

Figure 69: Number of different illnesses and malnutrition

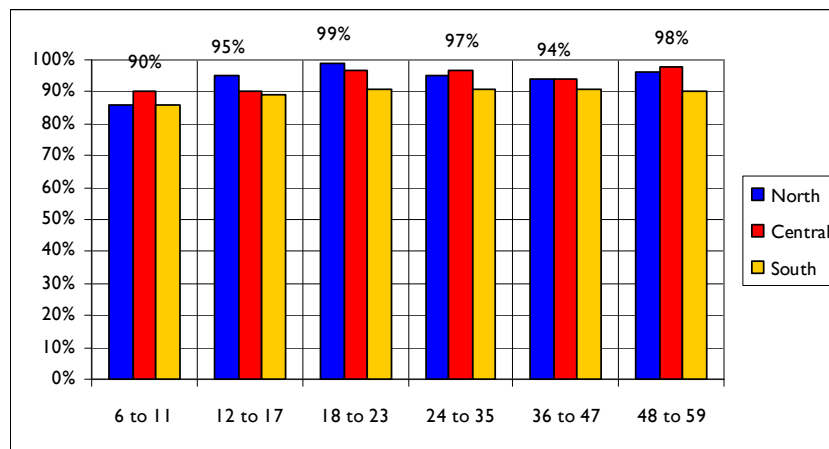


Children from households with flush toilets or ventilated improved pit latrines were significantly ($p < 0.01$) less likely to have recent fever or diarrhoea, but that relationship was not statistically significant. In addition, children from households with access to drinking water from improved sources were less likely to have had recent diarrhoea.

8.1.6 Vitamin A Supplementation

In the sample, 93 percent of children 6-59 months had received **Vitamin A supplements** during the six months prior to the survey, with no difference between boys and girls. As illustrated in Figure 70, supplementation was over 90 percent in children age 1-5 years and slightly lower for children under 1 year of age. By region, supplementation was much better in the Centre and North than in the South for all age groups.

Figure 70: Vitamin A supplementation by region and age group



By livelihood zone, supplementation was highest for children in Western Rumpi / Mzimba SS, where all children in the sample had received supplements. This was followed by Lake Chirwa / Phalombe, where 99 percent had received supplements. The lowest levels of supplementation were found among children in Chitipa / NC Karonga / Misuku Hills (85 percent) followed by the Rift Valley (86 percent).

By livelihood zone, supplementation was highest for children in Western Rumpi / Mzimba SS, where all children in the sample had received supplements. This was followed by Lake Chirwa / Phalombe, where 99 percent had received supplements. The lowest levels of supplementation were found among children in Chitipa / NC Karonga / Misuku Hills (85 percent) followed by the Rift Valley (86 percent).

8.2 HEALTH AND NUTRITION OF WOMEN OF REPRODUCTIVE AGE

The main findings of the survey sections for nutrition and health of women of reproductive age (15-49 years) are presented in the following section. The findings in this section are presented by region, age group and livelihood zone.

8.2.1 Education Levels

Of all the women in the sample, 30 percent had never been to school, with 51 percent attending but not completing primary school, 9 percent attending and completing primary school, and 10 percent reaching secondary school or higher.

Figure 71 illustrates the differences in access to education for women by region: women in the North clearly have better access to schooling than those in the Central and Southern regions. Although the statistics are still quite grim, more than 40 percent of women in the North had at least completed primary school and/or are attending secondary school or higher. In the Centre and South, only 15 percent had achieved this education level.

Figure 71: Women's access to education by region

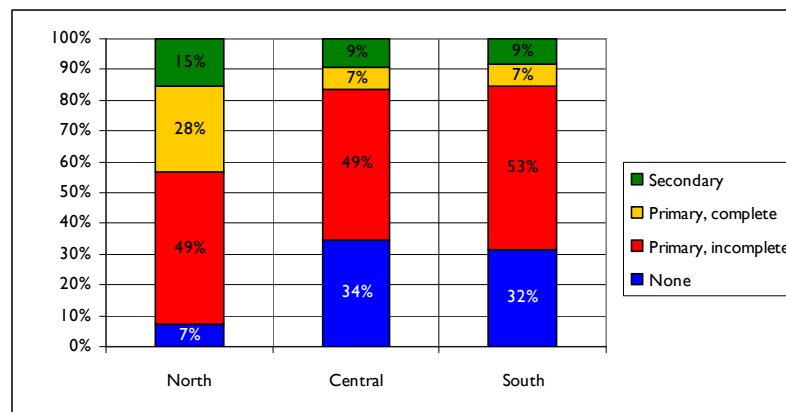
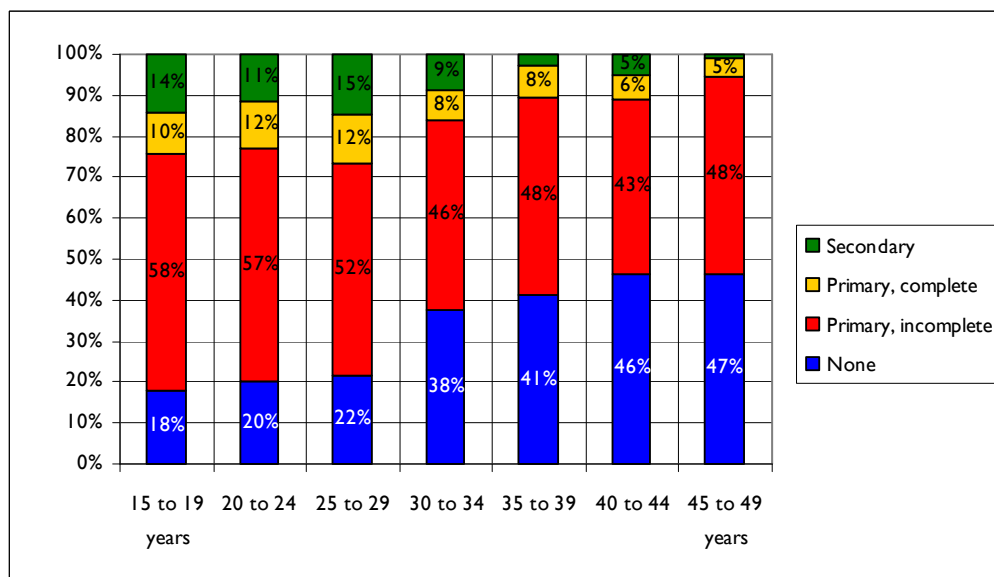


Figure 72 below shows that the situation may be improving for rural women in Malawi. About one fifth of women age 15-29 have no education compared to two-fifths of those age 30 and above.

Figure 72: Women's education levels by age groups

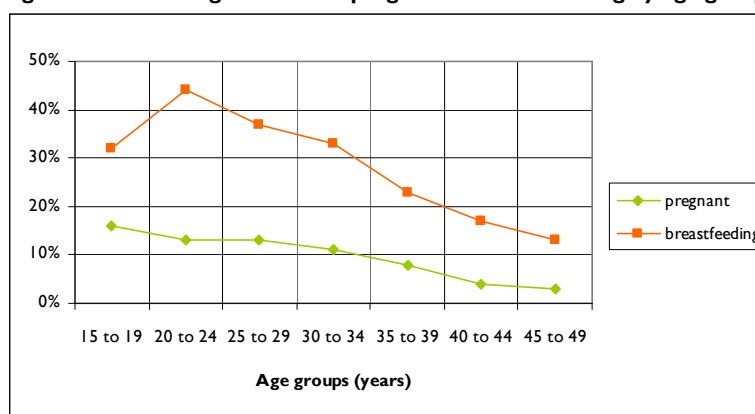


8.2.2 Pregnancy and Breastfeeding

At the time of the survey (May/June 2009), 11 percent of the sampled women were pregnant, with no difference between regions. Figure 73 shows the percentage of pregnant women by age group. The likelihood of a woman being pregnant decreased from 16 percent in the youngest group to 3 percent in the oldest group. The average age at first live birth was 18 years in this sample, which can partly explain why women age 15-19 were the most likely to be pregnant. By education level, the average age of first live birth was 18 years for women with no education or incomplete primary, 19 years for women who completed primary school, and 20 years for those with secondary education or higher.

One third of the women were breastfeeding at the time of the survey (37 percent in the Central region, 31 percent in the South and 19 percent in the North). The percentage of women breastfeeding increased from 32 percent for women 15-19 years old to 44 percent for women 20-24 years, and then decreased gradually with age.

Figure 73: Percentage of women pregnant or breastfeeding by age group



8.2.3 Pregnancy History and Number of Children

The average age of women in the sample is 29 years with no difference between regions. The results indicate an average number of four pregnancies and three live births in all regions except the South, where the average number of pregnancies was three. By education level, women with no education averaged four pregnancies and four live births while women with at least some primary education averaged three pregnancies and three live births. Women with some secondary education or higher averaged two pregnancies and two live births.

By wealth quintile, women from households in the lowest three quintiles averaged four pregnancies but three live births while women in the two wealthiest quintiles averaged three pregnancies and three live births, indicating better birth outcomes associated with increased wealth.

8.2.4 Antenatal Care

Mothers were asked to provide information on antenatal care they received prior to delivery. For the analysis, *skilled* antenatal care was defined as at least one visit to a doctor, nurse or trained midwife during pregnancy. Untrained midwives, friends or relatives were not classified as skilled. Nearly all (95 percent) of the children in the sample had received skilled antenatal care before birth. Women in the Central region were slightly less likely to have received skilled antenatal care than those in North or South.

By wealth quintile, 97-98 percent of the women in the top two quintiles received skilled antenatal care compared to 93-94 percent in the three lowest quintiles. The results further show that 92 percent of the pregnancies in the Lakeshore zone received skilled antenatal care compared to 99 percent in the Chitipa / NC Karonga / Misuku Hills zone.

For children 0-59 months, 92 percent of mothers had received at least one tetanus toxoid injection during pregnancy. However, the survey did not collect information on whether mothers received the complete series of injections. There was a very clear relationship between receipt of tetanus toxoid injections and use of skilled antenatal care: in 92 percent of the pregnancies with skilled antenatal care, tetanus toxoid injections were given, compared to only 74 percent of pregnancies with unskilled antenatal care (statistically significant at $p < 0.001$).

8.2.5 Birth Size and Low Birth Weight

In most developing countries, it is difficult to determine gestational age, so low birth weight (< 2,500 g) is used as a proxy for intrauterine growth restriction (IUGR). Research shows that in 2000, 11 percent of newborns in developing countries had low birth weight at term. The main causes of IUGR are nutritional: inadequate maternal nutritional status before conception; short maternal stature; and poor maternal nutrition during pregnancy (low gestational weight gain resulting from inadequate dietary intake). Diarrhoeal disease, intestinal parasites, respiratory infections and malaria also impact foetal growth. Underlying causes relate to maternal care, access to and quality of health services, environmental hygiene and sanitation, household food security, educational status, cultural taboos and poverty.

In order to estimate incidence of low birth weight among children in the survey sample, the questionnaire included a question taken from the MICS survey about the child's size at birth. Children's birth size was classified as: very large, larger than normal, normal, smaller than normal or very small. Overall, 33 percent of children were very large or larger than normal; 56 percent were normal; 8 percent were smaller than normal; and 4 percent were very small.

Figure 74: Reported birth size by sex and region

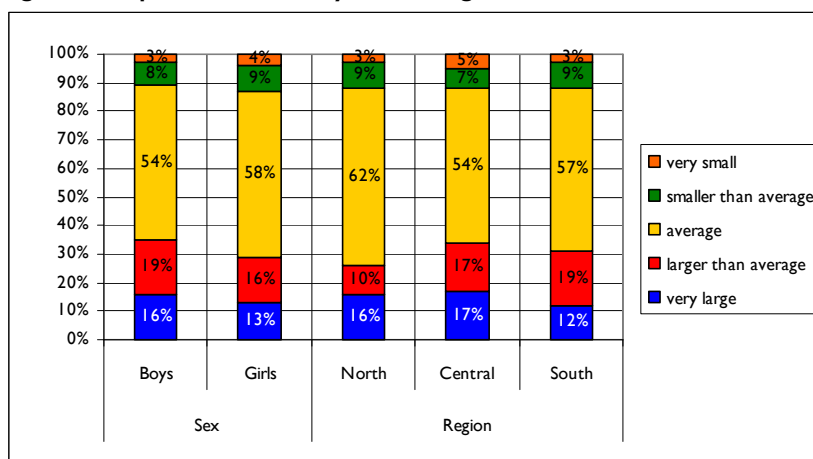


Figure 74 compares reported birth size by sex and region. Girls tend to be a smaller than boys in terms of reported size, with 13 percent smaller than normal or very small compared to only 10 percent of boys. In addition, the average reported birth weight for girls was 3.3 kg compared to 3.4 kg for boys. Children in the Central region tended to be larger at birth than those in the North and South.

However, all regions reported 12 percent of births to be smaller than normal or very small. The average reported birth weight was 3.3 kg for children in the Northern and Central regions, and 3.4 kg for children in the South.

Several analyses were conducted with the sample data to determine the relationships between potential causes of low birth weight (maternal health, use of skilled antenatal care) and the negative effects of being born malnourished. Results of the causal analysis show that:

- Mothers of low-birth-weight babies were significantly less likely ($p < 0.01$) to have washed their hands after using the toilet.
- Low-birth-weight babies were significantly ($p < 0.05$) more likely to be found in households with an illiterate household head.
- Low-birth-weight children were significantly ($p < 0.05$) more likely to be found in households with poor or borderline food consumption.

Negative health effects of being born very small or smaller than normal include a significantly greater incidence of diarrhoea ($p < 0.05$) in the two weeks prior to the survey. The table below also shows that for every measure of nutritional status, children reported to be smaller than normal or very small at birth have significantly worse nutritional outcomes.

Table 34: Impact of low birth weight on health and nutrition

	Diarrhoea	WHZ	WAZ	HAZ	Wasting	Underweight	Stunting
Normal or above	20%	0.35	-0.95	-2.12	3%	10%	57%
Low birth weight	26%	0.16	-1.29	-2.30	7%	21%	66%
Significance	$p < 0.05$	$p < 0.001$	$p < 0.001$	$p < 0.05$	$p < 0.001$	$p < 0.001$	$p < 0.001$

8.2.6 Current Health and Hygiene of Women

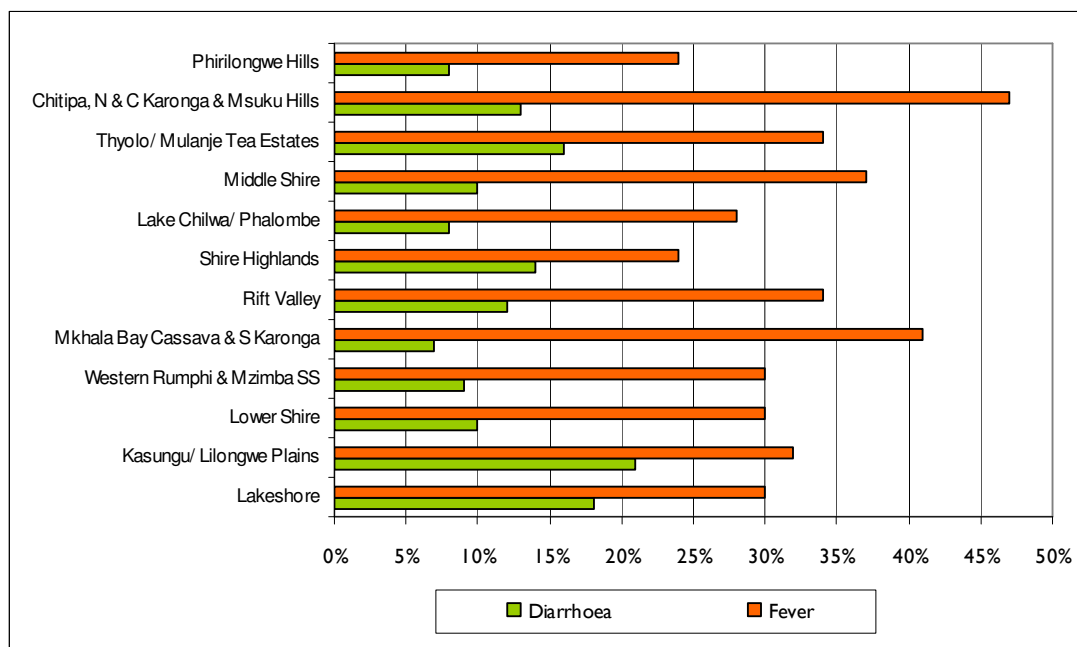
The women in the sample were asked if they had experienced an episode of diarrhoea or fever in the two weeks prior to the survey. Overall, 15 percent of the women had experienced at least one episode of diarrhoea and 31 percent had experienced fever in the past two weeks.

In the Central region, 21 percent of women had experienced recent diarrhoea compared to only 11 percent each in the North and South. Women in the North were the most likely to have had fever in the two weeks prior to the survey (36 percent), followed by women in the Centre (33 percent) and women in the South (27 percent).

There were also differences in prevalence of recent morbidity by education status of women: the relationship was linear for diarrhoea, with 20 percent of women with no education experiencing recent diarrhoea, compared to 14 percent of women with incomplete primary education, 13 percent for those with completed primary and only 10 percent for women with secondary education or higher. Women with secondary education were much less likely to have experienced fever (22 percent) than women with less education.

The graph below shows the prevalence of morbidity in women by livelihood zone. A highest prevalence of diarrhoea was found among women in the Kasungu / Lilongwe Plains (21 percent) followed by those in Lakeshore (18 percent). The highest prevalence of fever was found among women living in the Chitipa / NC Karonga / Misuku Hills zone (47 percent) followed by those in Nkhata Bay Cassava / S. Karonga (41 percent).

Figure 75: Prevalence of recent morbidity in women by livelihood zone



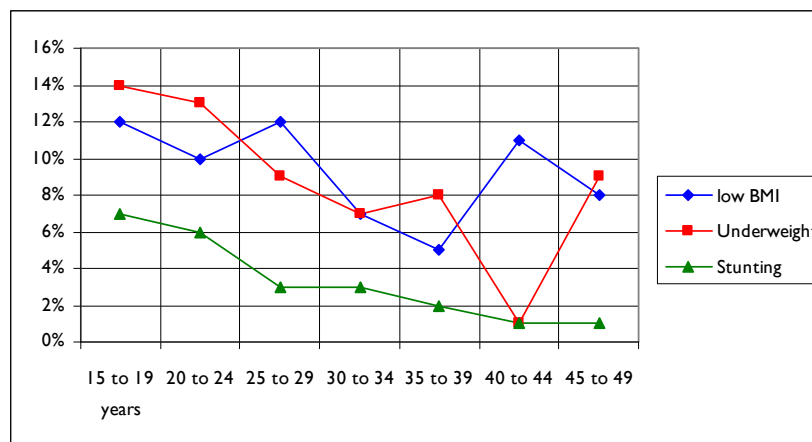
During the household interview, women were asked about hand washing practices after using the toilet. In all, 86 percent of women reported regular washing of hands after using the toilet. Women in the South (88 percent) were most likely to wash their hands, followed by those in the North (85 percent) and Centre (84 percent). Only 80 percent of women with no education washed their hands after using the toilet compared to 89 percent of women with some education.

Not surprisingly, women who regularly washed their hands after using the toilet were significantly ($p < 0.001$) less likely to have experienced recent diarrhoea (14 percent) than those who did not wash their hands (23 percent). However, 75 percent of women only used water to wash their hands after the toilet while only 20 percent used soap and water. The use of soap to wash hands was more common the North (31 percent) than in the other regions (19 percent each). The use of soap to wash hands also increased significantly with increased education, from 15 percent of women with no education to 19 percent of women with incomplete primary, 29 percent with completed primary and 35 percent with secondary education or higher.

8.2.7 Malnutrition in Women

Unlike disease, the negative effects of malnutrition are cumulative over time and can influence the nutritional status of the next generation. Malnutrition that occurs during childhood, adolescence, and pregnancy has an additive negative impact on the birth weight of babies. Social, economic and cultural factors as well as the biological requirements of pregnancy and lactation make women more vulnerable to malnutrition than men.

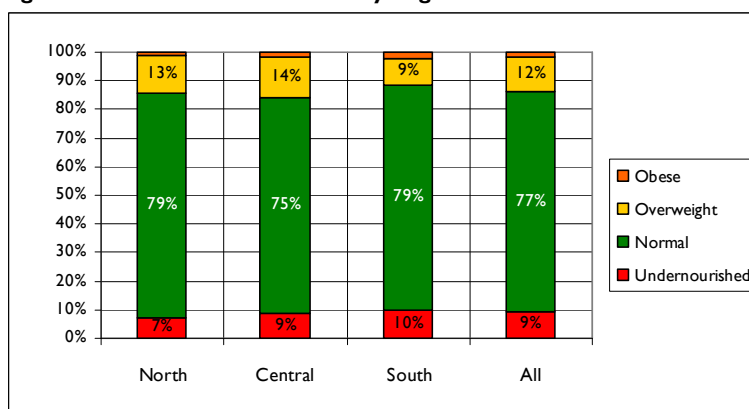
Figure 76: Malnutrition in women by age



The non-pregnant women in the survey were weighed and measured in order to determine their nutritional status. For women of reproductive age (15-49 years) body-mass index (BMI) is usually calculated to determine if the weight-to-height ratio is within a normal range. A woman is classified as being malnourished if her BMI is less than 18.5 kg/m². An adult woman (18 or older) is classified as being underweight if she weighs less than 45 kg and stunted if her height is less than 145 cm. In this survey, 9.2 percent of the women had a BMI less than 18.5 kg/m², 9 percent were underweight (< 45 kg) and 4 percent were stunted (< 145 cm).

By age group, levels of underweight and stunting showed slight trends while differences in the prevalence of low BMI were more dramatic across age groups. Figure 76 above summarizes the prevalence of the three outcomes by age group. The prevalence of underweight is highest in the youngest and oldest women while stunting in women decreases with increasing age. The prevalence of low BMI is steady between 15-29 years, then decreases by about 6 percentage points for women in the 35-39 year age group before peaking again at 40-44 years and evening out for the oldest women.

Figure 77: Malnutrition in women by Region

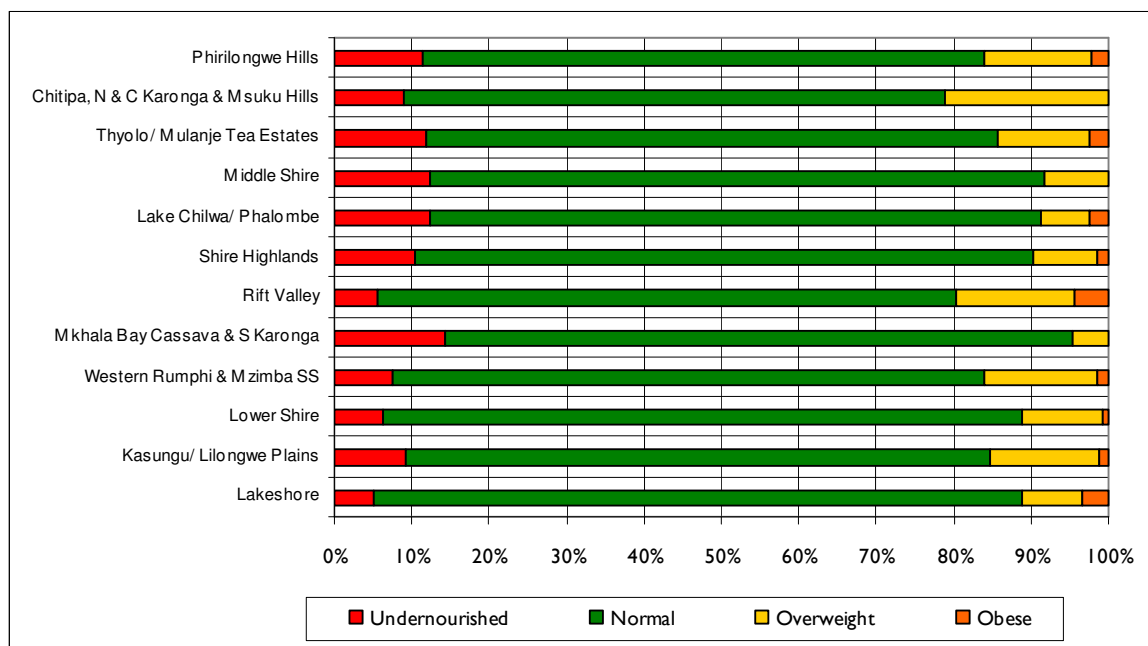


Nutrition status varied slightly by region, with the highest prevalence of low BMI found in the South and the lowest in the North (Figure 77). Women in the South were also the least likely to be overweight or obese. Women in the Centre were least likely to have a BMI in the normal range (although the BMI status is not alarming).

By education level, women with no education were the least likely to be overweight or obese (11 percent) while those with secondary education or higher were the most likely (22 percent). There was no difference in the percentage of women with low BMI across education groups (around 9-10 percent).

Figure 78 shows that women in Nkhata Bay Cassava / S. Karonga are the most likely to have low BMI, while those in the Lakeshore, Rift Valley and Lower Shire zones are the least likely. Overweight and obesity is most likely among women in Chitipa / NC Karonga / Misuku Hills.

Figure 78: Nutritional status of women by livelihood zone



9.0 RISK AND VULNERABILITY CONTEXT

This chapter focuses on the shocks that rural households are exposed to and the coping strategies they employ. Reported shocks include fires, family conflicts, floods, death of household members and high cost of agricultural inputs.

9.1 SHOCKS

Households were asked to identify the three main shocks experienced during the 12 months prior to the survey and the effect they had on the household's ability to purchase or produce food. They were also asked to describe the coping strategies they adopted to compensate for the loss. Table 35 shows that 36 percent of the rural households never experienced major shocks; 29 percent reported one shock; 19 percent reported two shocks and 16 percent reported three shocks.

Table 35 also shows that the households in Chitipa / NC Karonga / Misuku Hills and Nkhata Bay Cassava / S. Karonga were the least likely to have experienced a shock in the past year.

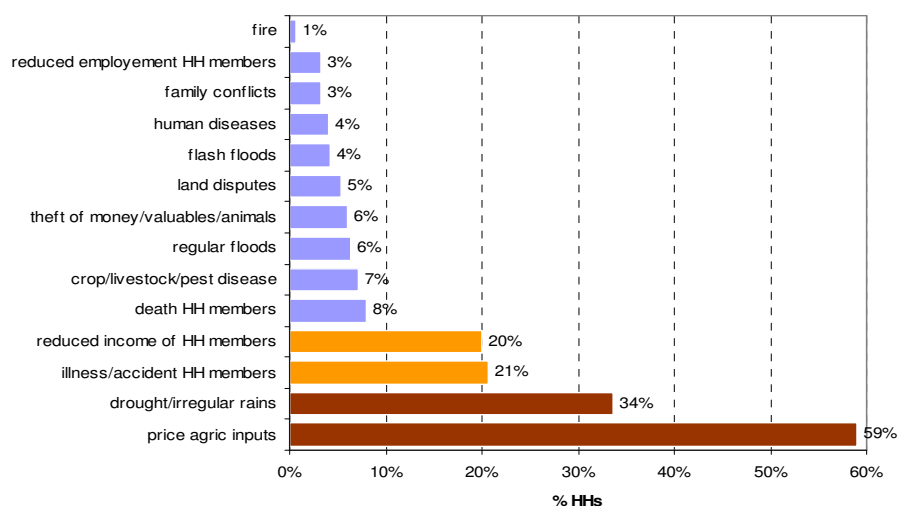
Table 35: Number of shocks by livelihood zone

	Average reported number of shocks			
	none	one	two	three
Rural Malawi	36	29	19	16
Chitipa / NC Karonga / Misuku Hills	85	10	3	1
Nkhata Bay Cassava / S. Karonga	69	18	8	5
Western Rumphu / Mzimba SS	55	25	16	4
Rift Valley	44	25	17	14
Lakeshore	42	31	19	8
Kasungu Lilongwe Plain	41	29	17	14
Lake Chirwa / Phalombe Plain	30	28	20	21
Thyolo Mulanje Tea Estates	29	17	11	42
Shire Highlands	27	30	23	20
Lower Shire	23	46	20	12
Middle Shire Valley	17	37	28	18
Phirilongwe Hills	7	27	49	17

Households in Lower Shire, Middle Shire Valley and Phirilongwe Hills were the most likely to be affected by shocks, with 32 percent, 46 percent and 66 percent of the households respectively reporting either two or three shocks.

9.1.1 Types of Shocks

Figure 79: Types of shocks reported by households



Results from the multiple-response analysis show that 59 percent of all respondents reported high cost of agricultural inputs, 34 percent reported drought or irregular rains, 21 percent reported illness or accident of a household member and 20 percent reported reduced income.

9.1.2 Shocks by Livelihood Zone

Table 36 shows the percentage of households who mentioned main shocks and those on which the shock had impacted their ability to acquire or purchase food. Before going into the details of each shock, it is worth mentioning that – for all shocks – a negative relationship between the impact of the shock and food consumption was found: households with greater consumption were less vulnerable to shocks.

Table 36: Main shocks and impacts by livelihood zone

	High cost of agric. inputs	(if yes) cost impact	Droughts	(if yes) drought impact	Illness / accident	(if yes) illness impact	Reduced income	(if yes) reduced income impact
Lakeshore	62%	89%	25%	88%	11%	68%	21%	94%
Kasungu Lilongwe Plain	18%	99%	80%	96%	11%	92%	3%	100%
Lower Shire	34%	95%	20%	92%	2%	70%	30%	90%
Western Rumphu / Mzimba SS	57%	96%	34%	97%	26%	73%	25%	96%
Nkhata Bay Cassava / S. Karonga	64%	100%	36%	89%	18%	100%	16%	96%
Rift Valley	44%	94%	23%	88%	5%	91%	15%	100%
Shire Highlands	73%	92%	18%	82%	25%	92%	20%	86%
Lake Chirwa / Phalombe Plain	57%	94%	23%	91%	24%	91%	17%	85%
Middle Shire Valley	63%	93%	38%	96%	12%	96%	13%	98%
Thyolo Mulanje Tea Estate	46%	95%	39%	90%	21%	93%	20%	93%
Chitipa / NC Karonga / Misuku Hills	59%	94%	51%	89%	23%	100%	39%	50%
Phirilongwe Hills	83%	93%	41%	85%	21%	68%	7%	91%
Rural Malawi	59%	95%	34%	90%	21%	89%	20%	93%

Cost of agricultural inputs was reported more frequently in the Phirilongwe Hills (83 percent) and Shire Highlands (73 percent) than the national average of 59 percent. During the previous year, 80 percent of households in the Kasungu Lilongwe Plain were affected by drought, followed by Chitipa / NC Karonga / Misuku Hills (51 percent) and Phirilongwe Hills (41 percent).

In addition to survey data, drought analysis relied on the 13-year historical dataset of the water resource satisfaction index (WRSI) based on rainfall, evapo-transpiration estimates and water requirements of the major crop (maize). A longitudinal analysis was conducted to identify drought-prone areas (severe and moderate).⁴² The two maps below show the geographical distribution of the probability of severe and moderate drought.

The first map shows that probability of a medium drought is particularly high in the northern tip of Nkhata Bay Cassava / S. Karonga, followed by scattered areas of Lakeshore and Lower Shire (in Lower Shire, areas close to the border are especially vulnerable). According to the second map, the probability of a severe drought is particularly high in the area visible in red, which covers part of Phirilongwe Hills, the southern tip of Lakeshore and a small part of Shire Highlands. Consistent with the results from the first map, the entire western border of Lower Shire is particularly exposed to a severe drought.

⁴² Drought is defined as occurring when WRSI falls below its mean historical value. If the difference is more than 20 percent, it is considered a severe drought; if it is between 10 percent and 20 percent, it is considered a moderate drought.

Figure 80: Risk of moderate drought

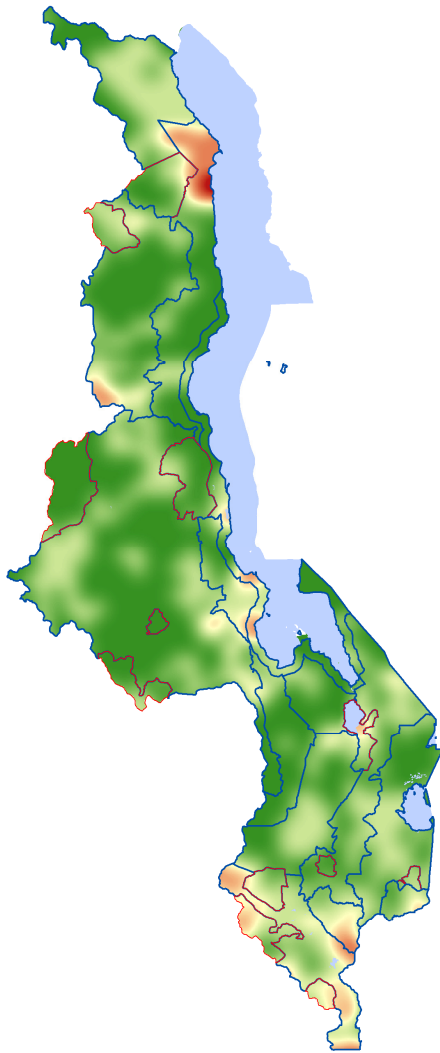
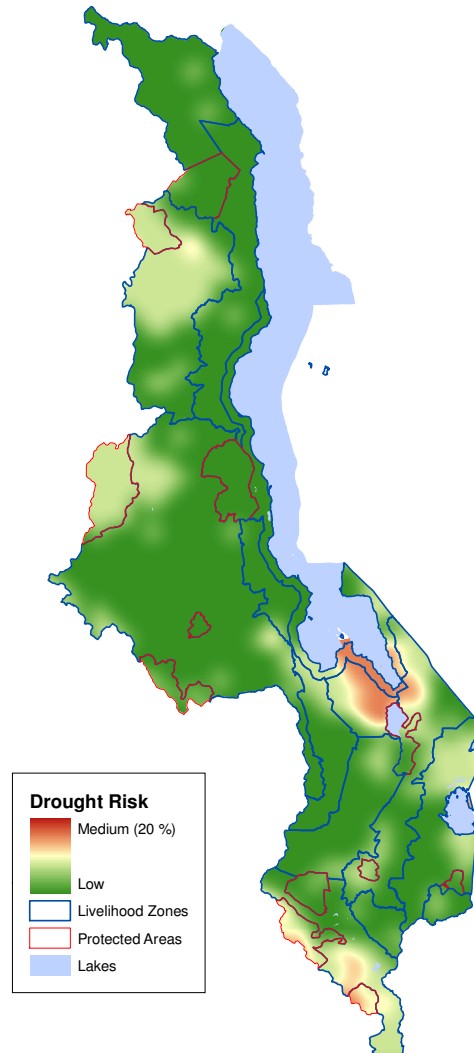


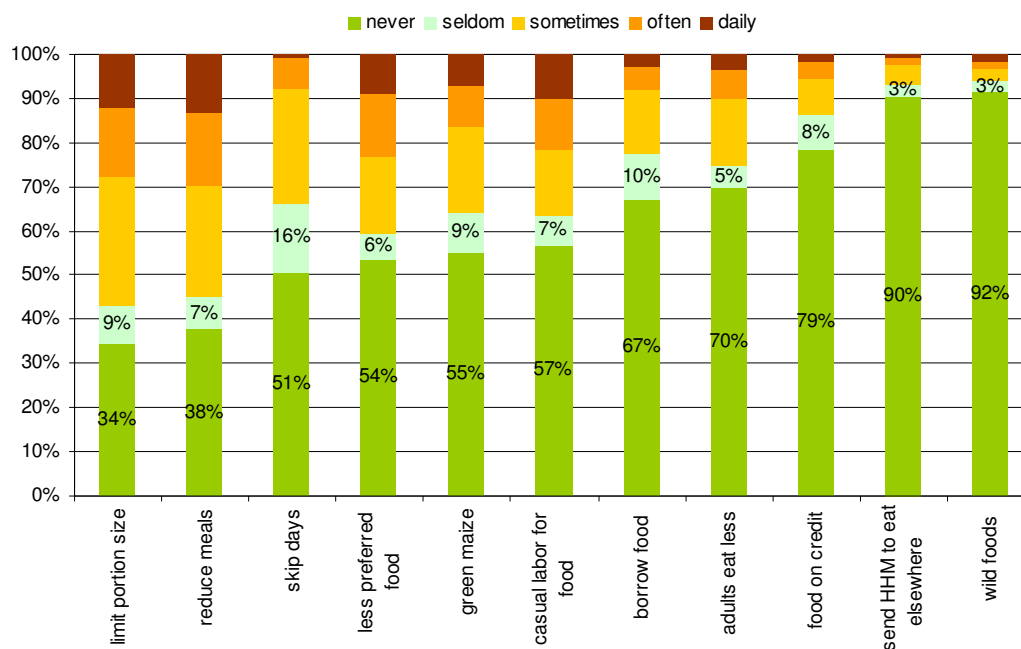
Figure 81: Risk of severe drought



9.2 COPING STRATEGIES

In Malawi, households employ several methods to cope with shocks. The study indicates that the most common strategy across the country was the reduction of food portion size (57 percent of households) followed by a reduction of the number of meals (55 percent) as shown in Figure 82 below.

Figure 82: Percentage household frequency of coping strategy use



The following coping strategies and severity weights were used to compute the reduced coping strategies index (CSI). Research demonstrated that reduced CSI reflects food insecurity nearly as well as the full or context-specific CSI. Even if the CSI does not have a cut off like the food consumption score, its average (which here is 11.1) can be used to compare groups and identify those who are more exposed to stress – in order words who engage more frequently in stressful coping mechanisms.⁴³

Table 37: Coping strategies and severity weights

Coping strategies	Severity weights
Eating less preferred/less expensive foods	1
Borrowing food/relying on help from friends/relatives	2
Limiting portion size at mealtime	1
Limiting adult intake in order for small children to eat	3
Reducing number of meals per day	1

⁴³ Methodological details for the computation of reduced CSI can be found in the “Coping Strategy Index: Field Methods Manual” 2nd Edition, 2008.

9.2.1 Relationship between CSI, Food Consumption and Wealth

A negative correlation was found between the food consumption score and CSI ($r = -0.21$; $p < 0.05$). This was confirmed by the fact that CSI equalled 9.3 in households with acceptable food consumption, increased to 12.9 in households with borderline consumption and increased further to 13.4 in those with poor food consumption. A negative correlation was found between the wealth index and CSI ($r = -0.28$; $p < 0.05$). CSI is highest among the poorest group (14.9), and decreases as wealth increases (12.9 among the poor group; 12 among the medium group; 9.8 among the wealthy; and 5.7 among the wealthiest).

Table 38 below presents the average values of reduced CSI disaggregated by livelihood zone and livelihood profile. Results are consistent with the distribution of food consumption profiles. By livelihood zone, households in Lake Chirwa / Phalombe Plain, which has the highest percentage of households with poor food consumption, also has a very high CSI (13.9). By livelihood profile, agricultural wage labourers and non-agricultural wage labourers – the livelihood groups with the highest percentage of poor consumption (25 percent and 17 percent respectively) – also have the highest CSI (14.1 and 12.8 respectively).

Table 38: Reduced CSI disaggregated by livelihood zone and livelihood profile (average values)

		Coping strategies index (CSI)
Livelihood zones	Chitipa / NC Karonga / Misuku Hills	0.9
	Nkhata Bay Cassava / S. Karonga	2.6
	Western Rumphu / Mzimba SS	4.8
	Lakeshore	8.8
	Rift Valley	9.3
	Middle Shire Valley	10.4
	Phirilongwe Hills	10.8
	Kasungu Lilongwe Plain	11.1
	Shire Highlands	11.5
	Thyolo Mulanje Tea Estate	13.4
	Lake Chirwa / Phalombe Plain	13.9
	Lower Shire	16.6
	Livelihood profiles	Traders	6.4
Salaried		7.3
Fishermen		9.1
Brewers		9.4
Self-employed		9.9
Agriculturalists (cash & food crops)		10.8
Agro-pastorals		10.9
Petty traders		11.0
Agriculturalists (food crops)		11.7
Others		11.9
Artisans		12.7
Non agric. wage labourers		12.8
Agric. wage labourers		14.1
Rural Malawi	11.1	

9.3 ASSISTANCE

9.3.1 Food Assistance

During the six months preceding the survey, 11 percent of households received food assistance. Table 39 reports the data disaggregated by demographic indicators and highlights differences that are statistically significant. It clearly shows that all vulnerable groups receive food assistance.

The poorest households were most likely to receive food assistance compared with other wealth groups. On average, 14 percent of the poorest received food assistance compared to 10 percent of the wealthy and wealthiest.

Of those who received food assistance, most (52 percent) received assistance from the Government and its agencies as the main sources, 15 percent received assistance from a church, 10 percent from international NGOs, 10 percent from national NGOs and 2 percent United Nations agencies.⁴⁴ In addition, NGOs and United Nations agencies have distributed various food items over the past years in response to natural disasters such as droughts and floods.

Table 39: Distribution of households receiving food assistance by demographics

Demographic group	% receiving food assistance	$p < 0.05$	Demographic group	% receiving food assistance	$p < 0.05$
HHs headed by men	9%	(*)	no member died	10%	(*)
HHs headed by women	14%		member died	15%	
HHs not headed by elderly	9%	(*)	no main earner dead	11%	(*)
HHs headed by elderly	16%		main earner dead	17%	
no chronically ill	10%	(*)	not high percent of dep.	9%	(*)
chronically ill	20%		High percent of dep.	17%	
no disabled	10%	(*)	no orphans	10%	(*)
disabled	16%		orphans	15%	
not chronically ill or disabled	10%	(*)	Rural Malawi	11%	
chronically ill or disabled	17%				

9.3.2 Non-Food Assistance

Non-food assistance was received by 12 percent of households. The most common type of assistance was medical (reported by 11 percent of households), followed by agricultural assistance (9 percent), education and loans (5 percent), water and sanitation (2 percent), and construction (2 percent). Table 40 reports the data disaggregated by demographic indicators and highlights differences that are statistically significant. It clearly shows that most vulnerable groups receive other types of external assistance. No statistical difference was found between wealth and consumption groups.

⁴⁴ Food assistance was received from other sources by 38 of households.

Table 40: Distribution of households receiving food assistance by demographics

Demographic group	% receiving food assistance	$p < 0.05$	Demographic group	% receiving food assistance	$p < 0.05$
HHs headed by men	11%		no member died	11%	
HHs headed by women	13%		member died	13%	
HHs not headed by elderly	10%		no main earner dead	11%	
HHs headed by elderly	17%	(*)	main earner dead	16%	(*)
not chronically ill	11%		not high percent of dep.	11%	
chronically ill	17%	(*)	High percent of dep.	15%	(*)
not disabled	11%		no orphans	11%	
Disabled	15%	(*)	Orphans	12%	
not chronically ill or disabled	11%				
chronically ill or disabled	15%	(*)	Rural Malawi	12%	

10.0 UNDERLYING CAUSES OF FOOD INSECURITY

In order to explore the underlying causes of food insecurity using quantitative analytical techniques, a general linear model (GLM) was used.⁴⁵ GLM allows an exploration of individual predictors of food security that are either continuous variables like land ownership, crop production or CSI, or categorical variables such as gender of household head, livelihood group and geographical location of the household.

The outcome (dependent) variable used as a proxy for food security was the food consumption score (FCS).⁴⁶ Independent predictors included indicators that, according to the Food and Nutrition Security Conceptual Framework (see Figure 1), were expected to influence⁴⁷ food security status at the household level. These include:

- Indicators of **human and social assets** (gender of the household head, presence of chronically ill or disabled members, presence of orphans, death of household members in the previous six months, migration of household head in the past 12 months, household head 60 years or older, literacy of household head, household size, percentage of dependents in the household);
- Indicators of **physical, natural and economic capital** (size of land cultivated in the 2007/08 season, presence of irrigation in the 2007/08 season, 2007/08 production of maize in kg, usual duration of the maize harvest in months, number of different crops cultivated, livestock ownership measured in TLU);
- The **coping strategies index** (CSI; reduced version) as an indicator of household food insecurity (stress level);
- Different **livelihood strategies** (identified as livelihood groups); and
- **Geographic location** (livelihood zones).

Some of these variables were found to be statistically significant in predicting food insecurity (R square = 0.186). Controlling for all the other parameters included in the model, the following characteristics were found to have a statistically significant effect on food security:

1. **Gender of household head** – Households headed by women were found to have lower food-security status, as measured by the FCS, than households headed by men.
2. **Literacy** – Reading and writing capacity of the household head enhanced the food security of the household.
3. **Migration** – A positive association was found between the migration of the household head and household food-security.
4. **Household size and dependency percentage** – A larger percentage of effective dependents was negatively correlated to household food security. However larger households were more likely to have higher food security levels as measured by the FCS. This indicates that, in rural Malawi, larger households tend to be more food secure, but only if they have a larger number of working members.
5. **Size of land cultivated during 2007/08 season** – Households cultivating 4 acres or more were considered the reference category. Compared to these households, food security decreased with decreased land under cultivation. However, no significant difference was found between the reference category and those who did not cultivate any land; this is likely because the majority of those who did not cultivate in the 2007/08 season (2 percent of the sample) were engaged in livelihood activities other than agriculture such as salaried work.
6. **Use of irrigation in the 2007/08 cultivation** – Having irrigation was associated with a better food security.

⁴⁵ The analysis was run using the Complex Sample module in SPSS. The Complex Samples General Linear Model (CSGLM) procedure performs linear regression analysis, as well as analysis of variance and covariance, for samples drawn by complex sampling methods, such as cluster sampling.

⁴⁶ This type of analysis requires a continuous variable as an outcome. The use of the FCS as a summary proxy does not reflect the complexity of food security as explored in the above analysis. Nevertheless, it allows some conclusions to be drawn about the factors influencing households' access to food.

⁴⁷ Wealth index and expenditure-related variables are sometimes included in models that seek to explain underlying causes of food insecurity. In this analysis, it was decided to exclude those indicators because they are often used as alternative proxies for food insecurity (here estimated through FCS). They would therefore be too close to the dependent variables, masking the effects of other underlying causes.

7. **Number of different crops cultivated** – FCS improved as households increased the diversity of crops under cultivation.
8. **Production of maize in the 2007/08 season and livestock ownership** – While controlling for all the other parameters in the model, the quantity of maize produced was positively correlated to household food security. However the usual duration of the maize harvest (in months) became a non-significant parameter to estimate change in FCS when livestock ownership (measured in TLU) was introduced into the model. Greater access to farm animals led to a significant enhancement in household food security regardless of production level.
9. **Level of food insecurity stress** – As expected, a higher level of stress, reflected in a higher coping strategies index (CSI), was associated with lower food security, even controlling for all the other parameters.
10. **Livelihood strategies** – Agriculturalists who earned their living by cultivating a combination of food and cash crops were used as the reference category. Traders, salaried workers and fishermen were identified as likely to have significantly higher food security than agriculturalists living on food and cash crops. On the contrary, agricultural wage labourers had a significantly lower food security outcome compared to the reference group.
11. **Geographic location** – The livelihood zone made up of Chitipa Northern / Central Karonga / Misuku Hills was taken as a reference. Controlling for all the other parameters, households in this zone were more likely to have higher food security compared to Western Rumpi / Mzimba SS in the rural Northern region, Kasungu Lilongwe Plain in the rural Central region, and Phirilongwe Hills, Middle Shire Valley, Shire Highlands and Lake Chirwa / Phalombe Plain in the South.

Controlling for all the other parameters in the model, the presence of a household head 60 or over, chronically ill or disabled household members, orphans or the recent death of a household member were not found to have a significant influence on household food security.

A table presenting the regression coefficients is presented in Annex VI. A higher estimate coefficient results in a higher projected FCS, and therefore in better food security.

11.0 MARKET ANALYSIS⁴⁸

Market analysis was carried out with two main objectives:

1. To determine if markets are integrated into livelihood zones (and to understand how a price shock in one market is transmitted to other markets, and to what extent); and
2. To analyze cross-border trade and price transmission from the international to the national level. Trade liberalization in Malawi makes cross-border and international trade an important food source for the country.

The first analysis aims at understanding how a market within a livelihood zone behaves when a price shock is transmitted from another livelihood zone. For instance, when a price shock from other livelihood zones is transmitted to an isolated market, this price fluctuation is not transmitted to other markets within the livelihood zone. In other words, while markets between livelihood zones might be integrated, there may be no transmission mechanisms within a particular livelihood zone.

The main limitation of this market analysis is the use of nominal maize prices instead of real prices, which allows the researchers to control for inflation. The absence of the Consumer Price Index on monthly basis and at the market level does not permit the use of real prices. In addition, this market analysis does not deal with the determinants of market integration in Malawi. Only maize is used because data is lacking for the other staple food items. However, maize is the main staple food in Malawi and accounts for 52 percent of its caloric contribution (FAO, 2003/2004).

11.1 INSTABILITY, SEASONALITY AND CYCLES

11.1.1 Price Instability

Maize prices in Malawi are highly unstable. Price instability is measured by the **coefficient of variation (CV)**.⁴⁹ A high CV indicates a high degree of price variability, which suggests large changes in supply and demand, and inter- and intra-annual price instability. Good market performance results in a lower CV. The CV in Malawi ranges from 0.51 in Nkhata Bay to 0.70 in Nsanje, which means that prices can fluctuate from 51 percent to 70 percent from their average value. This high level of instability in markets increases the uncertainty of price anticipations for households, farmers and traders. Households who face such instability consequently face uncertainty in their budget decisions (how much money to set aside for food and non-food items, whether they can afford to send their children to school, etc.).

Traders would also be unable to anticipate the results or profits of their activities. High price instability can also harm producers by inducing uncertainty about the final prices of their outputs, thus influencing their investments and productivity. In fact, price instability has been found to impact food security more negatively than price level. Price instability could be caused by either national factors such as lack of infrastructure, lack of information, market power, seasonality or general inflation, or by regional or international factors .

11.1.2 Seasonality and Cycle by Livelihood Zone

Maize prices in Malawi follow seasonal and cyclical patterns within livelihood zones. Price fluctuations are mainly influenced by harvest conditions. Seasonality and cyclical analyses are determined by calculating seasonal and cyclical indices for all markets. These analyses are undertaken in order to better understand the short-term and long-term dynamics of maize prices in the country. Knowing the seasonal pattern of price fluctuations in a country can foster better implementation of food-security programmes and response activities. It also provides useful information, which can be used to strengthen markets and food-security monitoring activities.

Because of the utilization of the 12 months centred moving averages to calculate seasonal and cyclical indices, the analyses were conducted for the period from July 2003 to September 2008. Figure 83 shows the trends of seasonal indices for each market.⁵⁰ The same seasonal pattern can be observed between markets.

⁴⁸ Aker, J. 2007. *The Cereals Market in Niger: Findings from the 2005-2007 Market Surveys and Recommendations for Future Food Security Programs*, a report for Catholic relief Services, CARE and World Vision.

⁴⁹ The coefficient of variation is the standard deviation of the price in a particular market divided by the mean price in that market.

⁵⁰ Markets in each livelihood zone were selected according to data availability. Therefore, only markets without missing values for maize-price data were taken into account.

Prices generally rise from May to January and decline from February to April. The highest price levels are reached in January and the lowest in May. This seasonal pattern is confirmed by Figure 84, which shows the seasonal profile of maize prices in Malawi. This figure plots the monthly five-year averages of maize prices by market.

Figure 83: Seasonal indices for markets (from September 2003 to September 2008)

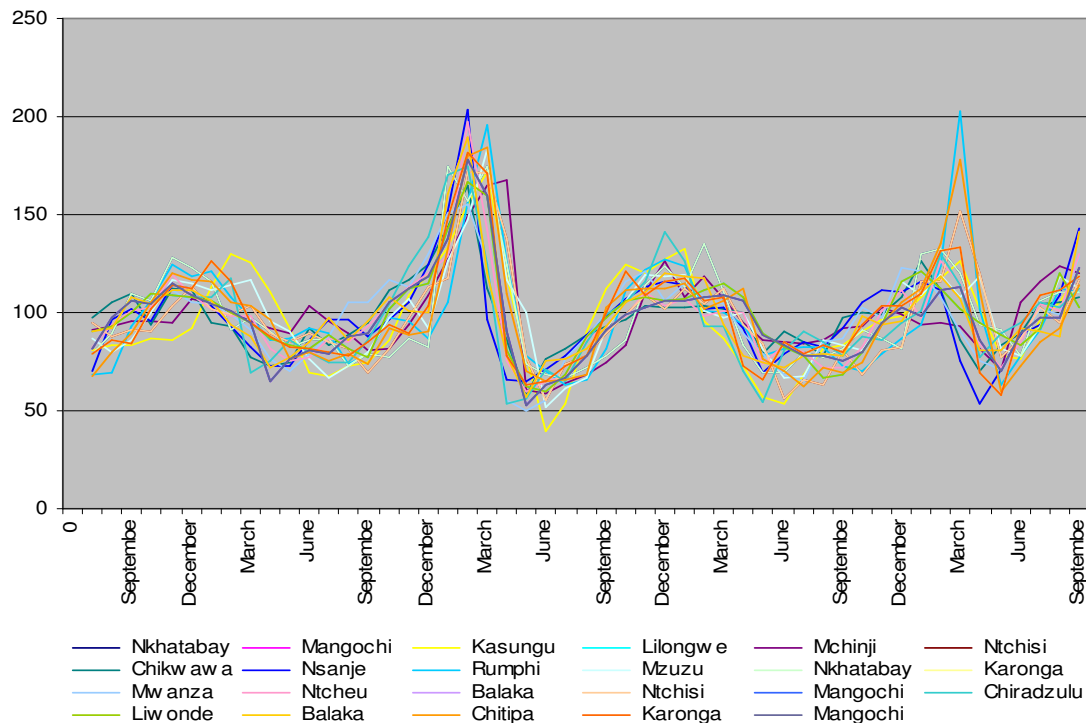


Figure 84: Seasonal profile of maize prices

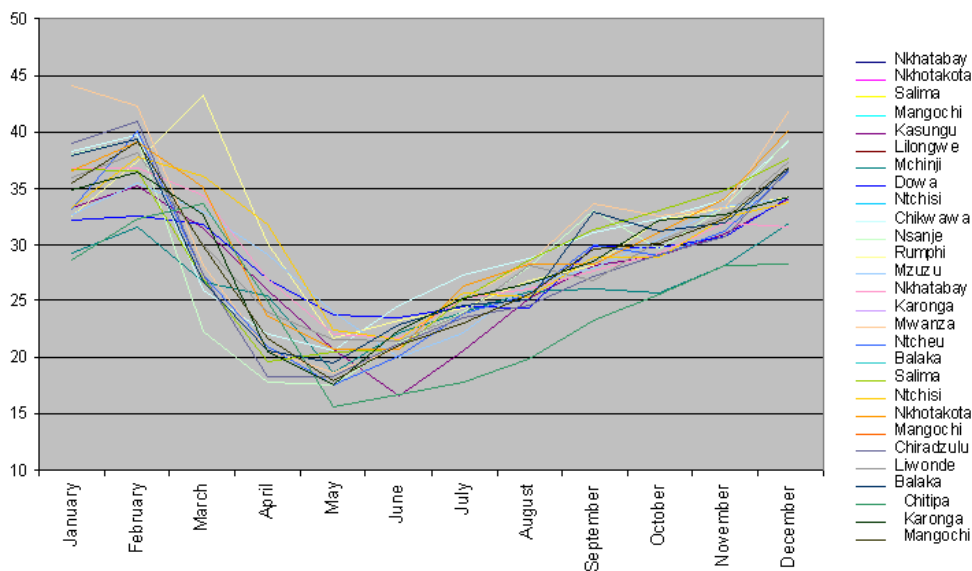
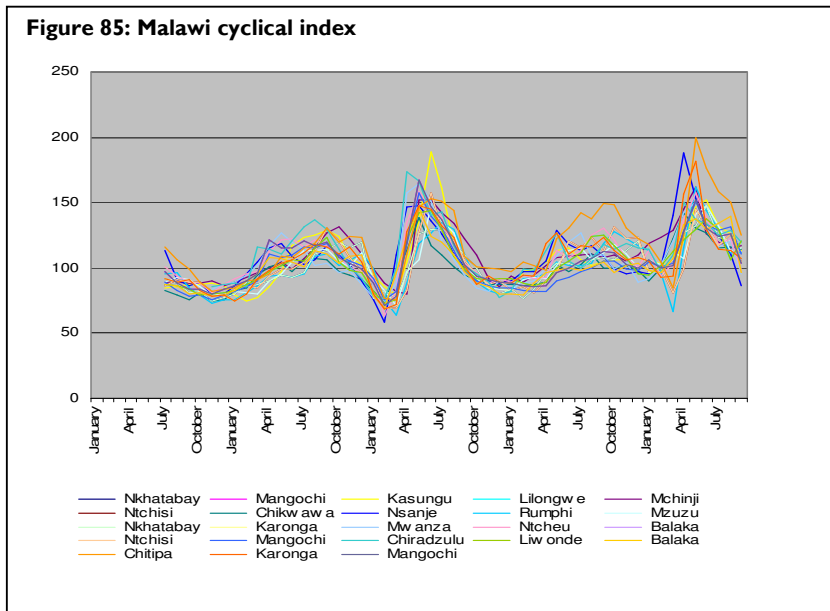


Figure 85 on the right shows that all the Malawian markets adhere to the same cyclical pattern. The analysis indicates no clear inter-annual movement in maize prices. Prices appear to return to their previous levels within one year. In addition, the cyclical pattern is the opposite of the seasonal pattern (Figure 86). Therefore, maize price fluctuations in Malawi are mainly affected by seasonal factors such as a dynamic seasonal structure in the national maize supply. These cyclical price fluctuations need to be analyzed together with the long-term price trend in the country. The results show that Malawi maize prices follow a strong upward



price trend on all markets (Figure 87). As a result, even if the cyclical index shows that prices return to their previous level within a year, long-term price dynamics demonstrate an upward trend. To illustrate the maize price trend, only one market per livelihood zone is considered in Figure 87. The choice of these markets is not because of their importance in the livelihood zones but for illustrative purposes only.

Figure 86: Seasonal and cyclical trends on Kasungu market

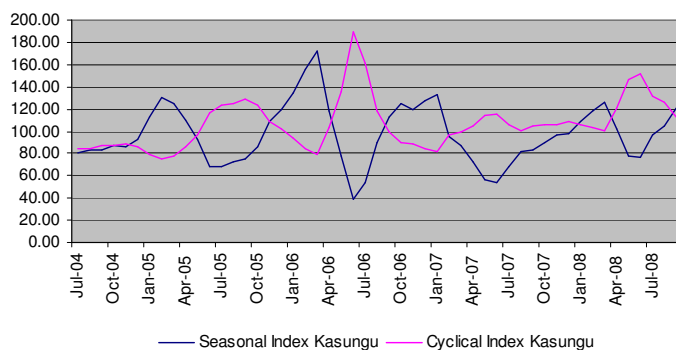
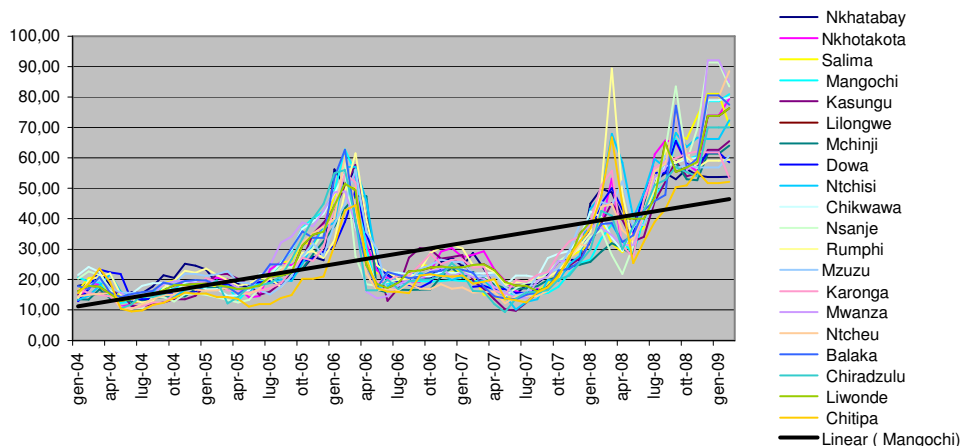


Figure 87: Price trend on maize markets

11.2 MARKET INTEGRATION WITHIN AND BETWEEN LIVELIHOOD ZONES

Market integration allows price signals to be transmitted from one market to another. The arbitration process among traders must ensure movements of goods from surplus zones to deficit ones. The price in the importing region should equal⁵¹ the price in the exporting region, augmented by transaction costs (transportation and associated fees) incurred by traders moving cereals between the two regions. When markets are integrated, prices become more stable and household food security improves as poor households can obtain food at affordable prices. It is important to keep in mind that an analysis of market integration deals with the efficiency of price transmissions from one market to another. Trade between two markets could take place without good market integration; having trade flows between markets does not mean that they are well integrated.

Market integration is assessed through price-trend analysis and the calculation of correlation coefficients. Only values above 0.60 are taken into account.⁵² For each pair of markets that displays a good coefficient of correlation, the Granger causality is estimated. Granger causality is used to analyze the direction of price transmissions in order to determine which market gives the price signals and is thus responsible for price movements in other markets. In addition, coefficients of variation (CV) are computed between livelihood-zone markets to determine if there is high price instability within the same livelihood zone. This market analysis takes into account only markets where maize prices are available from 2003 with minimum missing values; the availability of market data over a long period of time enhances the power of statistical tests.⁵³

11.2.1 Price Instability between Livelihood Zone Markets

Malawi maize prices do not greatly differ on a monthly basis between markets in the same livelihood zone and between livelihood zones. Price instability between livelihood-zone markets is determined by calculating monthly CV. Figure 88 shows the trend of CV by livelihood zone. The monthly fluctuations of CV are mostly in the horizontal band from 0 to 0.20. Therefore, the volatility between markets is smaller than the volatility within markets. This result shows that the livelihood zones are the same in terms of price instability. In addition, prices appear to have stabilized since September 2005 when compared to previous years – this could be because of relatively stable maize production (Figure 88).

The same price volatility patterns could mean that price instability is transmitted from one livelihood zone to another, and may be interpreted as an indication of market integration between Malawian livelihood zones.⁵⁴ This assumption can be tested using the Granger causality and by computing the coefficient of correlation.

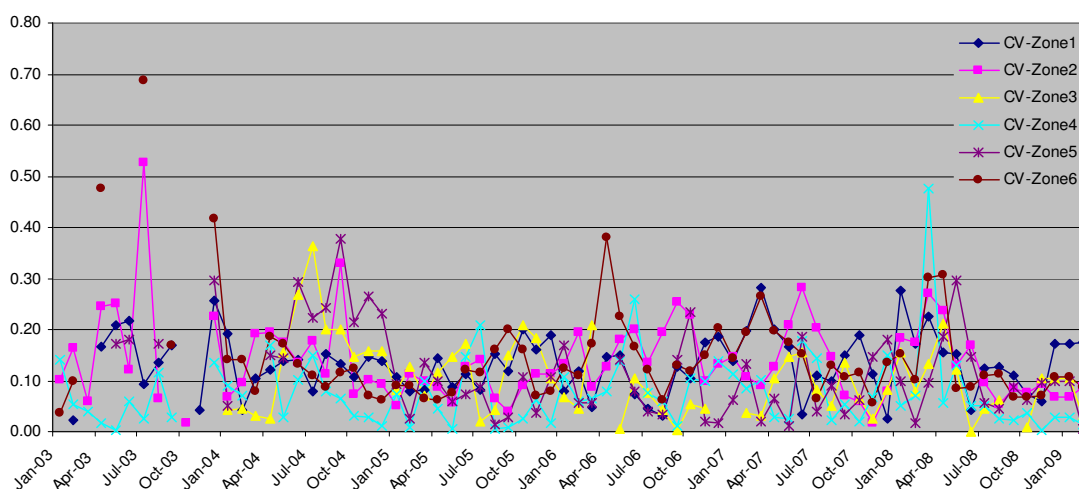
⁵¹ Markets can be integrated even if the price difference is slightly lower than transaction costs.

⁵² The coefficients of correlation can overestimate price transmission effects and thus the level of market integration; bias can occur when markets are influenced by common factors like seasonality, inflation and shocks.

⁵³ The unit root tests show that price series are integrated at first level $I(1)$, so the first differences in prices are used to compute the coefficients of correlation and to conduct Granger causality tests.

⁵⁴ Market integration could also cause transmission of price instability.

Figure 88: Trends in coefficient of variation (CV) by livelihood zone



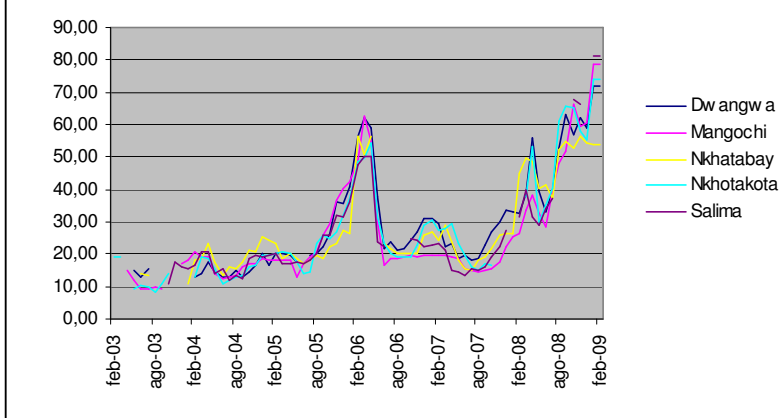
11.2.2 Market Integration by Livelihood Zone

Northern and Southern Lakeshore zone

Markets in the Northern and Southern Lakeshore zone appear to be poorly integrated. The analysis of price trends shows that there is a co-movement of prices between markets (Figure 89). Markets seem to be integrated but the graphical analysis does not address the level and direction of the price transmissions between markets.

To formulate a robust conclusion about market integration, coefficients of correlation are computed along with Granger causality tests. Granger causality is a statistical technique used to determine whether one price series is useful in forecasting another price series. This statistical test allows a determination of whether price changes follow well-defined paths – that is, whether they start around demand or production centres and then spread across the country (J. Aker, 2006).

Figure 89: Maize price trend in Northern and Southern Lakeshore



Calculation of the coefficients of correlation shows that there is not good price transmission between the main markets in the Northern and Southern Lakeshore zone (Table 41). Indeed, it is above 0.60 only between Nkhotakota and Dwangwa markets. The Granger causality test suggests that Salima is the main market for this livelihood zone. Price signals are likely transmitted as follows:

Salima to Nkhatabay, Nkhotakota, Mangochi and Dwangwa

Nkhotakota to Dwangwa

For example, a price increase of 1 in Nkhotakota market will be transmitted by 0.70 to Dwangwa market. Table 41 shows the coefficients of correlation between markets in the Northern and Southern Lakeshore zone. The yellow colour indicates a secondary market and the colour blue shows when the coefficient of correlation is equal or above 0.60.

Table 41: Correlation between maize prices in Northern and Southern Lakeshore

	Nkhata Bay	Nkhotakota	Mangochi	Salima	Dwangwa
Nkhata Bay	1.00				
Nkhotakota	0.46	1.00			
Mangochi	0.14	0.46	1.00		
Salima	0.46	0.16	0.30	1.00	
Dwangwa	0.42	0.70	0.59	0.12	1.00

Kasungu Lilongwe Plains zone

When price transmission between main markets and others is analyzed, the Kasungu Lilongwe Plains zone is well integrated. Figure 90 shows that there is price co-movement between maize prices. This could indicate a price relationship between markets. Both the coefficient of correlation and Granger causality tests were used to test this assumption.

The coefficients of correlation show that there are strong price transmissions between main markets (Table 42) in Nkhotakota-Lilongwe, Mchinji-Dowa and Ntchisi-Dowa. The Granger causality tests show that the price transmission goes from Nkhotakota to Lilongwe, Mchinji to Dowa, and Dowa to Ntchisi. For example the price change of 1 in Nkhotakota market is transmitted to Lilongwe by 0.76. Granger causality tests indicate that price transmissions could be as follows:

Mchinji to Lilongwe, Dowa, Ntchisi, Nsundwe, Mitundu, Chimbiya, Mponela, Lizulu, Mtakataka, Thete, Kasungu and Nkhoma;

Chimbiya to Lilongwe, Dowa, Ntsisi, Nkhoma, Njiri, Lizulu, Mtakataka and Kasundu; and

Mitundu to Dowa, Ntchisi, Nkhoma, Njiri, Nsundwe, Mponela, Chimbiya, Lizulu, Mtakataka and Lilongwe.

Other important markets are in Lizulu, Mtakataka and Thete.

The main markets influencing prices in the Kasungu Lilongwe Plains zone are Mchinji, Chimbiya, Mitundu, Mtakataka, Lizulu and Thete. The Mchinji market seems to influence all other markets but is not influenced by any; this market can be considered the source market for this livelihood zone. In addition, the important role played by secondary markets could illustrate their role as producer markets. Price fluctuations in Lilongwe, Dowa and Ntchisi markets appear to be caused by price transmission from other markets. Therefore, these markets can be considered consumer markets.

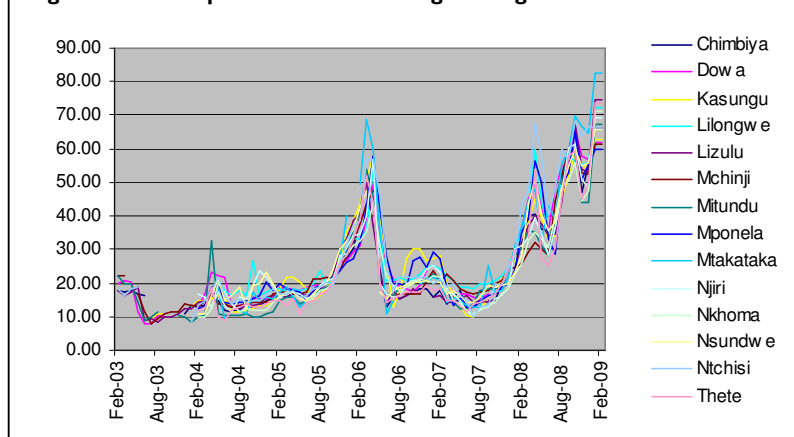
Figure 90: Maize price trends in Kasungu Lilongwe Plains


Table 42: Correlation between maize prices in Kasungu and Lilongwe Plains

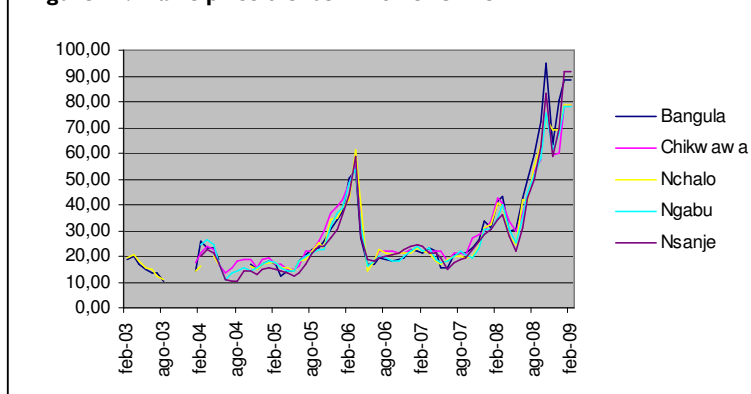
	Nkhatakota	Lilongwe	Mchinji	Dowa	Ntchisi	Nkhoma	Njiri	Nsundwe	Mitundu	Mponela	Chimbiya	Lizulu	Mtakataka	Thete
Nkhatakota	1.00													
Lilongwe	0.76	1.00												
Mchinji	0.56	0.46	1.00											
Dowa	0.49	0.51	0.67	1.00										
Ntchisi	0.48	0.57	0.47	0.75	1.00									
Nkhoma	0.63	0.54	0.69	0.64	0.38	1.00								
Njiri	0.71	0.65	0.77	0.59	0.45	0.81	1.00							
Nsundwe	0.72	0.78	0.51	0.65	0.60	0.59	0.76	1.00						
Mitundu	0.61	0.54	0.78	0.58	0.35	0.84	0.87	0.62	1.00					
Mponela	0.54	0.63	0.37		0.81	0.50	0.55	0.68	0.49	1.00				
Chimbiya	0.52	0.39	0.50	0.60	0.46	0.72	0.64	0.60	0.74	0.68	1.00			
Lizulu	0.58	0.56	0.59	0.54	0.37	0.79	0.87	0.68	0.87	0.58	0.79	1.00		
Mtakataka	0.67	0.55	0.34	0.45	0.39	0.48	0.51	0.70	0.56	0.46	0.56	0.58	1.00	
Thete	0.85	0.77	0.61	0.61	0.57	0.69	0.77	0.77	0.75	0.64	0.70	0.74	0.64	1.00

Lower Shire

Markets in the Lower Shire livelihood zone are very well integrated. Figure 91 shows the good co-movement of prices between markets. The coefficients of correlation are above 0.60 for all pairs of markets. The values of the coefficient of correlation range from 0.73 for Chikwawa-Bangula to 0.90 for Ngabu-Bangula (see Table 43).

Granger causality tests show that Bangula is the main market. A price change by 1 unit in the Bangula Market would result in a

price change of 0.73 in Chikwawa, 0.84 in Nsanje, 0.75 in Nchalo and 0.90 in Ngabu. However the direction of price transmission between Bangula and Ngabu is not clearly established: there appears to be no Granger causality between these two markets. Maize grain is likely to travel from Bangula market to other livelihood-zone markets. This market could also be the producer market.

Figure 91: Maize price trends in Lower Shire

Table 43: Coefficient of correlation between maize prices in Lower Shire

	Chikwawa	Nsanje	Nchalo	Ngabu	Bangula
Chikwawa	1.00				
Nsanje	0.85	1.00			
Nchalo	0.78	0.78	1.00		
Ngabu	0.80	0.89	0.81	1.00	
Bangula	0.73	0.84	0.75	0.90	1.00

Western Rumphu / Mzimba SS and Nkhata Bay Cassava / S. Karonga

Markets are poorly integrated in both these livelihood zones. Figure 92 shows price co-movement in each livelihood zone. Price relationships as depicted by coefficient of correlation calculations (Table 44) are significantly high only between Rumphu and Mzuzu (Western Rumphu / Mzimba SS). In addition, Granger causality tests show a 'feed-back effect'⁵⁵ between Western Rumphu and Mzimba SS. Prices in Mzuzu market seem to be influenced by prices in Rumphu and vice versa. Prices in Nkhata Bay market seem to influence prices in S. Karonga even though the coefficient of correlation between the two markets is low (0.39).

Figure 92: Maize price trends in Western Rumphu /Mzimba SS and Nkhata Bay Cassava / S. Karonga

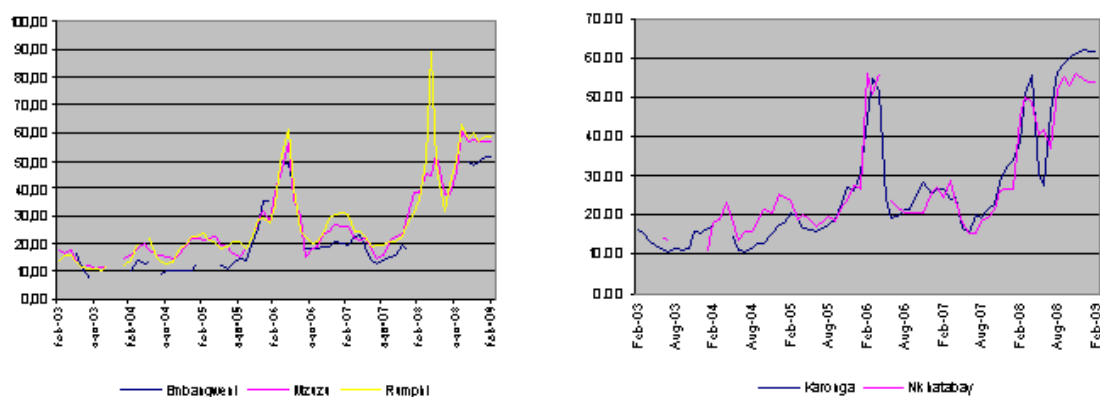


Table 44: Coefficient of correlation between maize prices in two zones

	Western Rumphu & Mzimba SS		
	Rumphu	Mzuzu	Embangweni
Rumphu	1.00		
Mzuzu	0.88	1.00	
Embangweni	0.49	0.52	1.00

	Nkhata Bay Cassava & S. Karonga	
	Nkhata Bay	Karonga
Nkhata Bay	1.00	
Karonga	0.39	1.00

⁵⁵ A feedback effect occurs when prices in one market contribute to forecasting (Granger cause) prices in a second market and vice versa; there is a reversal of effects in price relationships.

Rift Valley Escarpment

Markets in this livelihood zone appear to be quite well integrated. The price-trend analysis in Figure 93 shows some price co-movements. But the coefficients of correlation (Table 45) are above 0.60 only between Mwanza-Ntcheu (0.70), Mwanza-Salima (0.73), Mwanza-Balaka (0.73), Ntcheu-Balaka and Ntcheu-Ntchisi (0.61). Granger causality tests show that Mwanza and Balaka are the main livelihood markets. As a result, price fluctuation direction is from:

Mwanza to Ntcheu, Salima, Ntchisi and Nkhotakota; and

Balaka to Ntcheu, Ntchisi and Nkhotakota.

Figure 93: Maize price trend in Rift Valley Escarpment

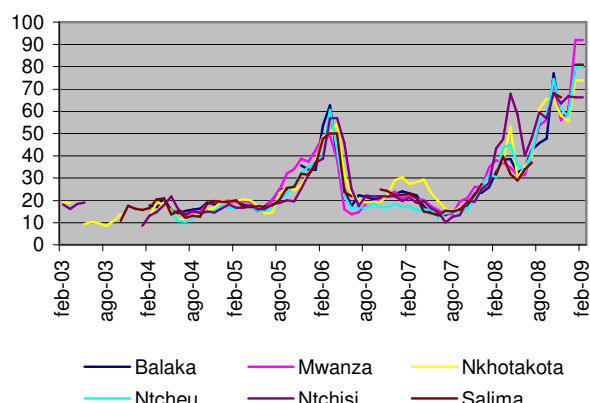


Table 45: Correlation between maize prices in Rift Valley Escarpment

	Mwanza	Ntcheu	Balaka	Salima	Ntchisi	Nkhotakota
Mwanza	1.00					
Ntcheu	0.69	1.00				
Balaka	0.78	0.77	1.00			
Salima	0.73	0.44	0.53	1.00	0.12	
Ntchisi	0.30	0.61	0.35	0.12	1.00	
Nkhotakota	0.54	0.53	0.47	0.48	0.56	1.00

Shire Highlands and Middle Shire Valley

Markets are well integrated in both of these livelihood zones and there are price co-movements within each livelihood zone (Figure 94). Granger causality tests do not show a clear pattern of price transmission between markets in these two livelihood zones. There is a feedback effect in price transmissions between Namwera and Chiradzulu in the Shire Highlands zone and between Balaka-Liwonde and Lunzu-Liwonde in the Middle Shire Valley. The coefficients of correlation (Tables 46 and 47) show weak price relationships between Chiradzulu and Mwera markets in the Shire Highlands and between Balaka and Liwonde in the Middle Shire Valley.

Figure 94: Maize price trends in the Shire Highlands and Middle Shire Valley

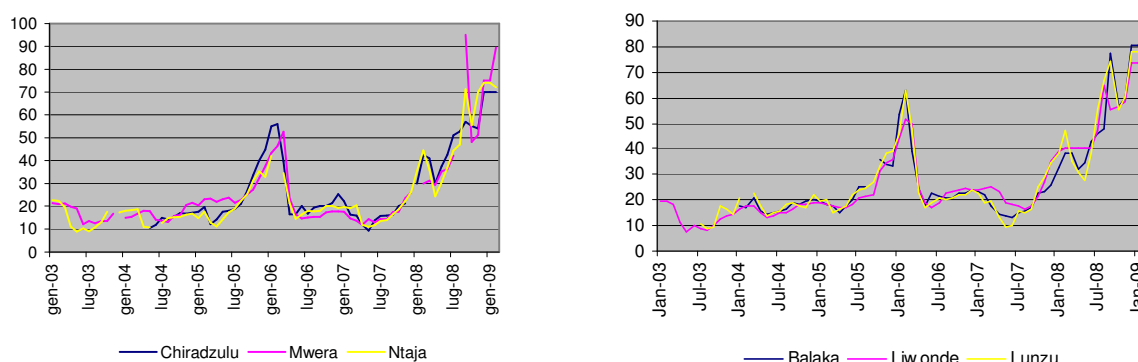


Table 46: Correlation between maize prices in the Shire Highlands

	Mangochi	Chiradzulu	Ntaja	Mwera
Mangochi	1.00			
Chiradzulu	0.77	1.00		
Ntaja	0.63	0.64	1.00	
Mwera	0.67	0.56	0.64	1.00

Table 47: Correlation between maize prices in Middle Shire Valley

	Liwonde	Balaka	Lunzu
Liwonde	1.00		
Balaka	0.34	1.00	
Lunzu	0.68	0.73	1.00

11.2.3 Market Integration between Livelihood Zones

Results show that markets are poorly integrated between livelihood zones in Malawi. For each livelihood zone, the main market identified by the Granger causality test was used in the analysis. Then, coefficients of correlation were calculated between these markets. Table 48 displays the value of these coefficients. According to this table, price transmissions are consistent only between Lilongwe and Rumphu, Bangula and Mwanza, Bangula and Balaka, Mwanza and Balaka, and Chiradzulu and Balaka. It is important to keep in mind that many livelihood zones share the same markets, which creates natural price relationships between these areas. The analysis conducted for this study did not deal with these relationships.

Table 48: Correlation of maize prices between livelihood zones

	Salima	Mchinji	Lilongwe	Bangula	Rumphi	Nkhata Bay	Mwanza	Chiradzulu	Balaka	Chitipa
Salima	1.00									
Mchinji	0.24	1.00								
Lilongwe	-0.12	0.30	1.00							
Bangula	0.45	0.30	-0.43	1.00						
Rumphi	-0.02	0.38	0.82	-0.27	1.00					
Nkhata Bay	0.49	0.17	0.23	0.15	0.20	1.00				
Mwanza	0.48	0.44	-0.18	0.76	0.01	0.08	1.00			
Chiradzulu	0.50	0.27	-0.13	0.56	0.20	0.32	0.44	1.00		
Balaka	0.48	0.40	-0.16	0.83	0.13	0.33	0.77	0.67	1.00	
Chitipa	0.12	0.44	0.68	-0.14	0.91	0.28	0.16	0.26	0.29	1.00

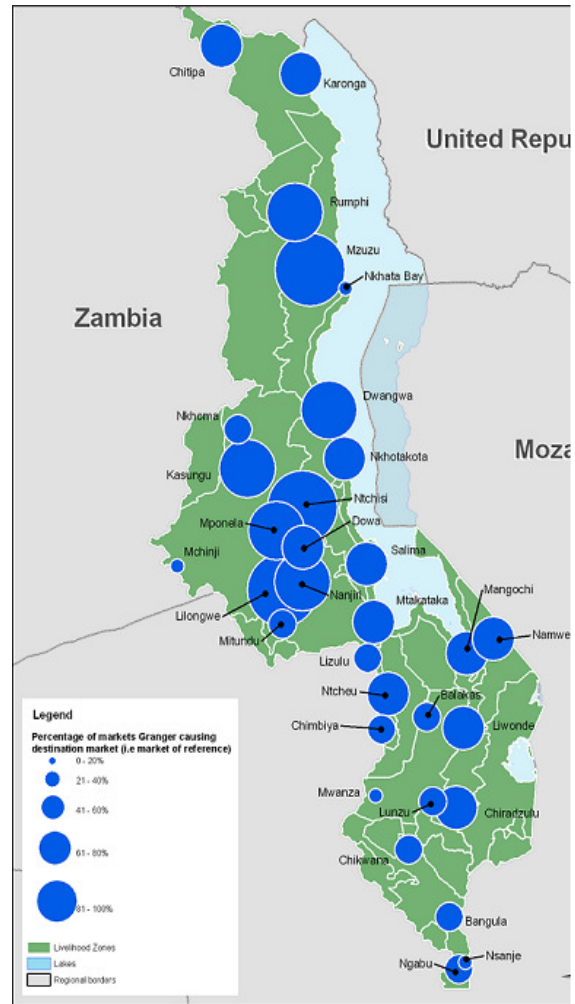
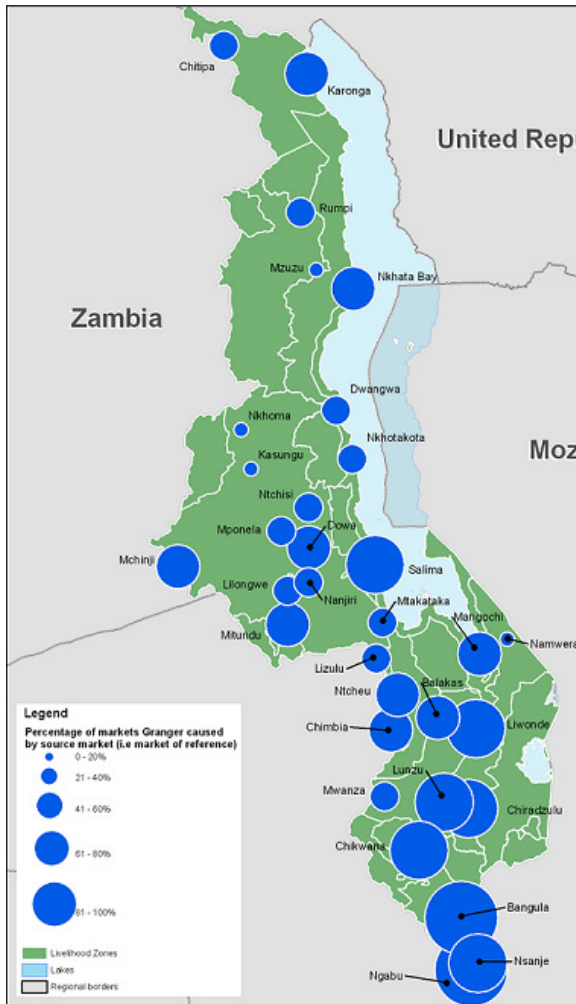
In order to better understand the market characteristics in Malawi, Granger causality tests were applied to all markets where price data was available from 2003 (38 markets).⁵⁶ The results of the analysis are mapped to better illustrate the findings. Figure 95 shows markets that forecast (Granger cause) maize prices in other markets: it indicates the percentage of markets forecasted by the market of reference (the larger the percentage, the more important the reference market). This analysis identified markets that are important for monitoring and early warning systems. For instance, Ngabu and Bangula contribute to forecasting prices in more than 80 percent of the markets analyzed (33 of 38 markets for Ngabu and 31 of 38 markets for Bangula). In terms of price forecasting in other markets, the most important markets in Malawi on the supply side appear to be Bangula, Ngabu, Nsanje, Chikwawa, Lunzu, Chiradzulu, Liwonde, and Salima. These markets need to be monitored carefully as a price shock from one of them will likely be transmitted to almost all other markets. Such markets are likely to be producer or source markets.

Figure 96 shows markets that follow price changes in other markets. The prices in these markets are influenced by price signals coming from the other markets. These 'destination' markets are likely to be consumer markets. It is also important to monitor these kinds of markets as prices are influenced by the demand present in them. For example, maize prices in Lilongwe, Ntchisi and Mzuzu follow price changes in more than 80 percent of markets analyzed (33, 31 and 33 out of 38 markets for Lilongwe, Ntchisi and Mzuzu respectively). The most important markets in terms of monitoring on the demand side appear to be Lilongwe, Ntchisi, Nanjiri, Mponela, Kasungu, Mzuzu, and Rumphi.

⁵⁶ The markets taken into account in the analysis are: Balaka, Bangula, Chikwawa, Chimbiya, Chiradzulu, Chitipa, Dowa, Dwangwa, Embangweni, Karonga, Kasungu, Lilongwe, Liwonde, Lizulu, Luchenza, Lunzu, Mangochi, Mchinji, Mitundu, Mponela, Mtakatata, Mwanza, Mzuzu, Namwera, Nanjiri, Ngabu, Nkhata bay, Nkhoma, Nkhotakota, Nsanje, Nsundwe, Ntaja, Ntchalo, Ntcheu, Ntchisi, Rumphi, Salima and Thehe.

Figure 95: Markets that forecast price changes in Rural Malawi

Figure 96: Markets that follow price changes in other markets



11.3 CROSS-BORDER AND INTERNATIONAL TRADE

Main maize markets in Malawi appear to be poorly integrated with sub-regional markets, and no price integration with the international market was observed. WFP's sub-regional informal cross-border trade bulletin for July 2009 illustrates that Malawi is mainly linked to Mozambique and the United Republic of Tanzania according to maize cross-border flows. Figures 97 and 98 show the price co-movements between Malawi markets and markets in other countries. Cross-border trade was analyzed between Malawi-Mozambique and Malawi-Tanzania. All prices were converted into US\$ to avoid bias from using different currencies. As displayed in Tables 49 and 50, cross-border price transmission appears to be relatively minor in these two cases. Coefficients of correlation between the United Republic of Tanzania (Mbeya) and Malawi (Nkhata Bay, Karonga, Chitipa) range from 0.33 (Mbeya-Karonga) to 0.57 (Mbeya-Chitipa). Between Mozambique (Lichenga) and Malawi (Lilongwe, Liwonde, Mitundu), the coefficients of correlation range from 0.35 (Mitundu-Lichenga) to 0.57 (Lilongwe-Lichenga). Malawi markets appear to be more integrated with those in Mozambique than with those in the United Republic of Tanzania.

Figure 97: Malawi and Mozambique maize price trends

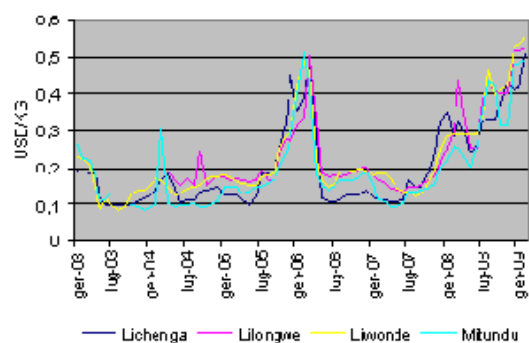


Figure 98: Malawi and the United Republic of Tanzania maize price trends

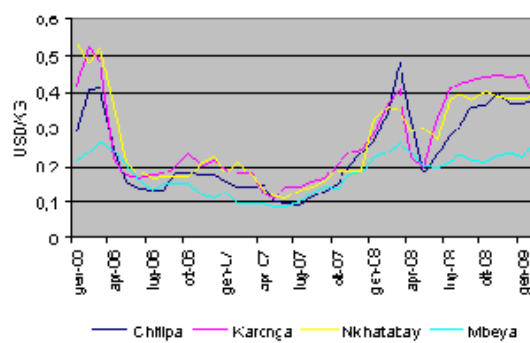


Figure 99 shows maize price trends in the two main markets in Malawi and on the international market. According to this figure, there are no price co-movements between Malawi and international markets. Malawi maize markets are not integrated into the international market.

Figure 99: Maize price trends between Malawi and the international market

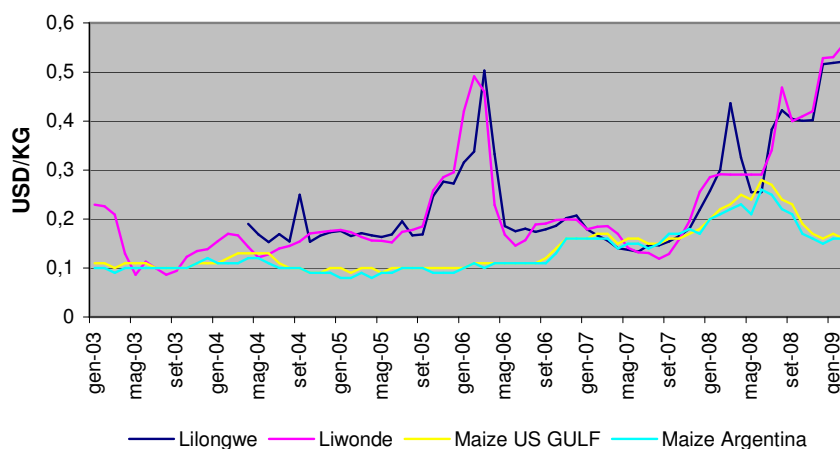


Table 49: Correlation of maize prices between Malawi and the United Republic of Tanzania

	Mbeya	Chitipa	Karonga	Nkhata Bay
Mbeya	1.00			
Chitipa	0.57	1.00		
Karonga	0.33	0.79	1.00	
Nkhata Bay	0.41	0.46	0.52	1.00

Table 50: Correlation of maize prices between Malawi and Mozambique

	Lichenga	Liwonde	Mitundu	Lilongwe
Lichenga	1.00			
Liwonde	0.46	1.00		
Mitundu	0.35	0.79	1.00	
Lilongwe	0.57	0.55	0.51	1.00

Differences between maize prices within the same livelihood zone are relatively low: monthly maize price levels within the same livelihood zone are similar from one market to another. Malawi's maize prices are highly unstable, and the level of price instability is also similar across markets. This price instability negatively impacts the food security of the population, especially the poorest households, by adding uncertainty to price anticipations. Traders are also negatively influenced by price instability.

In addition, prices in Malawi are more volatile than cross-border prices and international prices. Malawi's price instability appears to be influenced by national factors. Maize markets are fairly well integrated within livelihood zones, but poorly integrated between livelihood zones. There is also poor market integration between rural Malawi and neighbouring countries (Mozambique and the United Republic of Tanzania). In addition, there does not appear to be integration between Malawi and the international market.

The most important markets in terms of **supply** are Bangula, Ngabu, Nsanje, Chikwawa, Lunzu, Chiradzulu, Liwonde and Salima. The most important markets on the **demand** side are Lilongwe, Ntchisi, Nanjiri, Mponela, Kasungu, Mzuzu and Rumphu.

12.0 CONCLUSIONS AND RECOMMENDATIONS

12.1 CONCLUSIONS

Human and social capital

This study has shown that households in rural Malawi are composed of an average of **four members**, which is normal for the sub-Saharan region. Almost 30 percent of those households are **headed by women**. The **education** level of household heads and household composition play an important role in food security (see Chapter 10). It is interesting to note that although 62 percent of household heads are literate, about half of women heading households have never gone to school.

About 5 percent of households in rural Malawi live with at least one **chronically ill** adult member; 10 percent live with at least one **disabled** member; 12 percent have at least one single **orphan**; and 6 percent have at least one double orphan – all these factors are associated with food insecurity (see Chapter 10). In addition, 11 percent of households have at least one member who has **migrated**.

Natural capital

Since Malawi depends on rain-fed agriculture, climate change may threaten food security. The period from early December to mid-March is often called the 'hunger season', and the peak of the agricultural labour period is between October and December.

Land entitlement is an important source of livelihood because productive land may help rural households to meet food requirements and solve other economic problems. Results indicate that approximately 40 percent of households had either no land or less than 1 acre to cultivate. In the Kasungu Lilongwe Plain, the greatest number of households cultivates large plots of land, whereas in Lower Shire and Lake Chirwa / Phalombe Plain, households are more likely to cultivate small plots of land. Data showed a high level of **stability in land ownership** compared to the previous year (87 percent of household had no change in amount of land owned).

Crop diversity is one strategy for combating food insecurity at the household level (see Chapter 10). The lowest diversity can be found in Phirilongwe Hills (46 percent of households cultivate only one crop), followed by the Rift Valley (29 percent) and Lakeshore (29 percent). The highest diversity can be found in the Kasungu Lilongwe Plain (7 percent of households cultivate only one crop) and Western Rumphu / Mzimba SS (8 percent).

Data suggest that during the current year, **production** of maize and pulses had a median increase of 5 percent and 14 percent respectively.

No **irrigation** was used by 84 percent of farming households; 7 percent irrigated less than half their total land; the same percentage irrigated half or more; and only 2 percent irrigated all their land. Irrigation was least common in the Northern zones of Western Rumphu / Mzimba SS, Nkhata Bay Cassava / S. Karonga and Chitipa / NC Karonga / Misuku Hills.

For maize, 80 percent of households had access to subsidized fertilizers; **subsidies** were more moderate for beans (22 percent) and very rare for the other crops. Subsidized planting materials were accessed by 51 percent of farmers for maize but were virtually non-existent for other crops.

Physical capital

Physical capital enhances household food security and the ability to mitigate shocks. Most of the households in rural Malawi (93 percent) own their dwellings. However, few of them have permanent structures such as walls made of burnt bricks (41 percent) or roofs made of iron sheets (24 percent).

Access to safe **water and sanitation** are important development goals and are among the most basic human necessities. The results indicate that 17 percent of households still rely on water from unprotected sources and 10 percent have no toilet facilities, especially in the Central region (16 percent).

Using asset ownership and housing infrastructure, a **wealth index** (WI) was computed as a proxy of well-being. The WI showed that Kasungu Lilongwe Plain and Phirilongwe Hills are the poorest livelihood zones, while Chitipa / NC Karonga / Misuku Hills is the wealthiest, followed by Western Rumphu / Mzimba SS.

Poor-consumption households: How many are they? Where are they?

At the time of the survey, 52 percent of the households in rural Malawi had acceptable food consumption; 37 percent of households had borderline food consumption; and 11 percent had poor food consumption.

Poor-food-consumption households were found to eat mainly cereals and vegetables, and little protein. Borderline-consumption households had a richer diet than the poor-consumption group; particularly they eat pulses more often. The acceptable-consumption group showed a further increase on all food items, especially oil and animal proteins.

The prevalence of households with **poor food consumption** is highest in Lake Chirwa / Phalombe Plain and Shire Highlands (18 percent and 17 percent respectively). In the Phirilongwe Hills and Middle Shire Valley, the prevalence of poor consumption is just a little above the national average, but these zones are also distinguished by a high prevalence of **borderline consumption**, which makes their food security more tenuous. The prevalence of **acceptable consumption** is highest in Chitipa / NC Karonga / Misuku Hills (73 percent) and Nkhata Bay Cassava / S. Karonga (67 percent). These two zones are next to each other in the north-western part of the country.

The data showed that Chitipa / NC Karonga / Misuku Hills and Thyolo Mulanje Tea Estate have the most **diversified diets** whereby Middle Shire, Lake Chirwa / Phalombe Plain and Phirilongwe Hills have the lowest and the least diversified diets.

Poor-consumption households: Who are they?

The association between consumption and various household characteristics was also explored:

Households relying on **agricultural wage labour** were most likely to have poor food consumption (25 percent – 14 percentage points above the national average), followed by the households relying on non-agricultural wage labour (17 percent). Traders have the best consumption profile, followed by the salaried workers.

The prevalence of households with poor consumption is higher among households headed by **women** and **elderly people**, those with at least one **orphan**, one **chronically ill** member or the **recent death** of the household head. The presence of many dependents or an illiterate head of household also increased the probability of poor consumption.

Food consumption was lowest among the poorest households and improved as wealth increased. Households with poorer consumption tended to: i) own less land; ii) cultivate less diverse crops; iii) devote a smaller proportion of their harvests to trade; iii) rely less on their own production (especially between July and February); and iv) be less optimistic about how long their 2009 maize harvest would last. Indeed, it has been estimated that in April '10 (the month before the next harvest) 23 percent of the poor consumption households will have maize available as opposed to 27 percent of the borderline and 43 percent of the acceptable households.

Dietary diversity and sources of food

On average, all age groups eat more than two meals a day in rural Malawi. The most commonly eaten food group is cereals,⁵⁷ which are consumed at least once a week by almost all the households (99 percent). **Maize** is the most consumed food item, followed by **vegetables**; animal proteins follow at a notable distance.

The majority of respondent households produce their own food for most of the year. Households in Kasungu Lilongwe Plain produce a higher amount of maize than other zones. Vegetables are produced more in West Rumpi / Mzimba SS and in Middle Shire Valley.

Farmers' **own production** plays an important role, especially for maize. In May, farmers' own production is most important while purchase reaches its peak in February.

Malnutrition in children

Chronic malnutrition is very high in rural Malawi, with over half of under-5 children stunted. These high levels of stunting show that there has been no improvement of chronic malnutrition in the country for over three decades. A significantly high proportion of boys are more stunted than girls (62 percent vs 56 percent), reflecting long-term differences in feeding and caring practices between boys and girls. The prevalence of

⁵⁷ Cereals comprise maize, bread/wheat and other cereals.

stunting showed a peak in the children between 36-47 months. One reason could be the surplus maize production in the past three agricultural seasons; consumption patterns and feeding practices may have changed to focus on maize, which alone is not nutritious enough to meet the needs of young children and could be reflected in the high levels of stunting in those children born three years ago. The highest prevalence of chronic malnutrition (stunting) was found in Nkhata Bay Cassava / S. Karonga, where 75 percent to 100 percent of children were stunted. Children in Chitipa / NC Karonga / Misuku Hills were also likely to be stunted.

Acute malnutrition was prevalent at a low level during the study: wasting was observed in 3 percent of girls and 4 percent of boys age 6-59 months. The highest levels of wasting (it could be as high as 16 percent) were found in Chitipa / NC Karonga / Misuku Hills; the lowest prevalence was found in the Rift Valley. A rising trend in wasting was observed in the 6-23 month age group. The rising trend in this group reflects difficulties in weaning and giving appropriate and timely complementary foods to these children.

Underweight: 10 percent of girls and 12 percent of boys aged 6-59 months were found to be underweight. Differences between boys and girls regarding wasting and underweight were small and not statistically significant. When taking into account the 95% CI, the highest prevalence of underweight was found in Thyolo Mulanje Tea Estate, while the lowest prevalence of underweight was found in Kasungu / Lilongwe Plains.

Morbidity

Fever was the most common type of illness among children under 5, followed by diarrhoea and acute respiratory infection (ARI). Children in Lake Chirwa / Phalombe Plain were the most likely to have had recent fever, followed by those living in the Shire Highlands. Diarrhoea was most common among children living in the Thyolo / Mulanje Tea Estate, whereby the highest prevalence of ARI was found in the Lakeshore and Phirilongwe Hills zones. However, the analysis by livelihood zone is only indicative because of small sample sizes in some zones. Fever, diarrhoea and ARI peaked among children 6-11 months and decreased with increasing age. This is the time when children are usually weaned and are exposed to various infections.

Vitamin A

Vitamin A supplementation was provided to 93 percent of children 6-59 months in Rural Malawi in the six months prior to the study. Western Rumphu / Mzimba SS had the highest supplementation coverage, with all children provided Vitamin A supplements; this was followed by Lake Chirwa / Phalombe. The lowest levels of supplementation were found among children in Chitipa / NC Karonga / Misuku Hills and the Rift Valley.

Maternal health and nutrition

Education and wealth

The study found that number of pregnancies and birth outcomes are influenced by the level of education attained by a woman (number of pregnancies increases with a decrease in education level) and her level of wealth (women in the poorest wealth quintile tended to have the highest number of pregnancies and had a lower number of live births than women in the wealthiest quintile). In addition, the study found that maternal educational level influences children's nutritional status since there was a higher proportion of acutely malnourished children among mothers who did not attain any education.

Antenatal care

A high proportion (95 percent) of the pregnant women sampled was monitored at least once by a trained midwife, doctor, or nurse. Lakeshore had the lowest proportion of women who were monitored at least once (92 percent). Coverage of tetanus toxoid immunization was found to be high (92 percent). Low coverage (74 percent) for tetanus toxoid immunization was found among pregnant women who were not monitored by a trained midwife, doctor, or nurse during their pregnancies.

Low birth weight

Of children born in sample households, 13 percent of the girls were described as smaller than normal or very small and compared to only 10 percent of boys. Most mothers with low birth weight children lived in households headed by an illiterate head; had poor or borderline food consumption; did not wash their hands after using the toilet.

Morbidity

Fever and diarrhoea were the most common symptoms suffered by women in the two weeks prior to the survey. Women who did not attain any form of education were the most affected. Kasungu Lilongwe Plain and the Lakeshore had the highest proportion of people suffering from diarrhoea. Prevalence of fever was highest in Chitipa / NC Karonga / Misuku Hills. Poor hygiene contributed to high morbidity in these zones, as observed by relatively low use of soap when washing hands after using the toilet.

Women's nutrition status

Malnutrition is prevalent among women of reproductive age (15-49 years old) in rural Malawi. The study found that 9.2 percent of the women in the country are undernourished. Underweight and stunting are also prevalent at 9 percent and 4 percent respectively.

Shocks and coping mechanisms

A third of households reported having experienced a shock that threatened the availability and consumption of food during the 12 months preceding the survey. Almost one out of five had experienced two or three shocks. One third of the households in Middle Shire and nearly half of those in Phirilongwe experienced more shocks, averaging two or three within the specified period.

Across all livelihood zones, a negative relationship exists between food consumption and experience of shocks, implying that households with better consumption experience fewer shocks than households with poor consumption.

Despite the relatively high percentage of households with access to subsidized fertilizers and maize seeds, more than half of households (59 percent) reported high **cost of agricultural inputs** as a major shock; followed by irregular rains or drought; and illnesses and reduced income. Agricultural inputs were problems particularly in Phirilongwe and Shire Highlands.

The most common **coping strategies** included reducing meal sizes and reducing number of meals consumed in a day (these were reported by more than half of all households interviewed). Households with poorer consumption experienced severe difficulties in coping, both in terms of food availability and consumption. Across wealth categories, the coping strategies index (CSI) was highest among households with poor consumption, and it decreased with increasing wealth.

Almost one in ten households received **food assistance** during the six months before the survey. In most cases, vulnerable groups and the poorest households were prioritized in receiving food assistance. Over half of households who reported receiving food assistance mentioned the Government as the main source; a third of the households mentioned NGOs, churches and international organizations. One in ten of the surveyed households reported receiving **non-food assistance** such as medical and agricultural supplies. Vulnerable groups such as the elderly, widows and orphan-headed households were more likely to receive non-food assistance.

Underlying causes of food insecurity

The study sought to establish the underlying causes of food insecurity in rural Malawi. Several factors were found to have statistically significant impacts on household food security.

Food consumption was **negatively affected by**: (i) presence of a woman head of household; (ii) illiteracy of the head of household; (iii) high frequency of coping mechanisms (iv) absence of an irrigation system; and (v) limited crop diversification. Food consumption was **positively influenced by**: (i) migration of the head of household; (ii) large household size with high proportion of working members; (iii) high production of maize; and (iv) large area of land cultivated.

Livelihood zones: households in Chitipa / NC Karonga / Misuku Hills had higher food consumption than those in other livelihood zones throughout the country. This implies that agro-ecological factors have an impact on household food security.

Livelihood strategies: The study also established that traders, salaried workers and fishermen had significantly higher food security than agriculturalists living on food and cash crops (reference category). The multivariate analysis confirmed that households relying on agricultural wage labour consumed significantly less food than the reference group.

Markets

This analysis focused on issues of inter- and intra-annual stability and seasonality of prices. It further examined market integration and price efficiency among different livelihood zones for maize. Price stability analyses of maize showed no clear inter-annual movements as prices returned to their previous levels within one year. However, a long-term price analysis showed an upward trend. The analysis further showed that price volatility between markets is smaller than volatility within a market.

With the inter-annual food price instability at 51-70 percent, there are serious challenges for Malawi's market liberalization policy. Essentially, these data show that the private sector does not have the capacity to ensure inter-annual stable food prices in all livelihood zones across the country.

Market integration and price transmission analyses showed poor integration among different livelihood zones, thereby confirming other findings that the private sector does not have the capacity to stabilize prices across different parts of the country. However, an intra-zonal price analysis showed strong market linkages. An analysis of market linkages between Malawi and neighbouring countries such as Mozambique and the United Republic of Tanzania showed poor market linkages. This could be attributed to international trade restrictions in maize as well as inadequate private-sector capacity.

Efficiency of price transmission analyses showed that some markets act as source markets whereas others are destination markets. This means that market interventions should focus on the source market centres that are likely to transmit shocks to other markets.

12.2 RECOMMENDATIONS

Human and Social Capital

Education level of household heads and household composition play a major role in food security. About 29 percent of the households were headed by women and over half of them had never gone to school. It is important to strengthen policies that promote education in the country.

- The Government should consider introducing compulsory primary education for school-age children.
- The Government should also consider re-introducing adult-literacy programmes to increase literacy rates, especially among adult women.

Natural capital

Land helps rural households to produce food for consumption and sale in order to provide income. During the assessment, it was found that approximately 40 percent of households had either no land or land less than 1 acre to cultivate.

- Land-reform programmes that promote redistribution of land should be supported to benefit those who do not have adequate land for cultivation.
- Special emphasis should be placed on households in the Lower Shire and Lake Chirwa / Phalombe Plain zones, which have the highest proportion of households cultivating small plots of land.

Crop diversity assists in combating food insecurity at the household level, especially in the wake of the changes in climate that have been experienced frequently in recent years. Some zones have a low diversity of crops, and it is essential to intensify agricultural extension services that promote diversification of crops in order to dilute the risk of crop failure.

- The Phirilongwe Hills and Rift Valley zones require more attention in the implementation of these services.

Physical capital

Safe drinking water and good sanitation are necessary for achieving the Millennium Development Goals in the country. A community that has safe drinking water, good sanitation and good hygiene is less likely to be affected by water-borne diseases such as diarrhoea, dysentery, cholera, typhoid, worms and trachoma.

- Water and sanitation programmes should be promoted in the country, especially in the Central region.

- There is need for the Government to expand programmes and projects that provide safe water such as tap water and boreholes in communities, and to promote good hygiene practices such as use of latrines and washing hands with soap after using the toilet.

Food consumption and dietary diversity

Consumption of various types of food assists in preventing malnutrition since different foods provide different essential nutrients needed for growth and maintenance of the body. While the Lake Chirwa / Phalombe Plain zone has diversity in types of crops, consumption is not diversified and high proportion of households in this zone have poor to borderline food consumption. Middle Shire and Phirilongwe Hills have low crop diversity, low dietary diversity and a high proportion of households with poor or borderline food consumption. Promoting the cultivation of different types of food crops, and use of improved high-producing and fast-maturing crop varieties, are vital to improving food consumption.

- Agricultural extension services coupled with nutrition education should be intensified in the country with emphasis on the most affected zones. Since agriculture is one of the most important livelihoods in the country, it is important to intensify extension services that train farmers to properly calculate and keep adequate stock for consumption before selling their crops.

Child health and nutrition

Diarrhoea and acute respiratory infections (ARI) are the most common illness among children. About half of those surveyed use unsafe drinking water and one tenth do not have latrines. These conditions can lead to diarrhoea and contribute to malnutrition in children.

- There is need to strengthen water and sanitation programmes in rural Malawi in order to provide safe drinking water. Special consideration in the Kasungu Lilongwe Plain and Mulanje Thyolo Tea Estate zones is required to establish safe drinking water and sensitize the public to good hygiene practices.
- Water and sanitation programmes should also be intensified in the Lower Shire and Lake Chirwa Phalombe Plain zones.

Chronic malnutrition is very high in the country, with over half of the children under 5 stunted. The most critical age group is between 36 and 47 months. This reflects some long-term issues in feeding and caring practices as well as the prevalence of infections and diseases. No single cause can be isolated. The problem can be addressed through a multi-sectoral approach by establishing and intensifying programmes that address, prevent and treat infections and diseases, and promote good child care practices.

- Strengthening programmes aimed at improving literacy among women; educating mothers and caregivers on health, nutrition, and child-care practices; and good sanitation practices can equip mothers and caretakers with knowledge about proper child care.
- Promoting early health-seeking behaviors when a child is sick can also contribute to preventing chronic malnutrition among children.
- Authorities should establish programmes that increase the proportion of people using safe sources of drinking water in the country.
- Reviewing existing health and nutrition education packages for antenatal women, mothers and caregivers in various institutions, and providing adequate training for service-delivery personnel, could be instrumental in the fight to reduce chronic malnutrition in rural areas.

Maternal health and nutrition

The study found that level of education attained by a woman influenced her number of pregnancies. With level of education, the number of pregnancies decreased while the number of live births increased. It is prudent to strengthen policies that increase literacy, especially among women. The Government should consider introducing compulsory primary education for school-age children in the country. The Government should also consider re-introducing adult literacy programmes to increase literacy rates among adult women.

The number of pregnant women who consult a trained midwife, doctor, or nurse during pregnancy is impressive in some livelihood zones. Lakeshore zone had the lowest performance.

- It is recommended that outreach programmes within the health sector be strengthened and community sensitization carried out for women to consult a trained midwife, doctor, or nurse during pregnancy. The Government should increase the number of trained midwives and nurses to adequately implement antenatal care activities.

Prevalence of low birth weight was high. Most mothers of low birth weight children were from households headed by women, had poor or borderline food consumption, and did not wash their hands after using the toilet.

- Health education services should be strengthened in antenatal clinics. Health-surveillance assistants and other health staff should conduct home monitoring visits to pregnant women and intensify lessons on health education and hygiene practices.

Shocks and coping mechanisms

The three major reported shocks that have threatened availability of and access to food during the 12 months preceding the survey were: the high cost of agricultural inputs; drought or reduced rainfall; and illness or accident of a household member. Almost one out of five households had experienced two or three shocks within the past year.

- The Government's input subsidy programme on fertilizer and seeds should continue and expand to cover more vulnerable people in various communities. The programme should also consider including farm implements.
- To minimize the impact of drought or reduced rainfall:
 - i) Agriculture services should intensify and promote the use of improved early-maturing crop varieties and drought-tolerant crops.
 - ii) Construction of more water reservoirs and use of water from streams can assist in increasing the land area planted with irrigated crops.
 - iii) Identification of moisture-retaining fields soon after the rainy season that require little or no irrigation, and encouraging farmers to cultivate these lands, can help to minimize the impact of shocks.
 - iv) Investing in large- or small-scale irrigation schemes that benefit rural communities, such as the Government's 'Green Belt' initiatives to expand irrigation activities in areas along the lakeshore and Shire river, is essential to improving household food security and income, and minimizing the impact of shocks.

Markets

Markets play an essential role in household food security, especially for those who do not have food from their own production. Linkages exist among markets, and some markets influence the types of food commodities and prices in other markets. Market analysis assists in understanding how a price shock in one market is transmitted to other markets, and extent of this effect. It also assists in understanding the cross-border trade and price transmission from the international to the national level.

- It is essential to conduct market profiling to understand these linkages. Market profiling would enable identification of markets that influence other markets within or across livelihood zones. Any market interventions should focus on the source market centres that are likely to transmit shocks to other markets.

ANNEXES

The electronic copy of the report includes the full version of the Annexes. The hard copy includes a short version of the Annexes.

The electronic copy of the report can be downloaded at: www.wfp.org/food-security .

ANNEX I: HUMAN AND SOCIAL CAPITAL

Population by sex, region and districts (2008, 1998)

Region and District	2008 Census (de facto)			1998 Census		
	Total	Male	Female	Total	Male	Female
Malawi	13,077,160	6,358,933	6,718,227	9,933,868	4,867,563	5,066,305
Northern Region	1,708,930	829,612	879,318	1,233,560	601,752	631,808
Chitipa	178,904	86,244	92,660	126,799	60,682	66,117
Karonga	269,890	130,591	139,299	194,572	93,673	100,899
Nkhata Bay	215,789	105,016	110,773	164,761	80,107	84,654
Rumphi	172,034	84,691	87,343	128,360	63,272	65,088
Mzimba	727,931	350,956	376,975	524,014	255,439	268,575
Mzuzu City	133,968	67,197	66,771	86,980	44,848	42,132
Likoma	10,414	4,917	5,497	8,074	3,731	4,343
Central Region	5,510,195	2,707,978	2,802,217	4,066,340	2,016,166	2,050,174
Kasungu	627,467	313,082	314,385	480,659	247,850	232,809
Nkhota kota	303,659	150,833	152,826	229,460	114,847	114,613
Ntchisi	224,872	109,982	114,890	167,880	83,595	84,285
Dowa	558,470	274,192	284,278	411,387	203,828	207,559
Salima	337,895	165,015	172,880	248,214	121,994	126,220
Lilongwe Rural	1,230,834	600,326	630,508	905,889	442,338	463,551
Lilongwe City	674,448	344,890	329,558	440,471	231,516	208,955
Mchinji	456,516	227,351	229,165	324,941	164,090	160,851
Dedza	624,445	297,529	326,916	486,682	230,237	256,445
Ntcheu	471,589	224,778	246,811	370,757	175,871	194,886
Southern Region	5,858,035	2,821,343	3,036,692	4,633,968	2,249,645	2,384,323
Mangochi	797,061	380,175	416,886	610,239	293,217	317,022
Machinga	490,579	233,385	257,194	369,614	176,853	192,761
Zomba Rural	579,639	276,650	302,989	546,661	265,859	280,802
Zomba City	88,314	44,755	43,559	65,915	34,062	31,853
Chiradzulu	288,546	135,346	153,200	236,050	111,376	124,674
Blantyre Rural	340,728	164,766	175,962	307,344	150,614	156,730
Blantyre City	661,256	336,234	325,022	502,053	262,815	239,238
Mwanza	92,947	44,679	48,268	62,377	30,132	32,245
Thyolo	587,053	278,102	308,951	458,976	218,381	240,595
Mulanje	521,391	243,970	277,421	428,322	200,834	227,488
Phalombe	313,129	148,434	164,695	231,990	109,229	122,761
Chikwawa	434,648	215,598	219,050	356,682	178,217	178,465
Nsanje	238,103	115,219	122,884	194,924	94,457	100,467
Balaka	317,324	152,056	165,268	253,098	120,706	132,392
Neno	107,317	51,974	55,343	82,651	40,392	42,259

Source: 2008 and 1998 Census data (National Statistical Office, NSO)

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Population density and land area by district (1987, 1998, 2008)

Region / District	Land Area (Sq. Km.)	Population Census			Population Density		
		2008 (de-facto)	1998	1987	2008	1998	1987
Malawi	94,276	13,077,160	9,933,868	7,988,507	138.7	105.4	84.7
Northern Region	26,931	1,708,930	1,233,560	911,787	63.5	45.8	33.9
Chitipa	4,288	178,904	126,799	96,794	41.7	29.6	22.6
Karonga	3,355	269,890	194,572	148,014	80.4	58.0	44.1
Nkhata Bay	4,071	215,789	164,761	130,189	53.0	40.5	32.0
Rumphi	4,769	172,034	128,360	94,902	36.1	26.9	19.9
Mzimba	10,382	727,931	524,014	389,479	70.1	50.5	37.5
Mzuzu City	48	133,968	86,980	44,217	2791.0	1,812.1	921.2
Likoma	18	10,414	8,074	8,192	578.6	448.6	455.1
Central Region	35,592	5,510,195	4,066,340	3,110,986	154.8	114.2	87.4
Kasungu	7,878	627,467	480,659	323,453	79.6	61.0	41.1
Nkhota kota	4,259	303,659	229,460	158,044	71.3	53.9	37.1
Ntchisi	1,655	224,872	167,880	120,860	135.9	101.4	73.0
Dowa	3,041	558,470	411,387	322,432	183.6	135.3	106.0
Salima	2,196	337,895	248,214	189,173	153.9	113.0	86.1
Lilongwe Rural	5,703	1,230,834	1,346,360	976,627	215.8	236.1	171.2
Lilongwe City	456	674,448	440,471	223,318	1479.1	965.9	489.7
Mchinji	3,356	456,516	324,941	249,843	136.0	96.8	74.4
Dedza	3,624	624,445	486,682	411,787	172.3	134.3	113.6
Ntcheu	3,424	471,589	370,757	358,767	137.7	108.3	104.8
Southern Region	31,753	5,858,035	4,633,968	3,965,734	184.5	145.9	124.9
Mangochi	6,273	797,061	610,239	496,578	127.1	97.3	79.2
Machinga	3,771	490,579	369,614	301,849	130.1	98.0	80.0
Zomba Rural	2,541	579,639	480,746	398,365	228.1	189.2	156.8
Zomba City	39	88,314	65,915	43,250	2264.5	1,690.1	1,109.0
Chiradzulu	767	288,546	236,050	210,912	376.2	307.8	275.0
Blantyre Rural	1,792	340,728	307,344	256,405	190.1	171.5	143.1
Blantyre City	220	661,256	502,053	333,120	3005.7	2,282.1	1,514.2
Mwanza	2,295	92,947	63,220	60,305	40.5	27.5	26.3
Thyolo	1,715	587,053	458,976	431,157	342.3	267.6	251.4
Mulanje	2,056	521,391	428,322	419,928	253.6	208.3	204.2
Phalombe	1,394	313,129	231,990	218,134	224.6	166.4	156.5
Chikwawa	4,755	434,648	356,682	316,733	91.4	75.0	66.6
Nsanje	1,942	238,103	194,924	204,374	122.6	100.4	105.2
Balaka	2,193	317,324	253,098	213,416	144.7	115.4	97.3
Neno	1,469	107,317	74,795	61,208	73.1	50.9	41.7

Source: 2008, 1998, 1987 Census data (National Statistical Office, NSO)

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Total Number of Households and Average Number of Persons per Household by District (1987, 1998, 2008)

	2008 (estimates)	2008 (estimates)	1998	1987
	Total No of HHs	average HH size	average HH size	average HH size
Malawi	2,957,683	4.4	4.3	4.0
Northern Region	345,752	4.9	5.1	4.8
Chitipa	37,780	4.7	4.9	4.9
Karonga	57,808	4.7	4.9	5.3
Nkhata Bay	42,269	5.1	4.9	4.7
Rumphi	36,037	4.7	5.0	4.7
Mzimba	142,980	5.1	5.2	4.6
Mzuzu City	26,858	4.8	4.6	4.2
Likoma	2,020	5.2	5.2	5.3
Central Region	1,222,365	4.5	4.5	4.3
Kasungu	127,265	4.8	4.9	4.4
Nkhota kota	62,468	4.8	4.6	4.0
Ntchisi	47,428	4.7	4.7	4.6
Dowa	121,884	4.6	4.5	4.5
Salima	77,531	4.4	4.2	3.9
Lilongwe Rural	275,194	4.5	4.3	4.3
Lilongwe City	153,717	4.4	3.4	3.1
Mchinji	97,209	4.7	4.6	4.4
Dedza	145,878	4.3	4.3	4.3
Ntcheu	113,791	4.2	4.3	4.4
Southern Region	1,389,566	4.2	4.1	3.7
Mangochi	185,915	4.3	4.0	4.0
Machinga	115,136	4.2	4.1	2.4
Zomba Rural	142,394	4.1	4.0	4.0
Zomba City	19,041	4.6	4.3	4.0
Chiradzulu	71,560	4.1	4.0	4.2
Blantyre Rural	80,879	4.2	4.1	4.0
Blantyre City	154,782	4.3	4.0	3.9
Mwanza	22,018	4.3	4.3	4.3
Thyolo	142,039	4.1	4.1	4.2
Mulanje	127,417	4.1	3.9	2.7
Phalombe	76,679	4.1	3.9	4.1
Chikwawa	98,035	4.5	4.5	4.5
Nsanje	52,600	4.5	4.5	4.3
Balaka	75,656	4.2	4.2	4.1
Neno	25,415	4.3	4.2	4.1

Source: National Statistical Office, NSO. 2008 figures are estimates, not de-facto figures.

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Population (de-facto) by sex for rural and urban at national, regional and district levels (part I)

Region and District	Total			Male			Female		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Malawi	13,077,160	2,003,309	11,073,851	6,358,933	1,014,477	5,344,456	6,718,227	988,832	5,729,395
Northern Region	1,708,930	240,515	1,468,415	829,612	119,799	709,813	879,318	120,716	758,602
Chitipa	178,904	14,753	164,151	86,244	7,349	78,895	92,660	7,404	85,256
Karonga	269,890	40,334	229,556	130,591	19,905	110,686	139,299	20,429	118,870
Nkhata Bay	215,789	11,269	204,520	105,016	5,437	99,579	110,773	5,832	104,941
Rumphi	172,034	17,845	154,189	84,691	8,877	75,814	87,343	8,968	78,375
Mzimba	727,931	20,994	706,937	350,956	10,374	340,582	376,975	10,620	366,355
Likoma	10,414	1,352	9,062	4,917	660	4,257	5,497	692	4,805
Mzuzu City	133,968	133,968	-	67,197	67,197	-	66,771	66,771	-
Central Region	5,510,195	832,113	4,678,082	2,707,978	423,630	2,284,348	2,802,217	408,483	2,393,734
Kasungu	627,467	39,640	587,827	313,082	20,243	292,839	314,385	19,397	294,988
Nkhotakota	303,659	24,726	278,933	150,833	12,022	138,811	152,826	12,704	140,122
Ntchisi	224,872	7,918	216,954	109,982	4,133	105,849	114,890	3,785	111,105
Dowa	558,470	4,765	553,705	274,192	2,232	271,960	284,278	2,533	281,745
Salima	337,895	27,852	310,043	165,015	13,845	151,170	172,880	14,007	158,873
Lilongwe	1,230,834	0	1,230,834	600,326	0	600,326	630,508	0	630,508
Lilongwe City	674,448	674,448	0	344,890	344,890	0	329,558	329,558	0
Mchinji	456,516	17,881	438,635	227,351	8,810	218,541	229,165	9,071	220,094
Dedza	624,445	20,241	604,204	297,529	10,106	287,423	326,916	10,135	316,781
Ntcheu	471,589	14,642	456,947	224,778	7,349	217,429	246,811	7,293	239,518

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Population (de-facto) by sex for rural and urban at national, regional and district levels (part II)

Region and District	Total			Male			Female		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Southern Region	5,858,035	930,681	4,927,354	2,821,343	471,048	2,350,295	3,036,692	459,633	2,577,059
Mangochi	797,061	50,821	746,240	380,175	25,049	355,126	416,886	25,772	391,114
Machinga	490,579	24,147	466,432	233,385	11,654	221,731	257,194	12,493	244,701
Zomba	579,639	-	579,639	276,650	-	276,650	302,989	-	302,989
Zomba City	88,314	88,314	-	44,755	44,755	-	43,559	43,559	-
Chiradzulu	288,546	2,348	286,198	135,346	1,128	134,218	153,200	1,220	151,980
Blantyre	340,728	-	340,728	164,766	-	164,766	175,962	-	175,962
Blantyre City	661,256	661,256	-	336,234	336,234	-	325,022	325,022	-
Mwanza	92,947	14,226	78,721	44,679	7,249	37,430	48,268	6,977	41,291
Thyolo	587,053	18,589	568,464	278,102	9,213	268,889	308,951	9,376	299,575
Mulanje	521,391	14,497	506,894	243,970	7,392	236,578	277,421	7,105	270,316
Phalombe	313,129	4,935	308,194	148,434	2,529	145,905	164,695	2,406	162,289
Chikwawa	434,648	6,987	427,661	215,598	3,786	211,812	219,050	3,201	215,849
Nsanje	238,103	20,179	217,924	115,219	10,051	105,168	122,884	10,128	112,756
Balaka	317,324	22,733	294,591	152,056	11,162	140,894	165,268	11,571	153,697
Neno	107,317	1,649	105,668	51,974	846	51,128	55,343	803	54,540

Source: National Statistical Office, NSO

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Migration according to background characteristics (% HHs)

		Member migrated			
		yes (length not specified)	Yes (long-term)	Yes (short-term)	No
Rural Malawi		0.4	3.3	7.5	88.8
Gender head	Male	0.3	3.7	9.4	86.6
	Female	0.6	2.5	3.0	94.0
Region	Northern	0.1	3.3	14.1	82.5
	Central	0.2	2.0	5.7	92.0
	Southern	0.8	4.3	7.9	87.0
Livelihood Zone	Lakeshore	0.0	4.2	15.2	80.6
	Kasungu Lilongwe Plain	0.2	1.7	5.4	92.7
	Lower Shire	1.0	5.5	12.3	81.2
	Western Rumphu, Mzimba SS	0.0	3.8	13.0	83.2
	Nkhata Bay Cassava + S. Karonga	0.7	2.1	7.6	89.6
	Rift Valley	0.3	3.8	7.3	88.6
	Shire Highlands	0.6	3.3	5.5	90.6
	Lake Chirwa + Phalombe Plain	1.7	5.7	9.3	83.4
	Middle Shire Valley	1.4	0.5	5.9	92.2
	Thyolo Mulanje Tea Estate	0.0	5.1	5.1	89.8
	Chitipa + N. C. Karonga + Misuku Hills	0.0	1.1	6.0	92.8
	Phirilongwe Hills	0.0	1.3	10.8	88.0

Source: CFSVA 2009

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Reasons for migration according to background characteristics

		Reasons for migration					
		agric. work elsewhere	non-agric. work	work abroad	education	lack of land	relieve strain on HH
Rural Malawi		27.8	44.4	12.6	3.8	1.0	10.5
gender head	Male	27.9	46.5	12.8	3.3	1.0	8.5
	Female	26.8	26.9	11.3	7.5	1.1	26.4
Region	Northern	39.3	30.7	5.4	5.3	0.3	18.9
	Central	37.6	37.0	12.4	3.5	1.8	7.7
	Southern	20.8	52.6	13.5	3.2	1.2	8.7
Livelihood Zone	Lakeshore	17.2	41.4	17.2	6.9	0.0	17.2
	Kasungu Lilongwe Plain	41.7	39.6	6.2	4.2	2.1	6.2
	Lower Shire	34.0	41.5	13.2	0.0	0.0	11.3
	Western Rumpi, Mzimba SS	52.5	27.5	5.0	0.0	0.0	15.0
	Nkhata Bay Cassava + S. Karonga	13.3	46.7	6.7	0.0	6.7	26.7
	Rift Valley	18.5	48.1	18.5	3.7	3.7	7.4
	Shire Highlands	21.9	59.4	9.4	0.0	0.0	9.4
	Lake Chirwa + Phalombe Plain	15.5	50.0	15.5	3.4	1.7	13.8
	Middle Shire Valley	21.4	71.4	0.0	0.0	7.1	0.0
	Thyolo Mulanje Tea Estate	21.4	42.9	21.4	14.3	0.0	0.0
	Chitipa + N.C. Karonga + Misuku Hills	7.7	84.6	0.0	7.7	0.0	0.0
Phirilongwe Hills	28.6	57.1	14.3	0.0	0.0	0.0	

Source: CFSVA 2009

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

The highest educational level completed according to background characteristics

		highest educational level completed							
		no schooling	junior primary (Stand. 5)	senior primary (Stand. 8)	junior secondary (Form 1/2)	senior secondary (Form 3/4)	Vocational school	College/ University	NK
Rural Malawi		29.5	30.6	26	6.2	6.5	0.3	0.6	0.3
Gender head	Male	21.6	31.2	29.8	7.5	8.6	0.4	0.8	0.2
	Female	48.7	29.3	16.7	3.1	1.5	0.1	0.2	0.4
Region	Northern	15.1	20.5	40.7	11.2	10.9	0.7	0.7	0.1
	Central	29	33.6	24.7	5.3	6.6	0.3	0.4	0.1
	Southern	33.2	30.5	23.6	6	5.4	0.2	0.8	0.4
Livelihood Zone	Lakeshore	37	26.6	22.1	5.9	6.2	0.7	1.4	0
	Kasungu Lilongwe Plain	29.7	32.4	25	5.6	6.4	0.4	0.4	0.1
	Lower Shire	29.6	27.6	27.9	8	6.5	0	0.3	0
	Western Rumphu, Mzimba SS	11.4	22.2	43.9	11.4	9.8	0.5	0.5	0.3
	Nkhata Bay Cassava + S. Karonga	22.2	12.8	43.4	10.1	10.4	0.3	0.7	0
	Rift Valley	19.8	35.6	28.9	4.4	9.6	0	1.5	0.3
	Shire Highlands	35.8	28.9	23	5.1	6.1	0	0.2	0.8
	Lake Chirwa + Phalombe Plain	30.5	33.5	23.3	7	4.4	0.2	0.6	0.6
	Middle Shire Valley	34.1	30.1	26	4.6	4.6	0	0.5	0
	Thyolo Mulanje Tea Estate	30.5	34.5	22.6	7.3	3.5	0.3	1.3	0
	Chitipa + N.C. Karonga + Misuku H.	18.1	11.7	37	12.1	20	0.8	0.4	0
	Phirilongwe Hills	44.3	36.7	12	2.5	3.2	0.6	0	0.6

Source: CFSVA 2009

ANNEX II: PHYSICAL CAPITAL

Type of tenure according to background characteristics (% HHS)

		own	live for free	pay rent
Sex head	Male	93	4	3
	Female	94	5	1
Wealth Quintiles	poorest	95	4	1
	poor	96	4	0
	medium	96	3	1
	wealthy	94	4	2
	wealthiest	84	8	8
Livelihood zones	Lakeshore	91	3	5
	Kasungu Lilongwe Plain	93	4	2
	Lower Shire	94	4	2
	Western Rumphu, Mzimba SS	94	2	4
	Nkhata Bay Cassava + S. Karonga	94	4	2
	Rift Valley	92	2	6
	Shire Highlands	95	5	0
	Lake Chirwa + Phalombe Plain	92	5	3
	Middle Shire Valley	97	3	1
	Thyolo Mulanje Tea Estate	88	11	1
	Chitipa + N.C. Karonga + Misuku Hills	92	4	4
	Phirilongwe Hills	98	2	0
Region	Northern	94	3	3
	Central	93	4	3
	Southern	93	5	2
Rural Malawi		93	4	2

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Type of materials used for walls according to background characteristics (% HHs)

		burnt bricks	unburnt bricks	cement blocks	mud	wood	straw	tin	plastic
Sex head	Male	47	38	1	14	1	1	0	0
	Female	41	44	0	14	1	0	0	0
Wealth Quintiles	Poorest	8	62	0	27	2	1	0	0
	Poor	22	57	0	19	1	1	0	0
	Medium	43	42	0	13	1	1	0	0
	Wealthy	63	27	0	9	1	0	0	0
	Wealthiest	87	10	2	1	0	0	0	0
Livelihood zones	Lakeshore	55	33	0	11	0	0	0	0
	Kasungu Lilongwe Plain	32	34	0	33	0	0	0	0
	Lower Shire	44	45	3	7	0	1	0	0
	Western Rumphu, Mzimba SS	53	22	0	23	2	1	0	0
	Nkhata Bay Cassava + S. Karonga	55	26	0	12	5	2	0	0
	Rift Valley	47	46	1	6	1	0	0	0
	Shire Highlands	41	49	0	9	0	0	0	0
	Lake Chirwa + Phalombe Plain	36	63	0	1	0	0	0	0
	Middle Shire Valley	47	48	1	4	0	0	0	0
	Thyolo Mulanje Tea Estate	59	37	0	1	2	0	0	0
	Chitipa + N.C. Karonga + Misuku Hills	69	9	0	21	0	0	0	0
	Phirilongwe Hills	33	51	1	13	2	1	0	0
	Region	Northern	59	20	0	18	2	1	0
Central		35	37	0	27	1	0	0	0
Southern		44	49	1	6	1	0	0	0
Rural Malawi		45	40	0	14	1	0	0	0

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Type of materials used for roof according to background characteristics (% HHs)

		tiles	iron sheet	wood	plastic	grass/thatched	asbestos	other
Sex head	Male	0.7	25.5	0.2	0.1	73.2	0.3	0.0
	Female	0.6	21.7	0.3	0.1	77.0	0.3	0.0
Wealth Quintiles	poorest	0.0	0.0	0.1	0.0	99.9	0.0	0.0
	poor	0.1	3.1	0.1	0.5	95.4	0.7	0.0
	medium	0.3	12.5	0.3	0.0	86.5	0.3	0.0
	wealthy	1.4	29.7	0.0	0.2	68.2	0.4	0.0
	wealthiest	1.4	75.8	0.5	0.0	21.9	0.2	0.1
Livelihood zones	Lakeshore	1.4	20.7	0.0	0.0	77.6	0.3	0.0
	Kasungu Lilongwe Plain	0.0	20.4	0.3	0.2	78.7	0.4	0.0
	Lower Shire	0.0	29.6	0.3	0.0	69.9	0.3	0.0
	Western Rumpi, Mzimba SS	0.0	31.3	0.0	0.0	68.7	0.0	0.0
	Nkhata Bay Cassava + S. Karonga	0.0	21.9	0.0	0.3	77.8	0.0	0.0
	Rift Valley	1.4	29.0	0.3	0.0	69.3	0.0	0.0
	Shire Highlands	1.6	20.6	0.6	0.0	76.8	0.4	0.0
	Lake Chirwa + Phalombe Plain	0.0	22.3	0.2	0.4	76.4	0.8	0.0
	Middle Shire Valley	1.6	14.6	0.0	0.0	83.6	0.3	0.0
	Thyolo Mulanje Tea Estate	0.8	38.2	0.3	0.0	59.9	0.5	0.3
	Chitipa + N.C. Karonga + Misuku Hills	0.0	37.0	0.0	0.0	62.6	0.4	0.0
	Phirilongwe Hills	3.8	8.8	0.0	1.3	86.2	0.0	0.0
Region	Northern	0.1	29.6	0.0	0.1	70.1	0.1	0.0
	Central	0.0	21.3	0.2	0.2	78.0	0.3	0.0
	Southern	1.2	23.7	0.3	0.2	74.2	0.4	0.0
Rural Malawi		0.7	24.3	0.2	0.1	74.3	0.3	0.0

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Type of materials used for floor according to background characteristics (% HHs)

		mud/sand	cement/concrete	tiles	wood
Sex of head	Male	83.7	16.2	0.1	0.1
	Female	87.5	12.5	0.1	0.0
Wealth Quintiles	poorest	100.0	0.0	0.0	0.0
	poor	98.9	1.1	0.0	0.0
	medium	96.1	3.7	0.0	0.2
	wealthy	87.9	11.9	0.1	0.1
	wealthiest	41.7	58.0	0.3	0.0
Livelihood zones	Lakeshore	82.8	17.2	0.0	0.0
	Kasungu Lilongwe Plain	88.0	11.9	0.1	0.0
	Lower Shire	83.2	16.8	0.0	0.0
	Western Rumphu, Mzimba SS	81.4	18.3	0.3	0.0
	Nkhata Bay Cassava + S. Karonga	83.3	16.7	0.0	0.0
	Rift Valley	81.4	18.6	0.0	0.0
	Shire Highlands	88.2	11.4	0.4	0.0
	Lake Chirwa + Phalombe Plain	85.8	14.2	0.0	0.0
	Middle Shire Valley	88.1	11.6	0.0	0.3
	Thyolo Mulanje Tea Estate	81.7	18.3	0.0	0.0
	Chitipa + N.C. Karonga + Misuku Hills	76.6	23.0	0.0	0.4
	Phirilongwe Hills	89.3	10.1	0.0	0.6
Region	Northern	80.8	19.0	0.1	0.1
	Central	87.3	12.6	0.1	0.0
	Southern	85.2	14.7	0.1	0.1
Rural Malawi		84.8	15.0	0.1	0.1

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Main source of fuel for lighting according to background characteristics (% HHs)

		electricity	solar energy	gas	paraffin	charcoal	firewood	sawdust	animal dung	other
Sex of head	Male	2.1	0.5	0.1	90.5	0.6	2.2	0.5	0.0	3.4
	Female	1.2	0.1	0.5	90.8	1.0	2.9	0.8	0.0	2.7
Wealth Quintiles	poorest	0.1	0.0	0.5	86.2	1.2	5.5	1.9	0.0	4.6
	poor	0.2	0.1	0.1	91.9	0.9	2.6	0.7	0.0	3.4
	medium	0.2	0.1	0.1	95.2	0.6	1.7	0.4	0.0	1.6
	wealthy	0.4	0.0	0.1	95.0	0.3	1.1	0.0	0.0	3.1
	wealthiest	8.3	1.6	0.3	85.0	0.5	1.2	0.0	0.0	3.0
Livelihood zones	Lakeshore	3.8	0.0	0.0	89.7	1.4	2.1	0.7	0.0	2.4
	Kasungu Lilongwe Plain	1.3	0.5	0.3	88.0	1.2	1.1	0.2	0.0	7.4
	Lower Shire	2.5	0.5	0.0	86.0	0.5	6.8	0.3	0.0	3.5
	Western Rumphu, Mzimba SS	0.8	1.3	0.0	87.9	0.5	3.5	0.0	0.0	5.9
	Nkhata Bay Cassava + S. Karonga	0.7	0.3	0.3	96.2	0.3	1.4	0.7	0.0	0.0
	Rift Valley	5.2	0.0	0.6	88.4	0.3	1.7	0.3	0.0	3.5
	Shire Highlands	0.2	0.4	0.6	92.5	0.6	3.3	2.2	0.0	0.2
	Lake Chirwa + Phalombe Plain	1.3	0.2	0.4	93.8	0.0	2.1	0.0	0.0	2.3
	Middle Shire Valley	0.5	0.0	0.0	93.5	1.6	1.6	1.9	0.0	0.8
	Thyolo Mulanje Tea Estate	3.2	0.3	0.3	91.4	0.8	1.9	0.3	0.0	1.9
	Chitipa + N.C. Karonga + Misuku Hills	3.4	0.4	0.0	93.2	0.4	1.5	0.4	0.0	0.8
Phirilongwe Hills	1.3	0.0	0.0	91.8	0.6	4.4	0.6	0.0	1.3	
Region	Northern	1.5	0.7	0.1	91.9	0.5	2.2	0.4	0.0	2.8
	Central	1.6	0.4	0.4	89.0	1.1	1.1	0.2	0.0	6.2
	Southern	2.1	0.2	0.2	90.9	0.6	3.2	0.9	0.0	1.9
Rural Malawi		1.8	0.4	0.2	90.6	0.7	2.4	0.6	0.0	3.2

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Main source of fuel for cooking according to background characteristics (% HHs)

		electricity	solar energy	gas	paraffin	charcoal	firewood	sawdust	animal dung	other
Sex head	Male	0.4	0.0	0.0	0.8	2.4	95.5	0.8	0.0	0.0
	Female	0.1	0.0	0.0	0.9	1.0	97.4	0.5	0.1	0.1
Wealth Quintiles	poorest	0.0	0.0	0.0	0.4	0.8	97.0	1.6	0.0	0.1
	poor	0.0	0.0	0.0	0.7	0.6	98.1	0.4	0.1	0.0
	medium	0.0	0.0	0.0	0.6	1.0	97.8	0.6	0.0	0.0
	wealthy	0.0	0.0	0.0	1.1	1.3	97.0	0.5	0.0	0.0
	wealthiest	1.4	0.1	0.0	1.4	6.1	90.4	0.3	0.1	0.1
Livelihood zones	Lakeshore	1.4	0.0	0.0	0.3	2.4	95.5	0.3	0.0	0.0
	Kasungu Lilongwe Plain	0.1	0.0	0.0	0.6	1.4	96.4	1.4	0.0	0.1
	Lower Shire	0.3	0.0	0.0	0.8	0.8	98.2	0.0	0.0	0.0
	Western Rumpi, Mzimba SS	0.0	0.3	0.0	1.3	0.3	97.3	0.8	0.0	0.0
	Nkhata Bay Cassava + S. Karonga	0.0	0.0	0.0	0.7	1.4	97.6	0.3	0.0	0.0
	Rift Valley	0.9	0.0	0.0	0.6	8.4	89.3	0.6	0.3	0.0
	Shire Highlands	0.2	0.0	0.0	1.0	1.4	97.1	0.4	0.0	0.0
	Lake Chirwa + Phalombe Plain	0.0	0.0	0.0	2.1	2.1	95.1	0.6	0.0	0.2
	Middle Shire Valley	0.0	0.0	0.0	0.3	1.6	97.6	0.3	0.3	0.0
	Thyolo Mulanje Tea Estate	1.1	0.0	0.0	0.8	2.7	94.4	1.1	0.0	0.0
	Chitipa + N. C. Karonga + Misuku Hills	0.0	0.0	0.0	0.8	1.5	97.7	0.0	0.0	0.0
Phirilongwe Hills	0.0	0.0	0.0	0.6	0.0	97.5	1.9	0.0	0.0	
Region	Northern	0.0	0.1	0.0	0.9	1.0	97.6	0.4	0.0	0.0
	Central	0.2	0.0	0.0	0.5	1.7	96.1	1.3	0.1	0.1
	Southern	0.4	0.0	0.0	1.0	2.4	95.5	0.5	0.0	0.0
Rural Malawi		0.3	0.0	0.0	0.9	2.0	96.1	0.7	0.0	0.0

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Type of toilet facilities according to background characteristics (% HHs)

		flush latrine with water	traditional pit latrine	ventilated improved pit latrine	(partly) open pit	none/bush/forest
Sex of head	Male	1.5	85.1	4.2	0.9	8.2
	Female	1.5	83.2	3.9	1.1	10.3
Wealth Quintiles	Poorest	0.8	75.5	3.7	1.5	18.4
	Poor	0.7	82.0	3.5	1.6	12.2
	Medium	1.3	86.9	2.5	0.7	8.6
	Wealthy	0.8	91.4	3.8	0.4	3.6
	Wealthiest	3.9	86.4	7.4	0.6	1.6
Livelihood zones	Lakeshore	3.1	81.4	2.1	0.0	13.4
	Kasungu Lilongwe Plain	2.1	72.7	7.5	2.7	15.1
	Lower Shire	1.5	83.5	4.5	0.3	10.3
	Western Rumphu, Mzimba SS	0.5	90.6	1.3	0.3	7.3
	Nkhata Bay Cassava + S. Karonga	1.4	84.4	2.1	1.4	10.8
	Rift Valley	1.2	75.7	15.7	1.7	5.8
	Shire Highlands	1.2	91.9	1.6	0.6	4.7
	Lake Chirwa + Phalombe Plain	2.1	87.0	2.8	0.2	7.9
	Middle Shire Valley	0.0	90.3	1.6	0.8	7.3
	Thyolo Mulanje Tea Estate	1.9	95.4	0.0	0.3	2.4
	Chitipa + N.C. Karonga + Misuku Hills	1.5	92.1	1.5	0.0	4.9
	Phirilongwe Hills	0.0	89.9	4.4	0.0	5.7
Region	Northern	1.0	88.9	1.7	0.5	8.0
	Central	2.1	71.1	9.2	2.5	15.1
	Southern	1.4	89.3	2.7	0.4	6.2
Rural Malawi		1.5	84.5	4.1	1.0	8.8

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Main source of water and availability according to background characteristics (% HHs)

		pipied water in	communal standpipe	protected well	unprotected well	river water from tank	river, stream of dam	other	available all year
Sex head	Male	3.4	72.1	5.4	14.2	0.3	4.4	0.2	90.5
	Female	2.2	75.9	5.3	12.3	0.3	3.7	0.3	90.5
Wealth Quintiles	Poorest	0.9	69.5	3.9	20.2	0.5	4.5	0.4	86.8
	Poor	1.1	72.8	4.2	16.8	0.3	4.6	0.2	90.2
	Medium	1.8	77.1	4.4	11.4	0.5	4.6	0.2	91.3
	Wealthy	2.1	77.2	4.8	11.1	0.2	4.6	0.0	91.8
	Wealthiest	9.0	70.5	9.0	8.7	0.0	2.7	0.2	92.0
Livelihood zones	Lakeshore	5.9	80.3	4.1	6.6	0.3	1.7	1.0	84.5
	Kasungu Lilongwe Plain	1.1	56.5	6.7	31.0	0.6	3.7	0.4	82.3
	Lower Shire	1.8	86.7	2.3	7.3	0.0	2.0	0.0	98.2
	Western Rumphu, Mzimba SS	0.8	79.2	5.1	4.6	0.0	10.2	0.0	94.1
	Nkhata Bay Cassava + S. Karonga	2.4	59.0	17.7	13.5	0.0	7.3	0.0	96.9
	Rift Valley	4.3	81.2	5.2	6.7	0.0	2.0	0.6	91.3
	Shire Highlands	0.8	85.7	2.4	8.4	0.4	2.4	0.0	94.3
	Lake Chirwa + Phalombe Plain	4.5	78.3	2.5	10.9	0.0	3.8	0.0	86.0
	Middle Shire Valley	2.2	84.9	1.9	5.4	1.1	4.6	0.0	91.4
	Thyolo Mulanje Tea Estate	7.5	58.9	6.2	22.3	0.5	4.6	0.0	96.2
	Chitipa + N.C. Karonga + Misuku Hills	8.7	72.5	10.2	1.9	0.4	6.4	0.0	95.5
Phirilongwe Hills	0.6	78.6	3.1	12.6	0.0	4.4	0.6	89.9	
Region	Northern	3.3	72.0	10.2	6.5	0.1	7.9	0.0	94.7
	Central	1.9	61.7	5.9	26.5	0.5	3.1	0.5	81.7
	Southern	3.4	79.3	3.2	10.2	0.3	3.3	0.2	93.1
Rural Malawi		3.0	73.3	5.4	13.6	0.3	4.2	0.2	90.5

ANNEX III: NATURAL CAPITAL

Households with land according to background characteristics (% HHs)

	Have land to cultivate
Livelihood zones	
Lakeshore	96%
Kasungu Lilongwe Plain	99%
Lower Shire	95%
Western Rumphu, Mzimba SS	99%
Nkhata Bay Cassava + S. Karonga	97%
Rift Valley	96%
Shire Highlands	98%
Lake Chirwa + Phalombe Plain	97%
Middle Shire Valley	99%
Thyolo Mulanje Tea Estate	98%
Chitipa + N. C. Karonga + Misuku Hills	98%
Phirilongwe Hills	99%
Livelihood groups	
Agriculturalists (food crops)	100%
Agriculturalists (cash & food crops)	100%
Agric wage labourers	98%
Traders	93%
Salaried	88%
Self-employed	92%
Non agric wage labourers	98%
Brewers	100%
Petty traders	96%
Fishermen	94%
Agro-pastorals	97%
Artisans	95%
Others	90%
wealth quintiles	
Poorest	98%
Poor	98%
Medium	99%
Wealthy	98%
Wealthiest	96%
food consumption groups	
Poor	97%
Borderline	99%
Acceptable	97%
any CI or disabled member	
No	98%
Yes	98%
female headed household	
MHH	98%
FHH	98%
elderly headed household	
not old	98%
Head 60+ years	98%
member died	
No	98%
Yes	98%
main earner died	
No	98%
Yes	97%
	Rural Malawi
	98%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Quantity of land cultivated in 07/08 season according to background characteristics (% HHHs)

		How much land cultivated in 07/08 season?					
		did not cultivate	<0.5 acre	0.5 to 1 acre	1-2 acres	2-4 acres	4 acres or more
Livelihood zones	Lakeshore	1%	12%	31%	37%	13%	6%
	Kasungu Lilongwe Plain	1%	3%	21%	37%	27%	11%
	Lower Shire	4%	15%	47%	22%	9%	3%
	Western Rumpfi, Mzimba SS	2%	5%	25%	39%	21%	8%
	Nkhata Bay Cassava + S. Karonga	4%	3%	33%	41%	13%	5%
	Rift Valley	2%	13%	30%	35%	15%	5%
	Shire Highlands	3%	7%	32%	37%	16%	4%
	Lake Chirwa + Phalombe Plain	4%	12%	39%	32%	10%	3%
	Middle Shire Valley	1%	11%	28%	37%	19%	3%
	Thyolo Mulanje Tea Est	2%	17%	36%	27%	12%	6%
	Chitipa + N.C. Karonga + Misuku H.	3%	4%	31%	43%	19%	1%
	Phirilongwe Hills	1%	11%	25%	36%	20%	7%
Livelihood groups	Agriculturalists (food crops)	1%	10%	34%	36%	15%	4%
	Agriculturalists (cash & food crops)	1%	2%	18%	34%	31%	15%
	Agric wage labourers	2%	14%	33%	39%	11%	2%
	Traders	6%	7%	20%	36%	22%	9%
	Salaried	6%	12%	35%	31%	14%	2%
	Self-employed	4%	9%	23%	41%	15%	8%
	Non agric wage labourers	5%	11%	43%	32%	6%	3%
	Brewers	3%	10%	28%	41%	16%	3%
	Petty traders	4%	15%	39%	30%	9%	2%
	Fishermen	1%	11%	35%	40%	13%	0%
	Agro-pastorals	1%	3%	29%	30%	27%	10%
	Artisans	5%	12%	35%	32%	16%	1%
Others	13%	16%	39%	24%	6%	2%	
wealth quintiles	Poorest	2%	14%	34%	36%	10%	4%
	Poor	2%	9%	34%	36%	18%	3%
	Medium	3%	9%	31%	35%	16%	5%
	Wealthy	2%	6%	28%	36%	22%	7%
	Wealthiest	2%	5%	19%	32%	26%	16%
FC groups	Poor	3%	12%	35%	36%	12%	2%
	Borderline	2%	10%	31%	33%	18%	5%
	Acceptable	2%	7%	26%	36%	20%	9%
any CI/disabled	No	2%	8%	30%	35%	19%	6%
	Yes	2%	9%	26%	36%	17%	9%
female headed HH	MHH	2%	7%	28%	35%	20%	8%
	FHH	2%	12%	33%	36%	14%	4%
elderly headed HH	not old	2%	8%	30%	35%	18%	7%
	Head 60+ years	1%	10%	28%	35%	18%	7%
member died	No	2%	8%	29%	35%	18%	7%
	Yes	2%	10%	30%	33%	19%	6%
main earner died	No	2%	8%	29%	35%	19%	7%
	Yes	2%	10%	31%	36%	13%	7%
	Rural Malawi	2%	8%	29%	35%	18%	7%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Households by quantity of land cultivated in 08/09 season according to background characteristics (% HHs)

	how much land cultivated in 08/09 season?						
	did not cultivate	<0.5 acre	0.5 to 1 acre	1-2 acres	2-4 acres	4 acres or more	
Livelihood zones	Lakeshore	3%	12%	31%	37%	14%	4%
	Kasungu Lilongwe Plain	0%	3%	20%	40%	27%	9%
	Lower Shire	3%	12%	49%	25%	9%	2%
	Western Rumphu, Mzimba SS	1%	6%	23%	38%	22%	9%
	Nkhata Bay Cassava + S. Karonga	0%	4%	32%	43%	15%	5%
	Rift Valley	1%	13%	31%	36%	14%	5%
	Shire Highlands	2%	8%	31%	38%	17%	4%
	Lake Chirwa + Phalombe Plain	3%	12%	40%	31%	11%	3%
	Middle Shire Valley	1%	12%	28%	37%	19%	2%
	Thyolo Mulanje Tea Est	1%	18%	36%	26%	13%	6%
	Chitipa + N. and C. Karonga + Misuku Hills	1%	4%	31%	45%	18%	1%
	Phirilongwe Hills	1%	11%	23%	37%	22%	5%
Livelihood groups	Agriculturalists (food crops)	0%	10%	34%	38%	14%	4%
	Agriculturalists (cash & food crops)	0%	2%	17%	36%	32%	12%
	Agric wage labourers	2%	14%	32%	38%	13%	2%
	Traders	4%	11%	19%	36%	22%	7%
	Salaried	1%	13%	36%	33%	16%	1%
	Self-employed	1%	6%	24%	46%	16%	6%
	Non agric wage labourers	1%	14%	45%	32%	7%	1%
	Brewers	2%	8%	32%	39%	16%	3%
	Petty traders	3%	14%	42%	31%	9%	1%
	Fishermen	4%	13%	29%	41%	12%	0%
	Agro-pastorals	2%	2%	28%	30%	27%	11%
	Artisans	4%	12%	29%	36%	18%	1%
	Others	10%	16%	36%	31%	6%	2%
wealth quintiles	poorest	2%	14%	34%	36%	11%	2%
	poor	1%	9%	34%	38%	17%	3%
	medium	1%	8%	34%	37%	16%	4%
	wealthy	1%	6%	27%	37%	23%	6%
	wealthiest	1%	6%	18%	33%	28%	14%
food consumption groups	poor	1%	12%	35%	38%	12%	2%
	borderline	2%	9%	32%	34%	18%	4%
	acceptable	1%	7%	26%	37%	21%	8%
	Rural Malawi	1%	9%	29%	36%	19%	6%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Households by change in the amount of land cultivated according to background characteristics (% HHs)

Livelihood zones	change in land cultivated		
	decreased in 08/09	no change	increased in 08/09
Lakeshore	9%	85%	6%
Kasungu Lilongwe Plain	8%	86%	6%
Lower Shire	6%	83%	11%
Western Rumphi, Mzimba SS	3%	91%	6%
Nkhata Bay Cassava + S. Karonga	5%	84%	10%
Rift Valley	8%	84%	8%
Shire Highlands	5%	89%	6%
Lake Chirwa + Phalombe Plain	5%	87%	7%
Middle Shire Valley	7%	88%	5%
Thyolo Mulanje Tea Est	3%	91%	6%
Chitipa + N. and C. Karonga + Misuku Hills	4%	89%	7%
Phirilongwe Hills	4%	94%	2%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Main crops by livelihood zone (multiple response analysis: N, % of responses and % cases) – part one

		Maize	Sorghum	Millet	Wheat	Cassava	Potatoes	Yam	Beans	Groundnuts	S.Beans
Lakeshore	N	310	7	7	2	149	73	2	12	73	4
	% resp.	38%	1%	1%	0%	18%	9%	0%	2%	9%	1%
	% HHs	90%	2%	2%	1%	43%	21%	1%	4%	21%	1%
Kasungu Lilongwe Plain	N	1587	19	6		110	468	5	390	1047	554
	% resp.	30%	0%	0%		2%	9%	0%	7%	20%	11%
	% HHs	99%	1%	0%		7%	29%	0%	24%	66%	35%
Lower Shire	N	220	146	32	6	10	34		39	39	3
	% resp.	33%	22%	5%	1%	2%	5%		6%	6%	0%
	% HHs	79%	52%	11%	2%	4%	12%		14%	14%	1%
Western Rumphu, Mzimba SS	N	260	12	22	1	90	82		59	135	81
	% resp.	30%	1%	3%	0%	11%	10%		7%	16%	9%
	% HHs	100%	4%	8%	0%	35%	32%		23%	52%	31%
Mkhala Bay Cassava + S. Karonga	N	46		1		37	13	0	5	6	1
	% resp.	34%		1%		28%	10%	0%	4%	4%	1%
	% HHs	94%		1%		76%	27%	1%	10%	12%	3%
Rift Valley	N	335	5	10		15	56		75	92	19
	% resp.	45%	1%	1%		2%	8%		10%	12%	3%
	% HHs	99%	2%	3%		5%	17%		22%	27%	6%
Shire Highlands	N	652	127	44	4	119	103	1	153	223	28
	% resp.	35%	7%	2%	0%	6%	6%	0%	8%	12%	2%
	% HHs	99%	19%	7%	1%	18%	16%	0%	23%	34%	4%
Lake Chirwa + Phalombe Plain	N	576	143	45	6	94	83		138	98	29
	% resp.	36%	9%	3%	0%	6%	5%		9%	6%	2%
	% HHs	99%	25%	8%	1%	16%	14%		24%	17%	5%
Middle Shire Valley	N	157	23	4	1	12	12		21	31	6
	% resp.	45%	7%	1%	0%	4%	4%		6%	9%	2%
	% HHs	100%	15%	3%	1%	8%	8%		13%	19%	4%
Thyolo Mulanje Tea Est	N	323	15	35		142	47		175	49	24
	% resp.	37%	2%	4%		16%	5%		20%	6%	3%
	% HHs	98%	5%	11%		43%	14%		53%	15%	7%
Chitipa + N.C. Karonga + Misuku H.	N	75		3		30	27	1	27	24	11
	% resp.	34%		1%		14%	12%	0%	12%	11%	5%
	% HHs	97%		4%		39%	35%	1%	35%	31%	14%
Phirilongwe Hills	N	82	4	4		4	3		3	22	1
	% resp.	56%	3%	3%		3%	2%		2%	15%	0%
	% HHs	99%	5%	5%		5%	4%		3%	27%	1%
Rural Malawi	N	4624	502	213	20	813	1002	10	1097	1838	760
	% resp.	34%	4%	2%	0%	6%	7%	0%	8%	14%	6%
	% HHs	97%	11%	5%	0%	17%	21%	0%	23%	39%	16%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Main crops cultivated by livelihood zone (multiple response analysis: N, % of responses and % cases) – part two

		LeafyVegs	Tobacco	Pepper	Tomatoes	Cotton	Sugcane	Banana	Rice	Eggplants	Okra	Onion	Palmnuts/oil	Coffee	Cocoa
Lakeshore	N	41	11	4	4	30	2	5	74						
	% resp.	5%	1%	1%	1%	4%	0%	1%	9%						
	% HHs	12%	3%	1%	1%	9%	1%	1%	22%						
Kasungu Lilongwe Plain	N	249	704	8	47	2	44	8	15	6	13	2	2		
	% resp.	5%	13%	0%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	
	% HHs	16%	44%	1%	3%	0%	3%	1%	1%	0%	1%	0%	0%		
Lower Shire	N	28	2		6	73	1		22		1			1	
	% resp.	4%	0%		1%	11%	0%		3%		0%			0%	
	% HHs	10%	1%		2%	26%	1%		8%		1%			0%	
Western Rumphu, Mzimba SS	N	7	84	5	3			1	14			1		1	
	% resp.	1%	10%	1%	0%			0%	2%			0%		0%	
	% HHs	3%	32%	2%	1%			0%	6%			0%		1%	
Mkhala Bay Cassava + S. Karonga	N	4	3	0	1			1	16						0
	% resp.	3%	2%	0%	0%			1%	12%						0%
	% HHs	8%	5%	0%	1%			3%	33%						1%
Rift Valley	N	37	15		8	57	6	6	6	3	4				
	% resp.	5%	2%		1%	8%	1%	1%	1%	0%	1%				
	% HHs	11%	5%		2%	17%	2%	2%	2%	1%	1%				
Shire Highlands	N	188	124	7	16	23	12	3	40	1	3	3	4		1
	% resp.	10%	7%	0%	1%	1%	1%	0%	2%	0%	0%	0%	0%	0%	0%
	% HHs	29%	19%	1%	2%	3%	2%	0%	6%	0%	0%	0%	1%	0%	0%
Lake Chirwa + Phalombe Plain	N	120	56	2	16		5	3	157	2	9	1	6		
	% resp.	8%	4%	0%	1%		0%	0%	10%	0%	1%	0%	0%		
	% HHs	21%	10%	0%	3%		1%	1%	27%	0%	2%	0%	1%		
Middle Shire Valley	N	25	2		5	40	0	0	3	2	3				
	% resp.	7%	1%		2%	12%	0%	0%	1%	1%	1%				
	% HHs	16%	1%		3%	25%	0%	0%	2%	1%	2%				
Thyolo Mulanje Tea Estate	N	20		1	1	2	3	30	5		4			6	1
	% resp.	2%		0%	0%	0%	0%	3%	1%		0%			1%	0%
	% HHs	6%		0%	0%	1%	1%	9%	2%		1%			2%	0%
Chitipa + N. C. Karonga + Misuku H.	N	9	8					1	6						2
	% resp.	4%	4%					0%	3%						1%
	% HHs	12%	11%					1%	7%						2%
Phirilongwe Hills	N	3	5	3	2	13			1		1				
	% resp.	2%	3%	2%	1%	9%			0%		0%				
	% HHs	3%	6%	3%	2%	15%			1%		1%				
Rural Malawi	N	731	1013	30	108	239	74	58	359	15	37	6	14	8	2
	% resp.	5%	8%	0%	1%	2%	1%	0%	3%	0%	0%	0%	0%	0%	0%
	% HHs	15%	21%	1%	2%	5%	2%	1%	8%	0%	1%	0%	0%	0%	0%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Main crops by livelihood group (multiple response analysis: N and % of responses) – part one

		CROPS									
		Maize	Cassava	Potatoes	groundnuts	Sorghum	Millet	Wheat	Yam	Beans	Soya Beans
Agriculturalists (food crops)	N	1516	282	250	469	164	63	6	5	337	183
	% responses	39%	7%	6%	12%	4%	2%	0%	0%	9%	5%
Agriculturalists (cash & food crops)	N	1256	220	344	671	79	55	2		312	322
	% responses	28%	5%	8%	15%	2%	1%	0%		7%	7%
Agric wage labourers	N	321	53	70	97	55	18	2		62	37
	% responses	38%	6%	8%	11%	6%	2%	0%		7%	4%
Traders	N	114	16	34	36	8	6			35	14
	% responses	38%	5%	11%	12%	3%	2%			12%	5%
Salaried	N	205	35	50	79	20	10			60	36
	% responses	36%	6%	9%	14%	4%	2%			11%	6%
Self-employed	N	133	25	32	57	14	5			40	19
	% responses	34%	6%	8%	14%	4%	1%			10%	5%
Non agric wage labourers	N	185	29	37	64	20	11	2		42	28
	% responses	38%	6%	8%	13%	4%	2%	0%		9%	6%
Brewers	N	167	21	45	75	15	7	1	2	33	31
	% responses	36%	5%	10%	16%	3%	2%	0%	0%	7%	7%
Petty traders	N	279	41	44	109	44	17	1	3	74	29
	% responses	36%	5%	6%	14%	6%	2%	0%	0%	10%	4%
Fishermen	N	124	39	29	33	24	10	2		23	5
	% responses	36%	11%	9%	10%	7%	3%	1%		7%	1%
Agro-pastorals	N	154	20	43	83	27	8	3		39	40
	% responses	31%	4%	9%	17%	6%	2%	1%		8%	8%
Artisans	N	100	17	19	48	19	1			25	11
	% responses	35%	6%	7%	17%	6%	1%			9%	4%
Others	N	65	13	6	19	14	4	1		14	6
	% responses	41%	8%	4%	12%	9%	2%	1%		9%	4%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Main crops by livelihood group (multiple response analysis: N and % of responses) – part two

		eggs/Eggplant	Leafy vegg	Tobacco	Okra	Onion	Pepper	Tomatoes	Cocoa	Coffee	Cotton	Palm nuts/oil	Sugarcane	Banana	Rice
Agriculturalists (food crops)	N	3	236	126	14	1	13	38	2	1	39	6	20	21	119
	% resp.	0%	6%	3%	0%	0%	0%	1%	0%	0%	1%	0%	1%	1%	3%
Agriculturalists (cash & food crops)	N	1	186	714	5	4	13	49		7	142	3	28	16	107
	% resp.	0%	4%	16%	0%	0%	0%	1%		0%	3%	0%	1%	0%	2%
Agric wage labourers	N		58	37	4		0	2			2		3	5	25
	% resp.		7%	4%	1%		0%	0%			0%		0%	1%	3%
Traders	N		17	7	2			3			2		1	1	6
	% resp.		6%	2%	1%			1%			1%		0%	0%	2%
Salaried	N	2	28	23			1				4			2	10
	% resp.	0%	5%	4%			0%				1%			0%	2%
Self-employed	N	1	28	13	3			1			9		2	1	12
	% resp.	0%	7%	3%	1%			0%			2%		1%	0%	3%
Non agric wage labourers	N	0	33	19	1		1				5	1	3		8
	% resp.	0%	7%	4%	0%		0%				1%	0%	1%		2%
Brewers	N	3	26	19	3	1		3			2	2	2	1	6
	% resp.	1%	6%	4%	1%	0%		1%			0%	0%	0%	0%	1%
Petty traders	N	2	53	23	4			3			11	2	4	6	19
	% resp.	0%	7%	3%	1%			0%			1%	0%	1%	1%	2%
Fishermen	N		15	4							6		1	1	27
	% resp.		4%	1%							2%		0%	0%	8%
Agro-pastorals	N	2	23	18	2			4			10		8	2	9
	% resp.	0%	5%	4%	0%			1%			2%		2%	0%	2%
Artisans	N	2	24	8			1	4			3		2	2	5
	% resp.	1%	8%	3%			1%	1%			1%		1%	1%	2%
Others	N		5	2							4				7
	% resp.		3%	1%							3%				5%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

1st crop cultivated according to background characteristics (% HHs)

		1st CROP cultivated								
		Maize	Sorghum	Cassava	Potatoes	Gnuts	Soya Beans	Tobacco	Cotton	Rice
Region	Northern	79%	-	16%	-	0.1%	-	1%	-	3%
	Central	96%	-	1%	-	0.3%	0.3%	2%	-	-
	Southern	94%	3%	1%	0.1%	0.2%	-	-	0.4%	1%
Livelihood Zone	Lakeshore	73%	-	23%	-	0.4%	-	-	-	3%
	Kasungu Lilongwe Plain	96%	-	-	-	0.3%	0.4%	3%	-	-
	Lower Shire	73%	22	-	0.3%	-	-	-	2.7%	-
	Western Rumphu, Mzimba SS	96%	-	1%	-	0.3%	-	2%	-	-
	Nkhata Bay Cassava + S. Karonga	67%	-	23%	-	-	-	-	-	9%
	Rift Valley	99%	-	-	-	-	-	-	0.3%	-
	Shire Highlands	99%	-	-	-	0.4%	-	-	0.2%	-
	Lake Chirwa + Phalombe Plain	95%	-	-	-	0.2%	-	-	-	4%
	Middle Shire Valley	100%	-	-	-	-	-	-	0.3%	-
	Thyolo Mulanje Tea Estate	94%	-	3%	0.3%	0.3%	-	-	-	-
	Chitipa + N .and C. Karonga + Misuku Hills	95%	-	3%	-	-	-	-	-	2%
	Phirilongwe Hills	99%	-	-	-	-	-	-	-	-
Sex HH head	Male	93%	2%	2%	0.1%	0.1%	0.1%	1%	0.3%	1%
	Female	94%	1%	3%	-	0.6%	-	-	0.1%	1%
Wealth Quintiles	poorest	96%	1%	1%	-	0.6%	0.2%	-	0.2%	-
	poor	95%	1%	1%	0.1%	0.1%	-	1%	0.3%	1%
	medium	91%	2%	4%	0.1%	-	0.3%	1%	0.1%	1%
	wealthy	92%	2%	2%	-	0.2%	0.2%	1%	0.1%	1%
	wealthiest	91%	1%	4%	-	0.3%	-	2%	0.4%	1%
Rural Malawi		93%	1%	2%	-	0.2%	0.1%	1%	0.2%	1%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Households by share of irrigated land (07/08 season) according to livelihood zone and group (% HHs)

	share land non irrigated (07/08)			
	totally irrigated	half or more irrigated	less than half irrigated	no irrigation
Livelihood zones				
Lakeshore	2%	5%	4%	88%
Kasungu Lilongwe Plain	2%	9%	10%	80%
Lower Shire	5%	5%	8%	83%
Western Rumphu, Mzimba SS	0%	3%	5%	92%
Nkhata Bay Cassava + S. Karonga	1%	4%	2%	93%
Rift Valley	2%	3%	7%	89%
Shire Highlands	2%	10%	8%	80%
Lake Chirwa + Phalombe Plain	3%	5%	3%	89%
Middle Shire Valley	1%	5%	8%	86%
Thyolo Mulanje Tea Estate	2%	6%	4%	88%
Chitipa + N. C. Karonga + Misuku Hills	0%	2%	3%	94%
Phirilongwe Hills	3%	6%	4%	86%
Livelihood groups				
Agriculturalists (food crops)	2%	5%	6%	87%
Agriculturalists (cash & food crops)	2%	9%	10%	79%
Agric wage labourers	1%	6%	4%	89%
Traders	2%	8%	9%	81%
Salaried	0%	7%	3%	89%
Self-employed	3%	7%	9%	80%
Non agric wage labourers	0%	5%	4%	91%
Brewers	2%	6%	6%	86%
Petty traders	2%	9%	10%	79%
Fishermen	3%	5%	5%	87%
Agro-pastorals	0%	8%	12%	80%
Artisans	5%	5%	8%	81%
Others	0%	2%	6%	91%
Rural Malawi	2%	7%	7%	84%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Households by amount of '08 maize stock (vs usual) according to background characteristics

		stock 08 vs usual (maize)		
		less than usual	same	more than usual
Livelihood zones	Lakeshore	49%	40%	11%
	Kasungu Lilongwe Plain	41%	47%	12%
	Lower Shire	54%	37%	8%
	Western Rumphu, Mzimba SS	33%	63%	4%
	Nkhata Bay Cassava + S. Karonga	28%	64%	8%
	Rift Valley	45%	44%	10%
	Shire Highlands	60%	24%	16%
	Lake Chirwa + Phalombe Plain	60%	28%	12%
	Middle Shire Valley	54%	29%	17%
	Thyolo Mulanje Tea Estate	49%	38%	12%
	Chitipa + N.C. Karonga + Misuku Hills	9%	81%	10%
	Phirilongwe Hills	53%	37%	9%
Livelihood groups	Agriculturalists (food crops)	48%	40%	12%
	Agriculturalists (cash & food crops)	43%	46%	11%
	Agric wage labourers	61%	24%	14%
	Traders	37%	49%	14%
	Salaried	40%	49%	12%
	Self-employed	49%	39%	12%
	Non agric wage labourers	62%	29%	9%
	Brewers	50%	35%	15%
	Petty traders	45%	44%	11%
	Fishermen	55%	29%	16%
	Agro-pastorals	46%	47%	7%
	Artisans	48%	42%	10%
Others	58%	36%	6%	
Food Consumption Groups	poor	60%	32%	9%
	borderline	49%	39%	12%
	acceptable	44%	44%	12%
Wealth Quintiles	poorest	50%	34%	17%
	poor	51%	36%	13%
	medium	52%	36%	12%
	wealthy	49%	42%	9%
	wealthiest	35%	56%	9%
Rural Malawi		48%	41%	12%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

MAIZE fertilizer utilization according to background characteristics (% HHs)

		MAIZE fertilizer used in 2008/2009 season?				MAIZE fertilizer source							MAIZE fertilizer subsidized
		No	chemical	natural	both	Agro-dealer	Private trader	Farmer group gift	Own stock	Exchange	Loan	NGO/JUN/Gov	
Livelihood zones	Lakeshore	29%	67%	2%	2%	34%	20%	2%	2%	0%	0%	42%	82%
	Kasungu Lilongwe Plain	26%	70%	3%	1%	29%	13%	1%	3%	0%	0%	54%	70%
	Lower Shire	60%	36%	2%	2%	45%	9%	3%	3%	1%	0%	40%	78%
	Western Rumphii, Mzimba SS	7%	88%	2%	4%	26%	3%	0%	2%	0%	1%	69%	82%
	Nkhata Bay Cassava + S. Karonga	19%	80%	1%	0%	61%	4%	1%	0%	0%	0%	33%	79%
	Rift Valley	16%	83%	0%	1%	35%	10%	0%	0%	0%	0%	54%	81%
	Shire Highlands	11%	85%	1%	3%	38%	12%	1%	0%	0%	1%	48%	89%
	Lake Chirwa + Phalombe Plain	13%	83%	3%	1%	49%	5%	1%	1%	0%	0%	43%	89%
	Middle Shire Valley	28%	70%	1%	1%	31%	18%	1%	0%	0%	0%	50%	90%
	Thyolo Mulanje Tea Estate	16%	82%	2%	0%	1%	11%	1%	1%	1%	1%	84%	84%
Chitipa + N.C. Karonga + Misuku Hills	14%	85%	0%	1%	62%	12%	0%	0%	0%	0%	26%	69%	
Phirilongwe Hills	51%	47%	2%	0%	15%	49%	3%	1%	0%	0%	32%	82%	
Livelihood groups	Agriculturalists (food crops)	24%	73%	2%	1%	30%	13%	2%	1%	0%	0%	54%	84%
	Agriculturalists (cash & food crops)	19%	77%	3%	2%	32%	9%	1%	2%	0%	1%	55%	78%
	Agric wage labourers	27%	71%	1%	0%	35%	6%	1%	1%	0%	0%	57%	86%
	Traders	19%	81%	0%	0%	26%	26%	0%	0%	0%	0%	49%	67%
	Salaried	20%	78%	0%	2%	47%	17%	1%	1%	0%	1%	35%	61%
	Self-employed	16%	82%	1%	1%	36%	13%	1%	0%	0%	0%	49%	79%
	Non agric wage labourers	28%	69%	3%	0%	31%	10%	1%	2%	0%	1%	55%	83%
	Brewers	29%	70%	1%	0%	31%	15%	0%	1%	0%	0%	52%	82%
	Petty traders	25%	72%	2%	1%	39%	13%	2%	1%	0%	1%	44%	80%
	Fishermen	22%	75%	3%	1%	36%	14%	1%	1%	0%	0%	48%	77%
	Agro-pastorals	18%	78%	1%	3%	30%	9%	1%	2%	1%	0%	57%	75%
Artisans	12%	84%	4%	0%	30%	9%	0%	2%	0%	0%	60%	85%	
Others	16%	73%	11%	0%	46%	10%	1%	4%	2%	0%	37%	85%	
wealth quintiles	Poorest	37%	61%	2%	1%	31%	13%	2%	1%	0%	0%	52%	84%
	Poor	29%	69%	2%	0%	32%	10%	1%	2%	0%	0%	56%	84%
	Medium	19%	77%	2%	2%	35%	10%	1%	1%	0%	0%	52%	83%
	Wealthy	15%	81%	3%	1%	34%	10%	0%	2%	0%	0%	53%	82%
	wealthiest	11%	85%	2%	3%	34%	14%	1%	1%	0%	1%	49%	69%
Rural Malawi		22%	75%	2%	1%	33%	11%	1%	1%	0%	0%	53%	80%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

MAIZE seed source: according to background characteristics (% HHs)

		MAIZE seed/planting material source						
		Agro-dealer	Private trader	Farmer group gift	Own stock	Exchange	Loan	NGO/UN/Gov
Livelihood zones	Lakeshore	23%	18%	4%	28%	1%	0%	26%
	Kasungu Lilongwe Plain	16%	14%	6%	32%	4%	0%	28%
	Lower Shire	31%	19%	12%	19%	1%	0%	18%
	Western Rumphu, Mzimba SS	20%	4%	1%	30%	0%	0%	46%
	Nkhata Bay Cassava + S. Karonga	46%	14%	1%	16%	0%	0%	24%
	Rift Valley	26%	14%	5%	25%	1%	0%	29%
	Shire Highlands	23%	17%	3%	29%	1%	0%	27%
	Lake Chirwa + Phalombe Plain	33%	11%	4%	19%	1%	0%	32%
	Middle Shire Valley	18%	22%	4%	32%	1%	0%	23%
	Thyolo Mulanje Tea Estate	1%	17%	1%	16%	1%	0%	63%
	Chitipa + N.C. Karonga + Misuku Hills	49%	16%	1%	9%	0%	0%	24%
	Phirilongwe Hills	5%	23%	3%	58%	0%	0%	10%
Livelihood groups	Agriculturalists (food crops)	19%	15%	5%	27%	2%	0%	32%
	Agriculturalists (cash & food crops)	21%	12%	3%	27%	2%	0%	35%
	Agric wage labourers	18%	12%	6%	32%	4%	1%	27%
	Traders	16%	25%	4%	26%	1%	0%	27%
	Salaried	27%	16%	3%	27%	1%	0%	26%
	Self-employed	30%	15%	4%	21%	2%	1%	26%
	Non agric wage labourers	17%	18%	4%	24%	2%	0%	35%
	Brewers	17%	18%	5%	33%	3%	0%	24%
	Petty traders	27%	21%	4%	21%	1%	0%	26%
	Fishermen	24%	16%	3%	24%	1%	0%	32%
	Agro-pastorals	18%	10%	5%	32%	3%	0%	31%
	Artisans	18%	15%	8%	38%	2%	0%	20%
Others	29%	12%	4%	23%	2%	2%	29%	
wealth quintiles	Poorest	15%	18%	7%	34%	4%	0%	21%
	Poor	20%	13%	6%	30%	3%	0%	29%
	Medium	21%	14%	4%	27%	1%	0%	33%
	wealthy	22%	13%	3%	25%	1%	0%	36%
	wealthiest	26%	16%	2%	20%	1%	0%	35%
Rural Malawi		21%	15%	4%	27%	2%	0%	31%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Peanuts fertilizer utilization according to background characteristics (% HHs)

		PEANUTS fertilizer used in 2008/2009 season?				PEANUTS fertilizer source							PEANUTS fertilizer subsidized
		No	chemical	natural	both	Agro-dealer	Private trader farmer group gift	Own stock	Exchange	Loan	NGO/JN/Gov		
Livelihood zones	Lakeshore	95%	4%	2%	0%	0%	0%	0%	100%	0%	0%	0%	0%
	Kasungu Lilongwe Plain	98%	1%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%
	Lower Shire	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Western Rumphu, Mzimba SS	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Nkhata Bay Cassava + S. Karonga	100%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%
	Rift Valley	98%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Shire Highlands	99%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Lake Chirwa + Phalombe Plain	99%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Middle Shire Valley	93%	6%	1%	0%	100%	0%	0%	0%	0%	0%	0%	50%
	Thyolo Mulanje Tea Est	66%	0%	34%	0%	0%	0%	0%	0%	0%	0%	100%	0%
	Chitipa + N. and C. Karonga + Misuku Hills	97%	1%	1%	0%	100%	0%	0%	0%	0%	0%	0%	50%
Phirilongwe Hills	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Livelihood groups	Agriculturalists (food crops)	98%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Agriculturalists (cash & food crops)	97%	2%	1%	0%	52%	0%	0%	28%	0%	0%	20%	6%
	Agric wage labourers	97%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Traders	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Salaried	98%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Self-employed	98%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Non agric wage labourers	98%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Brewers	94%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Petty traders	96%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Fishermen	100%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%
	Agro-pastorals	98%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Artisans	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Others	95%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
wealth quintiles	Poorest	98%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Poor	98%	1%	1%	0%	100%	0%	0%	0%	0%	0%	0%	9%
	Medium	97%	2%	1%	0%	100%	0%	0%	0%	0%	0%	0%	0%
	Wealthy	99%	0%	1%	0%	0%	0%	0%	100%	0%	0%	0%	0%
	Wealthiest	97%	1%	2%	0%	20%	0%	0%	80%	0%	0%	0%	3%
	Rural Malawi	98%	1%	1%	0%	50%	0%	0%	30%	0%	0%	19%	2%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

PEANUTS seed source according to background characteristics (% HHs)

	PEANUTS seed/planting material source							
	Agro-dealer	Private trader	Farmer group gift	Own stock	Exchange	Loan	NGO/UN/Gov	
Livelihood zones	Lakeshore	4%	24%	6%	61%	2%	0%	2%
	Kasungu Lilongwe Plain	2%	24%	6%	58%	8%	0%	1%
	Lower Shire	4%	34%	0%	57%	0%	0%	4%
	Western Rumpfi, Mzimba SS	1%	10%	0%	85%	1%	1%	2%
	Nkhata Bay Cassava + S. Karonga	25%	33%	4%	38%	0%	0%	0%
	Rift Valley	1%	39%	5%	51%	4%	0%	0%
	Shire Highlands	1%	46%	5%	43%	0%	0%	4%
	Lake Chirwa + Phalombe Plain	1%	49%	1%	44%	1%	0%	3%
	Middle Shire Valley	3%	30%	5%	59%	0%	0%	3%
	Thyolo Mulanje Tea Estate	0%	46%	0%	48%	4%	0%	2%
	Chitipa + N.C. Karonga + Misuku Hills	4%	24%	6%	63%	1%	0%	1%
	Phirilongwe Hills	0%	17%	17%	66%	0%	0%	0%
Livelihood groups	Agriculturalists (food crops)	2%	34%	7%	52%	4%	0%	1%
	Agriculturalists (cash & food crops)	3%	21%	2%	62%	8%	1%	3%
	Agric wage labourers	0%	35%	11%	48%	5%	0%	1%
	Traders	0%	32%	15%	54%	0%	0%	0%
	Salaried	0%	37%	0%	59%	0%	0%	3%
	Self-employed	3%	31%	7%	56%	0%	0%	2%
	Non agric wage labourers	0%	38%	4%	58%	0%	0%	0%
	Brewers	2%	29%	7%	55%	5%	0%	2%
	Petty traders	0%	30%	9%	58%	2%	0%	1%
	Fishermen	0%	30%	5%	64%	0%	0%	0%
	Agro-pastorals	4%	31%	7%	55%	4%	0%	0%
	Artisans	0%	48%	0%	46%	6%	0%	0%
Others	0%	15%	2%	76%	7%	0%	0%	
wealth quintiles	poorest	2%	27%	8%	55%	7%	0%	1%
	poor	2%	27%	8%	54%	7%	0%	2%
	medium	1%	32%	2%	59%	4%	0%	1%
	wealthy	1%	28%	4%	58%	5%	1%	3%
	wealthiest	4%	30%	4%	58%	3%	0%	2%
Rural Malawi	2%	29%	5%	57%	5%	0%	2%	

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Cassava fertilizer utilization according to background characteristics (% HHs)

		CASSAVA fertilizer used in 2008/2009 season?				CASSAVA fertilizer source							CASSAVA fertilizer subsidized
		No	chemical	natural	both	Agro-dealer	Private trader	Farmer group gift	Own stock	Exchange	Loan	NGO/UN/Gov	
Livelihood zones	Lakeshore	99%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%
	Kasungu Lilongwe Plain	100%	0%	0%	0%	0%	0%	0%	50%	0%	0%	50%	0%
	Lower Shire	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Western Rumphu, Mzimba SS	99%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%
	Nkhata Bay Cassava + S. Karonga	99%	1%	0%	0%	0%	50%	0%	0%	0%	0%	50%	0%
	Rift Valley	93%	0%	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Shire Highlands	95%	2%	2%	0%	0%	0%	0%	100%	0%	0%	0%	0%
	Lake Chirwa + Phalombe Plain	97%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Middle Shire Valley	97%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Thyolo Mulanje Tea Estate	69%	1%	30%	0%	0%	0%	0%	75%	25%	0%	0%	2%
Livelihood groups	Chitipa + N.C. Karonga + Misuku Hills	99%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Phirilongwe Hills	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Agriculturalists (food crops)	93%	1%	7%	0%	0%	2%	0%	82%	13%	0%	2%	4%
	Agriculturalists (cash & food crops)	93%	0%	6%	1%	0%	0%	0%	100%	0%	0%	0%	0%
	Agric wage labourers	88%	3%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Traders	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Salaried	93%	0%	5%	2%	0%	0%	0%	0%	0%	0%	0%	0%
	Self-employed	87%	0%	13%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Non agric wage labourers	97%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Brewers	90%	0%	10%	0%	0%	0%	0%	0%	0%	0%	100%	0%
wealth quintiles	Petty traders	90%	0%	10%	0%	0%	0%	0%	100%	0%	0%	0%	0%
	Fishermen	98%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Agro-pastorals	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Artisans	95%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Others	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	poorest	90%	1%	9%	0%	0%	0%	0%	45%	0%	0%	55%	0%
	poor	98%	0%	2%	0%	0%	0%	0%	0%	0%	0%	100%	0%
	medium	96%	0%	4%	0%	0%	10%	0%	90%	0%	0%	0%	0%
	wealthy	93%	1%	6%	0%	0%	0%	0%	100%	0%	0%	0%	0%
	wealthiest	91%	0%	8%	1%	0%	0%	0%	82%	18%	0%	0%	5%
Rural Malawi	93%	0%	6%	0%	0%	2%	0%	74%	8%	0%	16%	2%	

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

CASSAVA seed source according to background characteristics (% HHs)

		CASSAVA seed/planting material source						
		Agro-dealer	Private trader	Farmer group gift	Own stock	Exchange	Loan	NGO/UN/Gov
Livelihood zones	Lakeshore	0%	1%	12%	86%	0%	0%	1%
	Kasungu Lilongwe Plain	0%	8%	3%	68%	19%	0%	2%
	Lower Shire	0%	8%	31%	62%	0%	0%	0%
	Western Rumphu, Mzimba SS	1%	3%	1%	93%	1%	0%	1%
	Nkhata Bay Cassava + S. Karonga	1%	4%	1%	92%	1%	0%	2%
	Rift Valley	0%	14%	29%	50%	0%	0%	7%
	Shire Highlands	0%	4%	5%	88%	2%	0%	1%
	Lake Chirwa + Phalombe Plain	0%	5%	8%	82%	3%	0%	3%
	Middle Shire Valley	0%	4%	12%	81%	4%	0%	0%
	Thyolo Mulanje Tea Estate	0%	3%	1%	87%	6%	1%	2%
	Chitipa + N.C. Karonga + Misuku Hills	1%	2%	1%	96%	0%	0%	0%
Phirilongwe Hills	0%	0%	17%	83%	0%	0%	0%	
Livelihood groups	Agriculturalists (food crops)	0%	3%	6%	89%	1%	0%	1%
	Agriculturalists (cash & food crops)	0%	2%	5%	80%	11%	0%	2%
	Agric wage labourers	0%	4%	0%	88%	4%	0%	4%
	Traders	0%	20%	9%	63%	0%	0%	7%
	Salaried	0%	12%	5%	83%	0%	0%	0%
	Self-employed	0%	2%	6%	82%	11%	0%	0%
	Non agric wage labourers	0%	4%	11%	73%	6%	0%	6%
	Brewers	0%	6%	0%	82%	7%	5%	0%
	Petty traders	0%	8%	5%	80%	7%	0%	0%
	Fishermen	0%	0%	15%	85%	0%	0%	0%
	Agro-pastorals	0%	0%	8%	92%	0%	0%	0%
	Artisans	0%	12%	15%	63%	10%	0%	0%
	Others	0%	0%	4%	96%	0%	0%	0%
wealth quintiles	poorest	0%	7%	9%	75%	8%	1%	0%
	poor	0%	2%	5%	86%	6%	0%	2%
	medium	1%	3%	8%	80%	5%	0%	2%
	wealthy	0%	6%	5%	82%	6%	0%	2%
	wealthiest	0%	3%	4%	90%	1%	0%	1%
	Rural Malawi	0%	4%	6%	84%	5%	0%	2%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Potatoes fertilizer utilization according to background characteristics (% HHs)

		Potatoes fertilizer used in 2008/2009 season?				POTATOES fertilizer source							potatoes fertilizer subsidized
		No	chemical	natural	both	Agro-dealer	Private trader	Farmer group	Own stock	Exchange	Loan	NGO/UN/Go v	
Livelihood zones	Lakeshore	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Kasungu Lilongwe Plain	96%	3%	1%	0%	0%	63%	0%	25%	0%	0%	13%	6%
	Lower Shire	98%	3%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%
	Western Rumphu, Mzimba SS	99%	0%	0%	1%	0%	0%	0%	100%	0%	0%	0%	0%
	Nkhata Bay Cassava + S. Karonga	99%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Rift Valley	96%	2%	2%	0%	50%	0%	0%	50%	0%	0%	0%	0%
	Shire Highlands	92%	5%	3%	0%	0%	0%	0%	60%	0%	0%	40%	0%
	Lake Chirwa + Phalombe Plain	88%	6%	6%	0%	0%	0%	0%	0%	50%	0%	50%	13%
	Middle Shire Valley	91%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Thyolo Mulanje Tea Estate	58%	0%	42%	0%	0%	0%	0%	0%	0%	0%	100%	5%
	Chitipa + N. and C. Karonga + Misuku Hills	99%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Phirilongwe Hills	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Livelihood groups	Agriculturalists (food crops)	89%	7%	4%	0%	0%	63%	0%	26%	0%	0%	11%	5%
	Agriculturalists (cash & food crops)	95%	1%	3%	0%	0%	0%	0%	35%	0%	0%	65%	7%
	Agric wage labourers	96%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Traders	95%	5%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%
	Salaried	92%	0%	4%	4%	0%	0%	0%	100%	0%	0%	0%	0%
	Self-employed	96%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Non agric wage labourers	94%	0%	3%	3%	0%	0%	0%	54%	46%	0%	0%	0%
	Brewers	98%	0%	2%	0%	0%	100%	0%	0%	0%	0%	0%	0%
	Petty traders	94%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Fishermen	96%	0%	4%	0%	0%	0%	0%	0%	0%	0%	100%	42%
	Agro-pastorals	94%	3%	3%	0%	0%	0%	0%	100%	0%	0%	0%	0%
Artisans	82%	8%	10%	0%	0%	0%	0%	55%	0%	0%	45%	0%	
Others	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
wealth quintiles	poorest	93%	3%	4%	0%	0%	35%	0%	65%	0%	0%	0%	0%
	poor	97%	1%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	medium	94%	3%	3%	0%	0%	27%	0%	50%	0%	0%	23%	0%
	wealthy	93%	3%	3%	1%	21%	0%	0%	21%	24%	0%	34%	8%
	wealthiest	92%	4%	4%	0%	0%	50%	0%	29%	0%	0%	21%	9%
Rural Malawi		93%	3%	4%	0%	4%	31%	0%	37%	4%	0%	24%	5%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

POTATOES seed source according to background characteristics (% HHs)

		POTATOES seed/planting material source						
		Agro-dealer	Private trader	Farmer group gift	Own stock	Exchange	Loan	NGO/UN/Gov
Livelihood zones	Lakeshore	0%	6%	8%	86%	0%	0%	0%
	Kasungu Lilongwe Plain	0%	9%	4%	79%	8%	0%	0%
	Lower Shire	2%	14%	26%	48%	7%	0%	2%
	Western Rumpfi, Mzimba SS	0%	3%	0%	96%	0%	0%	1%
	Nkhata Bay Cassava + S. Karonga	3%	9%	12%	75%	0%	0%	0%
	Rift Valley	2%	16%	14%	67%	0%	0%	2%
	Shire Highlands	0%	6%	6%	85%	3%	0%	0%
	Lake Chirwa + Phalombe Plain	0%	8%	8%	75%	5%	3%	0%
	Middle Shire Valley	0%	8%	12%	81%	0%	0%	0%
	Thyolo Mulanje Tea Estate	0%	2%	2%	88%	8%	0%	0%
	Chitipa + N. C. Karonga + Misuku Hills	0%	6%	0%	93%	1%	0%	0%
Phirilongwe Hills	0%	0%	25%	75%	0%	0%	0%	
Livelihood groups	Agriculturalists (food crops)	0%	7%	6%	85%	1%	0%	1%
	Agriculturalists (cash & food crops)	0%	7%	3%	78%	11%	0%	0%
	Agric wage labourers	0%	3%	17%	76%	4%	0%	0%
	Traders	6%	21%	13%	53%	6%	0%	0%
	Salaried	0%	13%	3%	82%	0%	0%	2%
	Self-employed	0%	12%	12%	69%	3%	4%	0%
	Non agric wage labourers	0%	1%	3%	86%	3%	4%	2%
	Brewers	0%	12%	4%	80%	4%	0%	0%
	Petty traders	0%	0%	3%	94%	3%	0%	0%
	Fishermen	0%	11%	3%	84%	1%	0%	0%
	Agro-pastorals	3%	7%	12%	78%	0%	0%	0%
	Artisans	0%	21%	5%	74%	0%	0%	0%
	Others	0%	6%	0%	94%	0%	0%	0%
wealth quintiles	poorest	0%	9%	8%	80%	3%	0%	0%
	poor	0%	7%	6%	83%	3%	0%	1%
	medium	0%	12%	5%	76%	7%	0%	0%
	wealthy	2%	8%	6%	78%	5%	1%	0%
	wealthiest	0%	5%	5%	83%	6%	1%	1%
	Rural Malawi	0%	8%	6%	80%	5%	0%	0%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Beans fertilizer utilization according to background characteristics (% HHs)

		Beans fertilizer used in 2008/2009 season?				BEANS fertilizer source							Beans fertilizer subsidized
		No	chemical	natural	both	Agro-dealer	Private trader	Farmer group	Own stock	Exchange	Loan	NGO/UN/Gov	
Livelihood zones	Lakeshore	78%	11%	11%	0%	0%	0%	50%	50%	0%	0%	0%	0%
	Kasungu Lilongwe Plain	86%	11%	2%	0%	23%	16%	6%	16%	0%	0%	39%	36%
	Lower Shire	100%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%
	Western Rumpi, Mzimba SS	98%	1%	0%	1%	50%	0%	0%	50%	0%	0%	0%	33%
	Nkhata Bay Cassava + S. Karonga	96%	4%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%
	Rift Valley	95%	4%	1%	0%	50%	0%	0%	0%	0%	0%	50%	50%
	Shire Highlands	92%	3%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Lake Chirwa + Phalombe Plain	96%	2%	1%	2%	0%	25%	0%	50%	0%	0%	25%	33%
	Middle Shire Valley	88%	0%	13%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Thyolo Mulanje Tea Estate	78%	0%	22%	0%	0%	0%	0%	75%	0%	0%	25%	5%
	Chitipa + N. C. Karonga + Misuku Hills	99%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Phirilongwe Hills	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Livelihood groups	Agriculturalists (food crops)	89%	4%	6%	1%	22%	20%	7%	22%	0%	0%	28%	19%
	Agriculturalists (cash & food crops)	90%	4%	5%	0%	33%	0%	17%	35%	0%	0%	15%	11%
	Agric wage labourers	90%	2%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Traders	95%	5%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
	Salaried	88%	5%	5%	1%	0%	50%	0%	0%	0%	0%	50%	23%
	Self-employed	84%	7%	9%	0%	0%	100%	0%	0%	0%	0%	0%	0%
	Non agric wage labourers	98%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Brewers	67%	22%	10%	0%	0%	0%	0%	25%	0%	0%	75%	44%
	Petty traders	87%	4%	9%	0%	0%	64%	0%	0%	0%	0%	36%	0%
	Fishermen	96%	0%	4%	0%	0%	0%	0%	100%	0%	0%	0%	0%
	Agro-pastorals	83%	12%	4%	0%	25%	0%	0%	25%	0%	0%	50%	75%
Artisans	88%	12%	0%	0%	0%	0%	0%	0%	0%	0%	100%	55%	
Others	90%	7%	3%	0%	100%	0%	0%	0%	0%	0%	0%	70%	
wealth quintiles	poorest	83%	11%	6%	0%	0%	16%	8%	19%	0%	0%	57%	34%
	poor	92%	3%	4%	0%	0%	0%	0%	73%	0%	0%	27%	11%
	medium	91%	4%	4%	1%	41%	33%	17%	9%	0%	0%	0%	14%
	wealthy	90%	5%	4%	0%	30%	5%	8%	14%	0%	0%	43%	31%
	wealthiest	87%	4%	8%	1%	32%	21%	0%	28%	0%	0%	20%	17%
Rural Malawi	89%	5%	6%	0%	20%	15%	7%	23%	0%	0%	35%	22%	

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

BEANS seed source according to background characteristics (% HHs)

		BEANS seed/planting material source						
		Agro-dealer	Private trader	Farmer group gift	Own stock	Exchange	Loan	NGO/UN/Gov
Livelihood zones	Lakeshore	0%	13%	0%	75%	0%	0%	13%
	Kasungu Lilongwe Plain	1%	26%	4%	60%	8%	0%	1%
	Lower Shire	5%	42%	12%	37%	5%	0%	0%
	Western Rumphu, Mzimba SS	3%	12%	0%	83%	0%	0%	2%
	Nkhata Bay Cassava + S. Karonga	22%	4%	13%	57%	0%	0%	4%
	Rift Valley	2%	47%	10%	39%	0%	0%	2%
	Shire Highlands	3%	45%	3%	46%	2%	1%	1%
	Lake Chirwa + Phalombe Plain	6%	47%	3%	38%	0%	1%	4%
	Middle Shire Valley	4%	33%	11%	50%	0%	0%	2%
	Thyolo Mulanje Tea Estate	0%	38%	1%	58%	1%	0%	2%
	Chitipa + N. C. Karonga + Misuku Hills	1%	13%	0%	81%	5%	0%	0%
	Phirilongwe Hills	0%	20%	0%	60%	20%	0%	0%
Livelihood groups	Agriculturalists (food crops)	3%	28%	5%	61%	2%	0%	2%
	Agriculturalists (cash & food crops)	1%	28%	4%	59%	7%	0%	0%
	Agric wage labourers	2%	42%	8%	43%	3%	0%	2%
	Traders	6%	45%	0%	45%	1%	0%	3%
	Salaried	2%	38%	3%	50%	2%	0%	5%
	Self-employed	4%	49%	0%	48%	0%	0%	0%
	Non agric wage labourers	1%	64%	0%	35%	0%	0%	0%
	Brewers	0%	30%	6%	49%	9%	0%	6%
	Petty traders	1%	37%	0%	54%	3%	2%	2%
	Fishermen	0%	58%	5%	37%	0%	0%	0%
	Agro-pastorals	5%	21%	5%	61%	4%	0%	3%
	Artisans	0%	50%	0%	42%	8%	0%	0%
Others	3%	31%	0%	61%	4%	0%	0%	
wealth quintiles	poorest	1%	33%	5%	54%	6%	0%	2%
	poor	1%	33%	5%	53%	4%	0%	3%
	medium	1%	36%	4%	54%	3%	0%	1%
	wealthy	3%	32%	4%	56%	3%	0%	2%
	wealthiest	3%	34%	2%	55%	3%	1%	0%
Rural Malawi		2%	33%	4%	55%	4%	0%	2%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

TOBACCO Fertilizer utilization according to background characteristics (% HHs)

		TOBACCO fertilizer used in 2008/2009 season?				TOBACCO fertilizer source							Tobacco fertilizer subsidized
		No	chemical	natural	both	Agro-dealer	Private trader	Farmer group	Own stock	Exchange	Loan	NGO/UN/Gov	
Livelihood zones	Lakeshore	22%	33%	0%	44%	86%	0%	0%	0%	0%	0%	14%	86%
	Kasungu Lilongwe Plain	15%	74%	5%	7%	37%	20%	1%	6%	1%	0%	35%	44%
	Lower Shire	67%	0%	0%	33%	0%	0%	0%	0%	0%	0%	100%	100%
	Western Rumphu, Mzimba SS	4%	89%	3%	4%	39%	1%	0%	2%	0%	3%	56%	51%
	Nkhata Bay Cassava + S. Karonga	0%	100%	0%	0%	47%	0%	0%	0%	0%	0%	53%	27%
	Rift Valley	7%	80%	7%	7%	36%	7%	0%	7%	0%	0%	50%	50%
	Shire Highlands	6%	88%	0%	5%	35%	10%	1%	0%	0%	1%	52%	79%
	Lake Chirwa + Phalombe Plain	9%	87%	2%	2%	44%	15%	2%	0%	0%	2%	37%	76%
	Middle Shire Valley	25%	75%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
	Thyolo Mulanje Tea Est	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Chitipa + N. and C. Karonga + Misuku Hills	7%	93%	0%	0%	52%	8%	0%	0%	0%	0%	40%	40%
Phirilongwe Hills	0%	89%	11%	0%	25%	13%	0%	0%	0%	0%	63%	67%	
Livelihood groups	Agriculturalists (food crops)	21%	70%	5%	4%	28%	20%	2%	4%	0%	1%	45%	56%
	Agriculturalists (cash & food crops)	10%	80%	4%	7%	40%	14%	1%	4%	1%	1%	40%	51%
	Agric wage labourers	22%	70%	0%	8%	39%	12%	4%	0%	0%	0%	44%	88%
	Traders	22%	78%	0%	0%	71%	29%	0%	0%	0%	0%	0%	29%
	Salaried	6%	80%	0%	14%	39%	6%	0%	16%	0%	0%	40%	50%
	Self-employed	28%	72%	0%	0%	46%	0%	0%	0%	0%	0%	54%	35%
	Non agric wage labourers	53%	47%	0%	0%	32%	40%	0%	0%	0%	0%	29%	52%
	Brewers	9%	46%	19%	26%	39%	31%	0%	20%	0%	0%	10%	35%
	Petty traders	7%	86%	0%	7%	51%	22%	0%	0%	0%	0%	27%	65%
	Fishermen	39%	61%	0%	0%	0%	46%	0%	0%	0%	0%	54%	54%
	Agro-pastorals	4%	87%	0%	9%	19%	38%	0%	10%	0%	0%	33%	31%
	Artisans	10%	70%	21%	0%	0%	46%	0%	0%	0%	0%	54%	54%
Others	16%	84%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%	
wealth quintiles	poorest	36%	53%	5%	6%	35%	20%	2%	5%	0%	0%	38%	68%
	poor	14%	78%	4%	4%	35%	12%	1%	4%	1%	1%	45%	61%
	medium	14%	78%	3%	5%	32%	17%	2%	4%	2%	1%	41%	51%
	wealthy	8%	78%	6%	8%	39%	13%	1%	6%	0%	0%	41%	54%
	wealthiest	3%	85%	2%	10%	43%	18%	0%	2%	0%	1%	35%	39%
Rural Malawi		12%	77%	4%	7%	38%	16%	1%	4%	1%	1%	40%	52%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

TOBACCO seed source according to background characteristics (% HHs)

		TOBACCO seed/planting material source						
		Agro-dealer	Private trader	Farmer group gift	Own stock	Exchange	Loan	NGO/UN/Gov
Livelihood zones	Lakeshore	44%	44%	0%	11%	0%	0%	0%
	Kasungu Lilongwe Plain	6%	10%	15%	63%	3%	0%	3%
	Lower Shire	0%	0%	50%	0%	0%	0%	50%
	Western Rumpi, Mzimba SS	9%	14%	3%	64%	0%	0%	10%
	Nkhata Bay Cassava + S. Karonga	40%	27%	0%	0%	0%	0%	33%
	Rift Valley	0%	21%	7%	57%	7%	0%	7%
	Shire Highlands	20%	12%	28%	30%	1%	0%	9%
	Lake Chirwa + Phalombe Plain	24%	20%	9%	29%	2%	2%	13%
	Middle Shire Valley	50%	0%	25%	0%	25%	0%	0%
	Thyolo Mulanje Tea Estate	0%	0%	0%	0%	0%	0%	0%
	Chitipa + N. C. Karonga + Misuku Hills	11%	52%	4%	4%	0%	0%	30%
Phirilongwe Hills	0%	22%	0%	67%	0%	0%	11%	
Livelihood groups	Agriculturalists (food crops)	8%	9%	21%	51%	3%	0%	8%
	Agriculturalists (cash & food crops)	10%	14%	12%	57%	3%	0%	5%
	Agric wage labourers	14%	0%	43%	35%	0%	0%	7%
	Traders	0%	22%	22%	55%	0%	0%	0%
	Salaried	0%	6%	0%	91%	0%	0%	4%
	Self-employed	19%	21%	23%	37%	0%	0%	0%
	Non agric wage labourers	6%	0%	17%	77%	0%	0%	0%
	Brewers	24%	8%	25%	42%	0%	0%	0%
	Petty traders	7%	13%	32%	36%	0%	5%	7%
	Fishermen	32%	28%	0%	39%	0%	0%	0%
	Agro-pastorals	0%	2%	10%	81%	8%	0%	0%
	Artisans	0%	0%	27%	73%	0%	0%	0%
Others	0%	0%	16%	0%	0%	0%	84%	
wealth quintiles	poorest	5%	6%	28%	58%	1%	0%	1%
	poor	7%	9%	21%	54%	4%	1%	4%
	medium	10%	11%	9%	62%	2%	0%	5%
	wealthy	10%	13%	13%	56%	4%	0%	4%
	wealthiest	13%	16%	10%	51%	1%	0%	7%
Rural Malawi		10%	12%	15%	55%	3%	0%	5%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Average utilization of harvest according to background characteristics

		MAIZE HARVEST: Utilization			
		share loss	share consumed	share seeds	share sales
Livelihood zones	Lakeshore	1.78	91.77	2.07	4.39
	Kasungu Lilongwe Plain	0.57	91.89	1.92	5.77
	Lower Shire	0.5	95.69	1.08	2.75
	Western Rumphu, Mzimba SS	1.51	85.35	2.81	10.42
	Nkhata Bay Cassava + S. Karonga	3.13	95.89	0.28	0.7
	Rift Valley	1.29	94.2	1.62	2.93
	Shire Highlands	1.53	91.46	2.66	4.37
	Lake Chirwa + Phalombe Plain	2.5	92.25	1.59	4
	Middle Shire Valley	0.67	95.99	1.46	2.25
	Thyolo Mulanje Tea Est	2.04	94.64	2.02	1.96
	Chitipa + N.and C. Karonga + Misuku Hills	0	90.2	4.33	7.62
	Phirilongwe Hills	0.18	94.37	4.36	1.1
Livelihood groups	Agriculturalists (food crops)	1.57	92.44	2.22	4.03
	Agriculturalists (cash & food crops)	0.8	90.52	1.91	6.95
	Agric wage labourers	2.05	94.29	1.47	2.29
	Traders	0.63	92.46	1.68	5.25
	Salaried	0.56	93.78	1.9	4.31
	Self-employed	0.44	94.27	1.13	4.22
	Non agric wage labourers	1.67	96.67	0.94	0.73
	Brewers	2.84	95.11	1.09	1.04
	Petty traders	0.32	94.39	1.21	4.14
	Fishermen	0.23	95.58	1.71	2.48
	Agro-pastorals	1.34	91.34	2.81	4.55
	Artisans	2.02	91	5.56	1.48
Others	1.73	93.11	5.25	0	
wealth quintiles	poorest	1.35	94.79	2.12	1.79
	poor	1.13	94.91	1.49	2.65
	medium	1.17	92.04	2.7	4.16
	wealthy	1.04	92.75	1.56	4.86
	wealthiest	1.44	87.41	2.01	9.58
Food Consumption Groups	poor	0.98	93.94	2.81	2.64
	borderline	1.21	93.72	2.04	3.16
	acceptable	1.28	91.25	1.75	5.91
Rural Malawi		1.22	92.51	1.98	4.47

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Sources of seeds (multiple responses: N and % of responses) by livelihood zones

		seeds sources						
		Agro-dealer	Private trader	Farmer gift	group	Own stock	Exchange	Loan	NGO/UN/Gov
Lakeshore	N	74	78	34	282	4	1	79
	% responses	14%	14%	6%	51%	1%	0%	14%
Kasungu Lilongwe Plain	N	325	683	296	2174	241	5	487
	% responses	8%	16%	7%	52%	6%	0%	12%
Lower Shire	N	66	69	39	92	6		39
	% responses	21%	22%	13%	29%	2%		13%
Western Rumpi, Mzimba SS	N	60	42	5	382	2	1	126
	% responses	10%	7%	1%	62%	0%	0%	20%
Nkhata Bay Cassava + S. Karonga	N	24	11	3	46	0		12
	% responses	25%	11%	3%	48%	0%		13%
Rift Valley	N	87	121	39	194	7	1	98
	% responses	16%	22%	7%	36%	1%	0%	18%
Shire Highlands	N	177	288	75	547	16	3	196
	% responses	14%	22%	6%	42%	1%	0%	15%
Lake Chirwa + Phalombe Plain	N	204	162	39	308	16	6	195
	% responses	22%	17%	4%	33%	2%	1%	21%
Middle Shire Valley	N	30	51	13	94	2		37
	% responses	13%	22%	6%	41%	1%		16%
Thyolo Mulanje Tea Estate	N	5	147	9	335	21	2	209
	% responses	1%	20%	1%	46%	3%	0%	29%
Chitipa + N. and C. Karonga + Misuku Hills	N	39	26	2	91	2		20
	% responses	21%	15%	1%	50%	1%		11%
Phirilongwe Hills	N	4	23	7	68	1		9
	% responses	4%	21%	6%	61%	1%		8%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Sources of seeds (multiple responses (N, % of responses, % of cases) by livelihood zones

		fertilizers sources						
		Agro dealer	Private trader	Farmer group gift	Own stock	NGO/UN/Gov	Exchange	Loan
Lakeshore	N	79	43	6	6	92		
	% responses	35%	19%	3%	3%	40%		
	% cases	37%	20%	3%	3%	43%		
Kasungu Lilongwe Plain	N	562	277	24	76	843	6	6
	% responses	31%	15%	1%	4%	47%	0%	0%
	% cases	45%	22%	2%	6%	67%	1%	1%
Lower Shire	N	39	8	2	4	35	1	
	% responses	44%	9%	3%	4%	40%	1%	
	% cases	44%	9%	3%	4%	40%	1%	
Western Rumphu, Mzimba SS	N	92	7		6	206		4
	% responses	29%	2%		2%	65%		1%
	% cases	38%	3%		3%	86%		2%
Nkhata Bay Cassava + S. Karonga	N	23	2	0	0	14		
	% responses	59%	5%	1%	1%	34%		
	% cases	64%	5%	1%	1%	37%		
Rift Valley	N	105	29		3	159		
	% responses	36%	10%		1%	54%		
	% cases	38%	10%		1%	57%		
Shire Highlands	N	257	80	5	11	341	1	5
	% responses	37%	11%	1%	2%	49%	0%	1%
	% cases	44%	14%	1%	2%	59%	0%	1%
Lake Chirwa + Phalombe Plain	N	266	34	7	7	235	2	1
	% responses	48%	6%	1%	1%	43%	0%	0%
	% cases	54%	7%	1%	1%	47%	1%	0%
Middle Shire Valley	N	34	19	1		55	0	0
	% responses	31%	17%	1%		50%	0%	0%
	% cases	31%	18%	1%		51%	0%	0%
Thyolo Mulanje Tea Estate	N	4	29	3	7	223	3	2
	% responses	1%	11%	1%	3%	83%	1%	1%
	% cases	1%	11%	1%	3%	86%	1%	1%
Chitipa + N. C. Karonga + Misuku Hills	N	44	8			20		
	% responses	61%	11%			28%		
	% cases	67%	13%			31%		
Phirilongwe Hills	N	7	20	1	1	15		
	% responses	16%	46%	2%	1%	35%		
	% cases	16%	48%	3%	1%	36%		

ANNEX IV: ECONOMIC CAPITAL

Share food expenditure by Wealth and livelihood group

		% food expenditure	cereals	tubers	bread	legumes	fruits/vegs	Anim proteins	oil, fat	dairy products	sugar salt	food outside	tobacco&al cool	milling
Wealth Quintiles	poorest	52	24	1	1	2	2	11	2	0	9	1	2	13
	poor	53	20	1	1	3	2	12	3	0	10	1	2	11
	medium	53	20	1	2	2	1	12	4	0	9	1	2	9
	wealthy	52	16	2	2	3	2	13	4	0	9	1	2	7
	wealthiest	46	11	2	3	3	1	11	5	1	8	1	2	5
Livelihood Groups	Agriculturalists (food crops)	53	20	1	2	3	2	12	3	0	9	1	2	10
	Agriculturalists (cash & food crops)	46	15	1	2	2	1	12	3	0	8	1	2	8
	Agric wage labourers	50	16	1	1	2	2	12	3	0	11	1	2	11
	Traders	54	16	3	3	4	2	9	6	1	9	2	1	5
	Salaried	53	15	2	3	2	2	13	5	1	9	1	1	5
	Self-employed	58	22	1	3	3	1	13	4	1	8	2	2	6
	Non agric wage labourers	60	28	1	1	2	2	14	3	0	8	1	1	8
	Brewers	51	18	2	1	3	2	13	2	0	10	1	3	12
	Petty traders	54	18	2	2	4	2	13	4	0	8	2	3	8
	Fishermen	55	22	3	2	3	2	9	3	1	8	3	2	8
	Agro-pastorals	49	19	1	1	2	1	10	3	0	9	1	1	10
	Artisans	55	19	1	2	3	2	13	4	0	10	1	2	10
	Others	57	28	1	0	2	1	13	2	0	8	1	2	7

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Share food expenditure by livelihood zone and region

		% food expenditure	cereals	tubers	bread	legumes	fruits/vegs	Anim proteins	oil, fat	dairy products	sugar salt	food outside	tobacco&al cool	milling
Livelihood Zones	Lakeshore	58	22	2	2	3	2	13	3	1	9	1	1	9
	Kasungu Lilongwe Plain	44	14	1	2	1	1	12	3	0	8	1	3	10
	Lower Shire	69	37	1	1	3	2	13	3	0	8	1	1	7
	Western Rumphi, Mzimba SS	44	11	1	2	2	1	12	5	1	10	1	2	10
	Nkhata Bay Cassava + S. Karonga	52	11	1	1	4	2	15	7	1	11	0	2	9
	Rift Valley	55	19	2	2	5	2	11	4	1	9	1	2	9
	Shire Highlands	54	17	2	2	3	2	13	3	0	10	2	2	9
	Lake Chirwa + Phalombe Plain	56	22	1	2	3	2	12	4	1	9	1	1	8
	Middle Shire Valley	56	23	1	1	3	1	12	3	0	10	1	1	12
	Thyolo Mulanje Tea Estate	56	16	1	3	4	2	13	5	1	11	1	1	6
	Chitipa + N.C. Karonga + Misuku Hills	41	6	1	1	5	1	11	7	1	10	0	2	11
	Phirilongwe Hills	52	27	1	1	1	1	9	2	0	12	0	0	17
Regions	Northern	46	10	1	2	3	1	12	5	1	11	1	2	10
	Central	45	15	2	2	2	1	12	2	0	8	1	3	9
	Southern	57	23	1	2	3	2	12	4	0	9	1	1	9

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Share spent on specific non food items by wealth and livelihood group

		non food items														
		soap	transport	wood / paraffin	air time	house repairs	water	electricity	rent	health	cloths	education	debt repayment	celebration s	agric inputs	agric equip.
Wealth Quintiles	poorest	11	1	5	0	0	0	0	0	3	2	1	0	0	8	0
	poor	11	1	5	0	0	0	0	0	2	2	1	0	0	10	0
	medium	10	2	5	1	1	0	0	0	2	2	1	0	0	10	0
	wealthy	9	2	5	2	0	0	0	0	2	3	1	0	0	12	0
	wealthiest	7	3	4	6	0	0	1	1	2	3	2	1	1	16	0
Livelihood Groups	Agriculturalists (food crops)	11	2	6	1	0	0	0	0	2	2	1	0	0	9	0
	Agriculturalists (cash & food crops)	9	2	5	2	0	0	0	0	2	3	1	0	0	17	1
	Agric wage labourers	12	1	6	1	0	0	0	0	4	2	1	0	0	10	0
	Traders	7	4	4	6	0	0	1	1	3	2	2	1	1	9	0
	Salaried	8	3	3	5	0	1	1	3	2	3	2	0	0	10	0
	Self-employed	7	2	4	4	1	0	0	1	2	3	2	1	1	8	0
	Non agric wage labourers	9	2	5	2	0	0	0	0	2	2	1	0	0	7	0
	Brewers	11	2	5	1	0	0	0	0	2	1	1	0	1	9	0
	Petty traders	10	2	5	2	1	0	0	0	2	2	1	0	0	9	0
	Fishermen	9	4	4	3	2	0	0	0	1	3	1	0	0	7	0
	Agro-pastorals	9	2	4	2	0	0	0	0	4	2	2	0	1	14	0
	Artisans	10	1	4	0	1	0	0	0	2	2	1	1	0	10	0
	Others	10	2	4	2	0	0	0	0	3	2	0	0	2	7	0

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Share spent on specific non food items by livelihood zone and region

		non food items														
		soap	transport	wood / paraffin	air time	house repairs	water	electricity	rent	health	cloths	education	debt repayment	celebration s	agric inputs	agric equip.
Livelihood Zones	Lakeshore	9	3	5	2	1	0	0	1	2	2	1	0	0	5	0
	Kasungu Lilongwe Plain	10	2	4	2	0	0	0	0	3	2	1	0	0	18	0
	Lower Shire	8	1	4	2	0	0	0	0	1	2	1	0	0	3	1
	Western Rumphu, Mzimba SS	12	2	5	3	0	0	0	0	2	3	1	0	0	16	0
	Nkhata Bay Cassava + S. Karonga	13	2	8	4	0	0	0	0	1	2	1	0	0	5	0
	Rift Valley	9	2	5	3	0	0	0	1	2	2	2	0	1	6	0
	Shire Highlands	10	2	5	1	1	0	0	0	2	3	1	1	1	10	0
	Lake Chirwa + Phalombe Plain	10	2	5	2	1	0	0	0	1	3	1	1	1	8	0
	Middle Shire Valley	10	2	6	2	0	0	0	0	2	2	1	0	0	6	0
	Thyolo Mulanje Tea Estate	11	2	5	3	1	0	0	0	1	3	2	1	0	7	0
	Chitipa + N. and C. Karonga + Misuku Hills	15	2	8	3	0	1	1	0	0	4	2	1	1	10	0
Phirilongwe Hills	12	1	5	1	0	0	1	0	3	1	1	0	0	5	0	
Regions	Northern	12	3	6	3	0	0	0	0	2	3	1	0	0	11	0
	Central	10	2	5	2	0	0	0	0	3	2	1	0	0	17	0
	Southern	10	2	5	2	0	0	0	0	2	3	1	0	1	7	0

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Change in expenditures by wealth and livelihood groups

		Expenditure changed?			main reason for increase			main reason for decrease		
		no change	decrease	increase	change costs	change people in household	change agric. prod	change costs	change people in household	change agric. prod
Wealth Quintiles	poorest	49%	15%	36%	74%	7%	19%	24%	48%	29%
	poor	48%	15%	37%	78%	9%	13%	37%	37%	26%
	medium	44%	16%	40%	77%	8%	15%	39%	25%	36%
	wealthy	44%	15%	41%	78%	12%	11%	47%	17%	36%
	wealthiest	38%	14%	49%	83%	9%	8%	38%	17%	45%
Livelihood Groups	Agriculturalists (food crops)	48%	13%	39%	74%	9%	17%	26%	31%	43%
	Agriculturalists (cash & food crops)	38%	16%	46%	83%	8%	9%	55%	16%	30%
	Agric wage labourers	49%	20%	31%	70%	10%	19%	34%	44%	22%
	Traders	46%	12%	41%	85%	6%	9%	39%	25%	36%
	Salaried	39%	12%	50%	81%	13%	6%	28%	33%	39%
	Self-employed	42%	15%	43%	79%	7%	14%	27%	23%	50%
	Non agric wage labourers	57%	16%	27%	61%	20%	19%	26%	43%	31%
	Brewers	53%	12%	35%	74%	8%	18%	45%	13%	42%
	Petty traders	45%	16%	39%	72%	12%	16%	18%	56%	27%
	Fishermen	44%	17%	39%	80%	12%	8%	51%	19%	30%
	Agro-pastorals	47%	10%	43%	84%	10%	6%	36%	33%	31%
	Artisans	44%	19%	37%	91%	4%	5%	23%	40%	37%
	Others	42%	22%	36%	78%	5%	17%	59%	10%	32%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Change in expenditures by livelihood zone and region

		Expenditure changed?			main reason for increase			main reason for decrease		
		no change	decrease	increase	change costs	change people in household	change agric. prod	change costs	change people in household	change agric. prod
livelihood Zones	Lakeshore	52%	12%	36%	76%	17%	8%	41%	15%	44%
	Kasungu Lilongwe Plain	36%	15%	49%	85%	6%	10%	48%	27%	25%
	Lower Shire	60%	7%	34%	76%	1%	23%	52%	24%	24%
	Western Rumphu, Mzimba SS	52%	7%	41%	82%	9%	9%	52%	35%	13%
	Nkhata Bay Cassava + S. Karonga	68%	6%	26%	89%	5%	5%	93%	7%	0%
	Rift Valley	52%	15%	33%	80%	10%	10%	22%	25%	53%
	Shire Highlands	45%	21%	35%	73%	13%	15%	20%	43%	37%
	Lake Chirwa + Phalombe Plain	43%	16%	42%	73%	10%	17%	31%	28%	41%
	Middle Shire Valley	52%	19%	29%	74%	8%	19%	39%	34%	27%
	Thyolo Mulanje Tea Est	41%	19%	40%	53%	25%	22%	42%	12%	46%
	Chitipa + N.and C. Karonga + Misuku Hills	67%	5%	28%	89%	5%	5%	60%	20%	20%
	Phirilongwe Hills	55%	25%	20%	77%	3%	19%	45%	24%	32%
Regions	Northern	55%	8%	37%	79%	13%	8%	58%	20%	23%
	Central	36%	15%	49%	85%	6%	9%	46%	25%	28%
	Southern	48%	16%	35%	71%	12%	17%	31%	31%	39%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Change in expenditures by background characteristics

		change in food expenditures			change in housing expenditures			change in education expenditures			change in farm inputs expenditures		
		no	decreased	increased	no	decreased	increased	no	decreased	increased	no	decreased	increased
Wealth Quintiles	poorest	43%	20%	38%	92%	4%	4%	88%	5%	7%	55%	19%	26%
	poor	43%	22%	35%	91%	6%	3%	85%	8%	7%	52%	22%	26%
	medium	39%	21%	41%	93%	4%	3%	85%	5%	10%	53%	22%	25%
	wealthy	43%	19%	38%	90%	5%	6%	82%	7%	12%	50%	22%	29%
	wealthiest	46%	19%	35%	88%	4%	7%	74%	7%	19%	47%	16%	37%
livelihood Zones	Lakeshore	51%	12%	37%	94%	1%	5%	91%	3%	7%	58%	13%	29%
	Kasungu Lilongwe Plain	44%	21%	34%	87%	7%	6%	79%	10%	12%	39%	20%	41%
	Lower Shire	21%	23%	56%	94%	3%	3%	88%	6%	6%	78%	14%	8%
	Western Rumphu, Mzimba SS	71%	5%	24%	95%	1%	4%	90%	1%	9%	52%	7%	41%
	Nkhata Bay Cassava + S. Karonga	81%	4%	15%	97%	1%	3%	88%	2%	11%	67%	18%	15%
	Rift Valley	39%	23%	38%	94%	4%	2%	83%	6%	11%	69%	14%	17%
	Shire Highlands	34%	26%	40%	89%	6%	5%	82%	5%	14%	44%	33%	23%
	Lake Chirwa + Phalombe Plain	30%	23%	48%	91%	4%	4%	83%	5%	12%	49%	30%	21%
	Middle Shire Valley	42%	24%	34%	94%	4%	2%	85%	6%	10%	68%	19%	13%
	Thyolo Mulanje Tea Estate	43%	19%	39%	89%	2%	10%	75%	5%	20%	58%	15%	27%
	Chitipa + N. and C. Karonga + Misuku Hills	83%	1%	16%	97%	0%	3%	86%	3%	12%	58%	15%	27%
Regions	Phirilongwe Hills	49%	29%	22%	97%	3%	0%	81%	8%	11%	76%	16%	8%
	Northern	71%	5%	24%	96%	1%	3%	90%	2%	9%	54%	11%	35%
	Central	44%	21%	35%	88%	7%	6%	79%	9%	12%	39%	20%	41%
	Southern	35%	23%	42%	92%	4%	4%	83%	5%	12%	60%	22%	18%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Change in expenditures by background characteristics

	change in energy expenditures			change in health expenditures			change in transportation expenditures			change in business inputs expenditures			
	no	decreased	increased	no	decreased	increased	no	decreased	increased	no	decreased	increased	
Wealth Quintiles	poorest	70%	7%	23%	73%	10%	17%	84%	6%	10%	74%	9%	17%
	poor	66%	12%	22%	70%	10%	20%	78%	8%	14%	69%	11%	20%
	medium	68%	10%	22%	71%	11%	18%	80%	8%	12%	67%	13%	20%
	wealthy	62%	11%	27%	71%	11%	18%	74%	13%	14%	65%	13%	22%
	wealthiest	59%	10%	31%	66%	8%	26%	67%	11%	23%	62%	10%	28%
livelihood Zones	Lakeshore	63%	5%	32%	74%	6%	20%	75%	8%	18%	74%	9%	17%
	Kasungu Lilongwe Plain	55%	12%	33%	60%	14%	26%	70%	10%	20%	62%	10%	28%
	Lower Shire	85%	9%	6%	89%	7%	4%	85%	9%	6%	70%	23%	7%
	Western Rumpi, Mzimba SS	60%	4%	36%	81%	2%	17%	76%	5%	19%	79%	2%	19%
	Nkhata Bay Cassava + S. Karonga	71%	15%	14%	86%	2%	12%	65%	20%	15%	92%	5%	3%
	Rift Valley	71%	10%	19%	77%	10%	13%	81%	9%	10%	73%	13%	14%
	Shire Highlands	69%	12%	19%	71%	10%	19%	81%	9%	10%	60%	14%	26%
	Lake Chirwa + Phalombe Plain	70%	10%	20%	70%	10%	20%	81%	9%	10%	64%	16%	21%
	Middle Shire Valley	73%	8%	19%	77%	10%	13%	85%	6%	9%	79%	9%	12%
	Thyolo Mulanje Tea Estate	64%	13%	23%	62%	7%	31%	77%	11%	12%	67%	6%	28%
	Chitipa + N. C. Karonga + Misuku Hills	78%	6%	16%	90%	1%	9%	80%	11%	9%	97%	1%	2%
Phirilongwe Hills	81%	4%	16%	83%	7%	10%	89%	7%	4%	89%	10%	1%	
Regions	Northern	65%	5%	30%	83%	2%	15%	75%	8%	18%	82%	4%	15%
	Central	53%	13%	34%	61%	14%	26%	69%	11%	20%	62%	10%	28%
	Southern	73%	10%	17%	75%	9%	17%	82%	9%	9%	69%	14%	17%

ANNEX V: FOOD CONSUMPTION

Food Consumption Groups by Livelihood Zone, Livelihood Group and Wealth (%HHs)

		Food consumption groups (% HHs)		
		Poor	Borderline	Acceptable
Livelihood zones	Lakeshore	8%	32%	60%
	Kasungu Lilongwe Plain	9%	42%	49%
	Lower Shire	11%	38%	51%
	Western Rumphu, Mzimba SS	12%	30%	58%
	Nkhata Bay Cassava + S. Karonga	8%	26%	67%
	Rift Valley	5%	35%	60%
	Shire Highlands	17%	32%	51%
	Lake Chirwa + Phalombe Plain	18%	39%	43%
	Middle Shire Valley	14%	46%	41%
	Thyolo Mulanje Tea Est	8%	29%	63%
	Chitipa + N.C. Karonga + Misuku Hills	6%	21%	73%
Phirilongwe Hills	13%	47%	40%	
Livelihood groups	Agriculturalists (food crops)	13%	39%	48%
	Agriculturalists (cash & food crops)	8%	35%	57%
	Agric wage labourers	25%	48%	27%
	Traders	0%	25%	75%
	Salaried	7%	21%	72%
	Self-employed	6%	30%	65%
	Non agric wage labourers	17%	45%	38%
	Brewers	12%	42%	47%
	Petty traders	13%	39%	49%
	Fishermen	9%	20%	71%
	Agro-pastorals	6%	33%	61%
	Artisans	15%	39%	46%
	Others	15%	49%	36%
wealth quintiles	poorest	21%	48%	30%
	poor	14%	46%	40%
	medium	11%	36%	53%
	wealthy	7%	32%	62%
	wealthiest	5%	22%	73%
	Rural Malawi	11%	37%	52%

Prevalence of key demographic indicators within the food consumption groups (% HHs)

	food consumption groups			
	Poor	borderline	acceptable	Rural Malawi
female headed household	47%	34%	24%	30%
elderly headed household	29%	28%	20%	24%
orphans in the household	21%	17%	16%	17%
chronically ill in the household	6%	6%	4%	5%
disabled in the household	10%	10%	10%	10%
recent death in the household	8%	6%	7%	7%
main earner died	5%	3%	3%	3%
high percent eff deps (80 or more)	28%	23%	15%	19%
head can read and write basic	48%	56%	69%	62%
migrated head	8%	9%	13%	11%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

No. times a week food item (or group) was consumed disaggregated by livelihood zone

average no. times a week	Rural Malawi	Livelihood zones											
		Lakeshore	Kasungu Lilongwe Plain	Lower Shire	Western Rumpfi, Mzimba SS	Nkhata Bay Cassava + S. Karonga	Rift Valley	Shire Highlands	Lake Chirwa + Phalombe Plain	Middle Shire Valley	Thyolo Mulanje Tea Est	Chitipa + Nland C. Karonga + Misuku Hills	Phirirongwe Hills
CEREALS (maize, bread)	6.6	6.4	6.9	6.8	6.9	6.5	6.8	6	6.1	6.6	6.8	6.8	6.8
STAPLES (cereals & tubers)	6.7	6.9	7	6.8	7	6.9	6.9	6.2	6.3	6.6	6.8	6.9	6.8
ANIMAL PROTEINS	2.5	3.7	2	2.6	2.8	3.7	2.7	2.8	2.7	2.2	2.7	2.8	2.5
maize, maize porridge, etc	6.4	6.2	6.9	5.8	6.8	6.3	6.7	5.8	5.8	6.4	6.7	6.6	6.8
other cereals	0.5	0.8	0.1	2.5	0.6	1.4	0.5	0.3	0.7	0.3	0.3	0.6	0.4
wheat/bread	0.6	0.7	0.6	0.3	0.4	0.4	0.6	0.6	0.6	0.4	0.8	0.3	0.1
roots and tubers	1.5	2.3	1.7	0.4	2.2	2.6	1.9	1.2	0.9	0.8	1.7	2.6	1
beans and peas	1.5	1.1	2	1.2	1.7	1.6	1.8	1.2	0.8	1.2	1.2	2.5	1
sugar/sugar products	2.5	3	2.1	2.3	2.7	3.4	3.2	2.2	2.4	2.2	3.2	3.4	2.5
vegetables	5.6	5.2	6	5.6	5.4	5.1	5.8	5	5	5.7	6.1	6.2	6.1
fruits	1	0.8	0.8	1.1	0.7	0.7	1.2	1.2	1	0.5	2.9	0.7	0.1
meat	0.5	0.5	0.5	0.3	0.7	0.7	0.6	0.4	0.4	0.3	0.7	0.6	0.3
fish	1.8	3.1	1.2	2.1	1.9	3.1	1.8	2.2	2.1	1.9	1.8	1.9	2.2
eggs	0.3	0.3	0.3	0.2	0.3	0.2	0.4	0.2	0.3	0.1	0.4	0.3	0.1
milk/yogurt/dairy	0.3	0.4	0.3	0.2	0.5	0.4	0.3	0.3	0.2	0.2	0.5	0.4	0.1
oils/fats/butter	1.9	1.7	1.7	1.8	2.3	3	2.2	1.8	1.9	1.3	2.7	4	1
condiments/spices	0.5	0.2	0.5	0.2	0.1	0.2	0.4	0.8	0.7	0.3	0.1	0.1	0.1

min = 0; max = 7

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

No times a week food item (or group) was consumed disaggregated by livelihood group

average no. times a week	Rural Malawi	Livelihood groups												
		Agriculturalists (food crops)	Agriculturalists (cash & food crops)	Agric wage labourers	Traders	Salaried	Self-employed	Non agric wage labourers	Brewers	Petty traders	Fishermen	Agro-pastorals	Artisans	Others
CEREALS	6.6	6.7	6.7	6.1	6.8	6.7	6.8	6.4	6.7	6.5	6.4	6.9	6.3	6.5
STAPLES	6.7	6.8	6.8	6.2	6.9	6.8	6.9	6.4	6.8	6.6	6.6	6.9	6.4	6.6
ANIMAL PROTEINS	2.5	2.3	2.6	1.8	3.5	3.5	2.9	2.3	2.2	2.7	4	2.8	2.2	2
maize, porridge, etc	6.4	6.5	6.6	5.8	6.7	6.3	6.6	6.1	6.6	6.3	6.1	6.7	6.1	6.3
other cereals	0.5	0.5	0.5	0.3	0.5	0.8	0.8	0.5	0.2	0.5	0.8	0.6	0.2	0.8
wheat/bread	0.6	0.4	0.6	0.4	1.5	1.3	1.1	0.4	0.3	0.6	0.8	0.3	0.3	0.3
roots and tubers	1.5	1.4	1.7	1	2	1.8	1.6	1.4	1.7	1.4	1.5	1.8	1.5	1.1
beans and peas	1.5	1.3	1.8	1	1.7	1.5	1.6	1.3	1.8	1.3	1.2	1.8	1.7	1.1
sugar/sugar products	2.5	2.3	2.5	1.5	4.3	4.2	3.5	1.6	1.7	2.2	3	2.5	2	2
vegetables	5.6	5.8	5.8	5.2	5.2	5.5	5.5	5.3	5.6	5.1	4.8	6	4.9	5.1
fruits	1	1.1	0.9	0.8	1.3	1.4	1.4	0.9	1	1.2	0.8	1.1	1.4	0.9
meat	0.5	0.4	0.6	0.2	1.1	0.9	0.6	0.3	0.4	0.6	0.4	0.9	0.4	0.4
fish	1.8	1.8	1.8	1.4	2.1	2.2	2.1	1.9	1.6	1.9	3.5	1.6	1.6	1.5
eggs	0.3	0.2	0.3	0.1	0.5	0.6	0.3	0.2	0.2	0.3	0.3	0.4	0.2	0.1
milk/yogurt/dairy	0.3	0.2	0.3	0.1	1.1	1	0.7	0.3	0	0.2	0.4	0.3	0.2	0.2
oils/fats/butter	1.9	1.7	2	1.1	3.6	3.6	3.2	1.2	1.3	1.9	2	1.7	1.5	1
condiments/spices	0.5	0.3	0.5	0.5	1	1.1	0.8	0.3	0.3	0.5	0.2	0.4	0.7	0.7

min = 0; max = 7

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

No times a week food item (or group) was consumed disaggregated by wealth and FCG

average no. times a week	Rural Malawi	Wealth Quintiles					FCGs		
		poorest	poor	medium	wealthy	wealthiest	poor	borderline	acceptable
CEREALS (maize, bread, others)	6.6	6.6	6.6	6.5	6.7	6.7	5.3	6.7	6.9
STAPLES (cereals & tubers)	6.7	6.7	6.7	6.7	6.8	6.8	5.5	6.8	7
ANIMAL PROTEINS	2.5	1.5	2.1	2.6	2.9	3.6	0.4	1.1	4
maize, maize porridge, etc	6.4	6.6	6.4	6.3	6.4	6.5	5	6.5	6.7
other cereals	0.5	0.2	0.4	0.5	0.6	0.9	0.3	0.4	0.7
wheat/bread	0.6	0.2	0.3	0.4	0.6	1.2	0.2	0.2	0.9
roots and tubers	1.5	1	1.3	1.5	1.8	2	0.6	1.1	2
beans and peas	1.5	1.3	1.4	1.5	1.6	1.7	0.1	1.1	2.1
sugar/sugar products	2.5	1.1	1.7	2.2	2.9	4.3	0.4	1.3	3.7
vegetables	5.6	5.8	5.7	5.4	5.4	5.5	4.2	5.6	5.8
fruits	1	0.7	0.8	1	1.1	1.5	0.1	0.6	1.6
meat	0.5	0.2	0.3	0.4	0.6	1.1	0	0.1	0.9
fish	1.8	1.2	1.6	2	2.1	2.2	0.4	0.9	2.8
eggs	0.3	0.1	0.2	0.2	0.3	0.6	0	0.1	0.5
milk/yogurt/dairy	0.3	0	0.1	0.2	0.3	0.9	0	0	0.6
oils/fats/butter	1.9	0.7	1.1	1.7	2.3	3.6	0.2	0.8	3
condiments/spices	0.5	0.2	0.4	0.4	0.5	0.8	0.1	0.3	0.7

min = 0; max = 7

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Households consuming a food item (or food group) at least once a week disaggregated by livelihood zone

at least once a week	Rural Malawi	Livelihood zones											
		Lakeshore	Kasungu Lilongwe Plain	Lower Shire	Western Rumphu, Mzimba SS	Nkhata Bay Cassava + S. Karonga	Rift Valley	Shire Highlands	Lake Chirwa + Phalombe Plain	Middle Shire Valley	Thyolo Mulanje Tea Est	Chitipa + N.and C. Karonga + Misuku Hills	Phirilongwe Hills
maize	96%	95%	100%	92%	100%	96%	100%	86%	91%	94%	100%	99%	98%
other cereals	19%	31%	6%	57%	27%	48%	19%	16%	27%	16%	15%	29%	15%
bread	19%	21%	20%	9%	16%	17%	21%	23%	22%	13%	22%	14%	3%
cereals	99%	97%	100%	99%	100%	96%	100%	95%	99%	97%	100%	99%	98%
tubers	49%	60%	53%	17%	66%	72%	56%	43%	38%	33%	54%	72%	34%
staples	99%	100%	100%	99%	100%	99%	100%	96%	99%	98%	100%	100%	98%
pulses	61%	52%	73%	51%	64%	67%	75%	55%	42%	53%	52%	85%	38%
sugar	53%	58%	44%	56%	57%	68%	67%	54%	59%	50%	61%	61%	48%
vegetables	94%	94%	98%	92%	97%	93%	99%	85%	86%	91%	99%	97%	98%
fruits	32%	26%	27%	31%	24%	22%	38%	40%	32%	20%	66%	22%	8%
meats	27%	24%	30%	17%	40%	32%	32%	22%	24%	15%	33%	39%	12%
fish	65%	78%	52%	70%	67%	83%	66%	78%	70%	67%	73%	61%	60%
eggs	16%	15%	18%	11%	17%	12%	19%	13%	14%	6%	19%	15%	5%
animal proteins	74%	82%	65%	75%	78%	87%	76%	83%	77%	72%	80%	69%	62%
milk	8%	12%	7%	5%	15%	13%	8%	9%	7%	4%	10%	11%	1%
oil	49%	41%	45%	44%	58%	79%	53%	51%	55%	39%	63%	74%	21%
condiments	13%	6%	16%	4%	5%	5%	15%	20%	18%	8%	4%	3%	1%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Households consuming a food item (or group) at least once a week disaggregated by livelihood group

at least once a week	Rural Malawi	Livelihood groups												
		Agriculturalists (food crops)	Agriculturalists (cash & food crops)	Agric wage labourers	Traders	Salaried	Self-employed	Non agric wage labourers	Brewers	Petty traders	Fishermen	Agro-pastorals	Artisans	Others
maize	96%	98%	97%	87%	99%	94%	98%	92%	98%	94%	92%	98%	90%	97%
other cereals	19%	19%	18%	13%	18%	35%	23%	18%	9%	20%	24%	20%	7%	31%
bread	19%	14%	21%	14%	40%	44%	35%	16%	13%	23%	23%	12%	14%	11%
cereals	99%	99%	99%	95%	99%	100%	99%	99%	100%	97%	99%	100%	95%	98%
tubers	49%	46%	52%	37%	61%	56%	51%	48%	55%	44%	53%	56%	48%	40%
staples	99%	100%	99%	96%	100%	100%	100%	99%	100%	97%	99%	100%	95%	99%
pulses	61%	55%	70%	46%	70%	67%	65%	55%	66%	59%	53%	73%	70%	51%
sugar	53%	51%	53%	45%	76%	77%	67%	40%	39%	53%	67%	49%	47%	45%
vegetables	94%	95%	95%	86%	98%	97%	97%	89%	97%	90%	91%	98%	88%	88%
fruits	32%	33%	30%	24%	44%	41%	42%	31%	31%	33%	27%	38%	43%	28%
meats	27%	22%	31%	15%	55%	46%	35%	18%	25%	28%	22%	39%	20%	23%
fish	65%	62%	65%	58%	72%	78%	73%	71%	63%	69%	81%	60%	63%	59%
eggs	16%	12%	18%	9%	28%	32%	16%	10%	13%	16%	19%	24%	16%	9%
animal proteins	74%	69%	77%	64%	87%	87%	81%	75%	72%	76%	88%	75%	72%	69%
milk	8%	5%	9%	2%	25%	23%	16%	8%	2%	6%	13%	7%	5%	5%
oil	49%	44%	52%	40%	77%	77%	68%	41%	37%	51%	54%	45%	51%	37%
condiments	13%	9%	14%	14%	27%	24%	17%	8%	9%	11%	7%	15%	20%	20%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Households consuming at least once a week a food item (or food group): disaggregated by wealth and FCGs

at least once a week	Rural Malawi	Wealth Quintiles					FCGs		
		poorest	poor	medium	wealthy	wealthiest	poor	borderline	acceptable
maize	96%	97%	96%	95%	95%	96%	81%	97%	99%
other cereals	19%	8%	13%	19%	23%	33%	13%	13%	24%
bread	19%	7%	12%	16%	22%	39%	11%	10%	28%
cereals	99%	98%	99%	98%	99%	99%	91%	100%	100%
tubers	49%	37%	45%	47%	53%	61%	23%	42%	59%
staples	99%	98%	100%	99%	99%	100%	93%	100%	100%
pulses	61%	54%	56%	59%	64%	71%	10%	54%	77%
sugar	53%	31%	42%	52%	64%	78%	20%	36%	73%
vegetables	94%	95%	94%	91%	93%	96%	71%	95%	98%
fruits	32%	24%	28%	31%	35%	42%	6%	22%	46%
meats	27%	11%	19%	22%	31%	51%	2%	10%	44%
fish	65%	47%	60%	71%	72%	76%	21%	49%	86%
eggs	16%	9%	10%	13%	18%	29%	2%	6%	26%
animal proteins	74%	54%	68%	77%	81%	89%	23%	58%	96%
milk	8%	1%	2%	6%	9%	22%	0%	1%	15%
oil	49%	28%	35%	49%	61%	74%	17%	30%	71%
condiments	13%	9%	11%	12%	14%	19%	3%	8%	18%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Households who relied mainly on production (by month) disaggregated by FCGs and wealth

Production	Rural Malawi	food consumption groups			Wealth Quintiles				
		poor	borderline	acceptable	poorest	poor	medium	wealthy	wealthiest
Jan	34%	18%	28%	42%	20%	25%	30%	38%	57%
Feb	30%	15%	24%	37%	17%	22%	26%	33%	52%
March	52%	49%	46%	57%	40%	47%	52%	56%	66%
April	85%	83%	84%	86%	82%	83%	85%	86%	87%
May	87%	85%	86%	87%	85%	86%	85%	88%	88%
June	84%	81%	84%	86%	82%	83%	82%	87%	88%
July	82%	76%	80%	84%	77%	80%	80%	84%	87%
August	78%	68%	76%	81%	70%	77%	77%	80%	85%
Sept	72%	56%	70%	76%	61%	70%	71%	77%	81%
Oct	64%	45%	61%	71%	50%	61%	63%	70%	77%
Nov	55%	36%	50%	63%	40%	48%	53%	60%	72%
Dec	48%	32%	43%	56%	33%	42%	45%	55%	67%

Households who relied mainly on purchase (by month) disaggregated by FCGs and wealth

Purchase	Rural Malawi	food consumption groups			Wealth Quintiles				
		poor	borderline	acceptable	poorest	poor	medium	wealthy	wealthiest
Jan	47%	63%	52%	39%	57%	55%	51%	43%	28%
Feb	50%	66%	54%	43%	59%	58%	54%	46%	32%
March	30%	35%	34%	27%	37%	35%	31%	27%	22%
April	8%	9%	8%	7%	8%	9%	8%	6%	8%
May	7%	8%	8%	6%	8%	8%	8%	5%	7%
June	8%	11%	9%	7%	10%	9%	9%	6%	8%
July	11%	16%	11%	9%	13%	12%	12%	7%	9%
August	13%	23%	14%	11%	19%	16%	14%	9%	10%
Sept	18%	30%	19%	14%	25%	20%	20%	13%	12%
Oct	24%	41%	26%	18%	34%	27%	26%	17%	14%
Nov	31%	49%	35%	24%	43%	35%	33%	25%	18%
Dec	36%	53%	40%	29%	49%	42%	40%	29%	22%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Households who relied mainly on production (by month) disaggregated by Livelihood zone

Production	Rural Malawi	Livelihood zones												
		Lakeshore	Kasungu Lilongwe Plain	Lower Shire	Western Rumphu, Mzimba SS	Nkhata Bay Casava + S. Karonga	Rift Valley	Shire Highlands	Lake Chirwa + Phalombe Plain	Middle Shire Valley	Thyolo Mulanje Tea Est	Utrupa + Nand C. Karonga + Misuku Hills	Phirilongwe Hills	
Jan	34%	41%	41%	11%	62%	52%	26%	28%	19%	26%	30%	79%	26%	
Feb	30%	37%	35%	9%	57%	48%	22%	25%	17%	22%	28%	77%	26%	
March	52%	53%	46%	38%	65%	84%	52%	58%	46%	67%	60%	88%	62%	
April	85%	79%	92%	48%	91%	92%	77%	87%	81%	91%	90%	94%	86%	
May	87%	86%	94%	56%	95%	90%	82%	85%	79%	92%	89%	94%	84%	
June	84%	84%	92%	56%	94%	91%	82%	83%	76%	87%	82%	94%	81%	
July	82%	84%	90%	51%	95%	90%	82%	79%	72%	84%	76%	93%	76%	
August	78%	79%	87%	43%	94%	90%	79%	75%	65%	81%	72%	93%	69%	
Sept	72%	76%	82%	40%	91%	89%	73%	66%	57%	72%	67%	93%	65%	
Oct	64%	68%	74%	33%	85%	85%	66%	58%	46%	60%	61%	93%	52%	
Nov	55%	61%	66%	25%	80%	82%	56%	45%	34%	46%	50%	92%	40%	
Dec	48%	56%	59%	24%	74%	81%	47%	38%	28%	39%	43%	90%	34%	

Households who relied mainly on production (by month) disaggregated by Livelihood group

Production	Rural Malawi	Livelihood groups												
		Agriculturalists (food crops)	Agriculturalists (cash & food crops)	Agric wage labourers	Traders	Salaried	Self-employed	Non agric wage labourers	Brewers	Petty traders	Fishermen	Agro-pastorals	Artisans	Others
Jan	34%	33%	45%	12%	41%	38%	32%	27%	25%	32%	24%	40%	24%	25%
Feb	30%	30%	39%	12%	34%	33%	30%	21%	23%	25%	22%	37%	20%	24%
March	52%	52%	58%	45%	49%	46%	52%	45%	43%	51%	52%	55%	53%	36%
April	85%	81%	93%	84%	77%	73%	89%	85%	88%	84%	81%	87%	83%	69%
May	87%	85%	94%	87%	81%	75%	84%	80%	89%	83%	83%	90%	85%	72%
June	84%	83%	93%	81%	81%	73%	84%	79%	87%	80%	81%	89%	85%	69%
July	82%	80%	91%	74%	78%	72%	80%	77%	84%	73%	77%	87%	76%	67%
August	78%	77%	88%	65%	75%	72%	73%	74%	80%	70%	68%	85%	73%	60%
Sept	72%	71%	84%	54%	69%	68%	66%	61%	73%	66%	64%	79%	67%	54%
Oct	64%	63%	77%	43%	64%	61%	61%	50%	61%	58%	57%	75%	52%	51%
Nov	55%	54%	68%	33%	56%	54%	49%	42%	48%	49%	45%	65%	43%	44%
Dec	48%	48%	61%	28%	56%	51%	41%	38%	41%	44%	37%	53%	36%	35%

Rural Malawi 2009 Comprehensive Food Security and Vulnerability Analysis (CFSVA)

Households who relied mainly on purchase (by month) disaggregated by Livelihood zone

Purchase	Rural Malawi	Livelihood zones													
		Lakeshore	Kasungu Lilongwe Plain	Lower Shire	Western Rumphii, Mzimba SS	Nkhata Bay Casava + S. Karonga	Rift Valley	Shire Highlands	Lake Chirwa + Phalombe Plain	Middle Shire Valley	Thyolo Mulanje Tea Est	Chitipa + Nland C. Karonga + Misuku Hills	Phirirongwe Hills		
Jan	47%	39%	45%	60%	17%	22%	44%	53%	54%	55%	58%	13%	57%		
Feb	50%	40%	51%	60%	20%	26%	46%	54%	55%	57%	59%	14%	57%		
March	30%	26%	40%	34%	16%	14%	23%	25%	30%	22%	29%	11%	23%		
April	8%	10%	5%	24%	4%	7%	11%	4%	10%	4%	9%	6%	3%		
May	7%	5%	5%	18%	4%	7%	8%	6%	11%	3%	10%	6%	3%		
June	8%	6%	6%	19%	4%	7%	8%	7%	13%	6%	14%	6%	6%		
July	11%	7%	8%	21%	4%	8%	8%	11%	16%	8%	19%	6%	9%		
August	13%	10%	10%	29%	4%	8%	10%	13%	21%	11%	21%	6%	14%		
Sept	18%	13%	13%	33%	5%	9%	15%	20%	28%	18%	25%	6%	23%		
Oct	24%	18%	19%	40%	7%	11%	19%	27%	36%	25%	31%	7%	33%		
Nov	31%	23%	25%	44%	9%	13%	24%	38%	44%	36%	40%	8%	42%		
Dec	36%	27%	31%	48%	11%	14%	29%	47%	48%	44%	47%	8%	48%		

Households who relied mainly on purchase (by month) disaggregated by Livelihood group

Purchase	Rural Malawi	Livelihood groups												
		Agriculturalists (food crops)	Agriculturalists (cash & food crops)	Agric wage labourers	Traders	Salaried	Self-employed	Non agric wage labourers	Brewers	Petty traders	Fishermen	Agro-pastorals	Artisans	Others
Jan	47%	47%	43%	49%	29%	46%	50%	49%	53%	49%	58%	45%	58%	44%
Feb	50%	49%	48%	49%	35%	48%	52%	54%	54%	55%	58%	47%	60%	42%
March	30%	29%	29%	22%	28%	38%	36%	35%	40%	31%	31%	31%	31%	37%
April	8%	7%	4%	6%	11%	19%	9%	8%	5%	10%	11%	7%	9%	20%
May	7%	4%	4%	6%	9%	19%	10%	13%	6%	13%	10%	6%	9%	23%
June	8%	6%	4%	10%	11%	21%	12%	13%	6%	13%	12%	6%	9%	23%
July	11%	8%	5%	15%	14%	21%	15%	15%	10%	21%	15%	8%	16%	25%
August	13%	11%	8%	22%	12%	21%	18%	17%	13%	21%	22%	11%	21%	26%
Sept	18%	15%	11%	28%	15%	25%	22%	28%	19%	26%	27%	15%	24%	31%
Oct	24%	21%	15%	34%	20%	28%	29%	36%	27%	33%	33%	19%	35%	34%
Nov	31%	30%	22%	41%	27%	33%	37%	39%	36%	39%	40%	28%	37%	38%
Dec	36%	35%	28%	45%	30%	36%	44%	44%	43%	44%	45%	37%	46%	41%

ANNEX VI: PARAMETER ESTIMATES FOR PREDICTORS OF FOOD INSECURITY

R Square = 0.186

Model: FOOD CONSUMPTION SCORE (standard) = (Intercept) + literate_head + migratedhead_biv + FHH + oldhead + chrodiss + death + orph2 + Zone2 + Lgroup2 + Q4.2 + Q4.6 + hssize + pctdeps + variety_crops2 + MAIZEusual2 + MAIZEprod2 + TLU + CSI_reduced

		Parameter	Estimate	95% Confidence Interval		Hypothesis Test		
				Lower	Upper	t	df	Sig.
		(Intercept)	43.12397	37.18032	49.06762	14.28801	256	0.000
Literate HH head	no	[literate_head=0]	-1.83606	-2.72021	-0.95192	-4.08951	256	0.000
	yes	[literate_head=1]	0	.	.	.	.	.
Migrated head	not migrated	[migratedhead_biv=0]	-2.46808	-4.13415	-0.80201	-2.91724	256	0.004
	migrated	[migratedhead_biv=1]	0	.	.	.	.	.
Female headed HH	MHH	[FHH=0]	1.998206	0.938312	3.058101	3.712648	256	0.000
	FHH	[FHH=1]	0	.	.	.	.	.
Elderly headed HH	not old	[oldhead=0]	0.226087	-1.17424	1.626419	0.317944	256	0.751
	Head 60+ years	[oldhead=1]	0	.	.	.	.	.
Any CI or disabled member	no	[chrodiss=0]	0.762261	-0.49988	2.024403	1.189327	256	0.235
	yes	[chrodiss=1]	0	.	.	.	.	.
Member died months	no	[death=0]	-0.40553	-2.2372	1.426141	-0.43599	256	0.663
	yes	[death=1]	0	.	.	.	.	.
Any orphans?	no	[orph2=0]	0.09684	-1.05594	1.249622	0.165429	256	0.869
	yes	[orph2=1]	0	.	.	.	.	.
Livelihood Zone	Lakeshore	[Zone2=1]	-0.28473	-4.08621	3.516762	-0.1475	256	0.883
	Kasungu Lilongwe Plain	[Zone2=2]	-5.50839	-8.61264	-2.40414	-3.49441	256	0.001
	Lower Shire	[Zone2=3]	-3.27684	-6.85195	0.298277	-1.80497	256	0.072
	Western Rumphu, Mzimba SS	[Zone2=4]	-3.96721	-7.1886	-0.74583	-2.42521	256	0.016
	Mkhala Bay Cassava + S. Karonga	[Zone2=5]	1.233078	-2.54098	5.007139	0.64341	256	0.521
	Rift Valley	[Zone2=6]	-0.80329	-4.61957	3.012994	-0.41451	256	0.679
	Shire Highlands	[Zone2=7]	-4.15698	-7.54127	-0.77269	-2.41889	256	0.016
	Lake Chirwa + Phalombe Plain	[Zone2=8]	-5.03344	-8.25633	-1.81054	-3.07557	256	0.002
	Middle Shire Valley	[Zone2=9]	-5.67639	-9.00282	-2.34997	-3.36048	256	0.001
	Thyolo Mulanje Tea Estate	[Zone2=10]	1.749494	-1.94954	5.44853	0.931386	256	0.353
	Phirilongwe Hills	[Zone2=12]	-5.16768	-9.00236	-1.33301	-2.65383	256	0.008
	Chitipa+N.C.Karonga+Misuku H.	[Zone2=13]	0

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	Parameter	Estimate	95% Confidence Interval		Hypothesis Test			
			Lower	Upper	t	df	Sig.	
Livelihood Group	Agriculturalists (food crops)	[Lgroup2=1]	-0.40496	-1.82527	1.015348	-0.56148	256	0.575
	Agric wage laborers	[Lgroup2=3]	-5.32505	-7.09	-3.5601	-5.94151	256	0.000
	Traders	[Lgroup2=4]	8.156455	4.661121	11.65179	4.595353	256	0.000
	Salaried	[Lgroup2=6]	5.611904	2.179987	9.043821	3.220176	256	0.001
	Self-employed	[Lgroup2=8]	2.711773	-0.00268	5.426225	1.967331	256	0.050
	Non agric wage laborers	[Lgroup2=9]	-1.89974	-4.19509	0.395605	-1.62987	256	0.104
	Brewers	[Lgroup2=10]	-0.20871	-2.57134	2.15391	-0.17396	256	0.862
	Petty traders	[Lgroup2=11]	-0.37603	-2.56321	1.811139	-0.33857	256	0.735
	Fishermen	[Lgroup2=12]	4.093541	0.588956	7.598127	2.300216	256	0.022
	Agro-pastorals	[Lgroup2=14]	0.510758	-2.2777	3.299217	0.360709	256	0.719
	Artisans	[Lgroup2=15]	-1.38041	-4.8647	2.103883	-0.78019	256	0.436
	Others	[Lgroup2=16]	-1.64211	-5.83721	2.552986	-0.77084	256	0.442
	Agriculturalists (cash & food crops)	[Lgroup2=17]	0	.	.	.	.	.
	How much land cultivated in 07/08 season?	did not cultivate	[Q4.2=0]	0.586153	-3.11727	4.289573	0.311684	256	0.756
less than 0.5 acre		[Q4.2=1]	-3.24207	-5.81037	-0.67376	-2.48588	256	0.014
0.5 to 1 acre		[Q4.2=2]	-3.31125	-5.61332	-1.00917	-2.83255	256	0.005
1 to 2 acres		[Q4.2=3]	-2.32834	-4.50631	-0.15036	-2.10523	256	0.036
2 to 4 acres		[Q4.2=4]	-2.07697	-4.17938	0.025445	-1.94544	256	0.053
4 acres or more		[Q4.2=5]	0	.	.	.	.	.
Any irrigation farming in 2007/08?	no	[Q4.6=0]	-2.48745	-3.69043	-1.28446	-4.07192	256	0.000
	yes	[Q4.6=1]	0	.	.	.	.	.
Household Size	hhsiz	0.407297	0.08374	0.730855	2.478943	256	0.014	
Percentage of effective dependents in the household	pctdeps	-0.02382	-0.04642	-0.00121	-2.07477	256	0.039	
Number of different crops cultivated	variety_crops2	0.975775	0.5305	1.42105	4.315465	256	0.000	
Usual duration of the maize harvest in months	MAIZEusual2	0.13756	-0.01058	0.285701	1.828624	256	0.069	
2007/08 production of maize in kg	MAIZEprod2	0.001344	0.000615	0.002073	3.629931	256	0.000	
Tropical Livestock Unit	TLU	0.958649	0.488686	1.428612	4.017003	256	0.000	
Reduced Coping Strategy Index	CSI_reduced	-0.1339	-0.17895	-0.08884	-5.85205	256	0.000	