Multi-dimensional Livelihoods Assessment in Conflict Affected Areas (MULACAA)

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Acronyms and Abbreviations

CSO	Central Statistical Organization
DHS	Demographic and Health Survey
EAs	Enumeration Areas
FCS	Food Consumption Score
FGDs	Focus group Discussions
FAO	Food and Agricultural Organization of the United Nations
HHs	Households
K	Number of enumeration areas selected from each layer
KIIs	Key Informants Interviews
MULACAA	Multi-dimensional Livelihoods Assessment in Conflict Affected Areas
n	Number of HHs in each EA from the 2004 Census
N	Total number of households in each layer
NSPMS	Social Protection Monitoring Survey
NGOs	Nongovernmental Organizations
PCA	Principal Component Analysis
PPS	Probability Proportional to Size
SI	Sampling Interval
SLA	Sustainable Livelihood Approach
SLF	Sustainable Livelihood Framework
SMIs	Small and Micro Enterprises
SWF	Social Fund for Development
TV	Television
UNDP	United Nations Development Program
USD	United States Dollars
WFP	World Food Program
WI	Wealth Index
YER	Yemeni Riyals

1. Introduction

1.1 Rationale and Aim of the Assessment

Conflicts and disasters tend to have a disproportionate effect on the lives and livelihoods of the poor, especially women and youth, while heightening vulnerabilities among other groups. These vulnerabilities have the potential to continue and expand long after the initial crisis has subsided. Consequently, in disaster and post disaster contexts, peoples' livelihoods are at the heart of any response and recovery. The aim is to help the country and communities to stem the tide of increasing vulnerability, to foster peace and stability, to build resilience to future crises, and to set in motion an equitable and sustainable process of development.

1.2 Scope and Location

The household survey was carried out in four governorates namely Abyan, Taiz, Amran, and Hajja. The survey did not cover nomads and communal housings and establishments. Of the total 1746 household planned to be interviewed only 1723 were actually interviewed, which constitutes 98.7 percent of the total sample.

1.3 Sampling

1.3.1 Sampling Frame

The 2004 national census was used as the sampling frame, as it is the most recent frame available for the surveyed population with its administrative structures and enumeration areas. Using this sampling frame offers several advantages by virtue of it newness, and perhaps the most important is to guarantee the stability of the sampled households and to ensure the accuracy of the selected sample. From this sampling frame, the EAs were drawn, and the survey clusters were determined to be 98 EAs, and from each EA 18 households were drawn resulting in a total sample size of 1764. After drawing the 98 EAs from each governorate, the EAs were updated through household listing in the field by obtaining a list of household members from heads of households in each EA. The household listing was carried out by trained fieldworkers to ensure high accuracy of the data collected.

1.3.2 Sample Design and Sample Size Determination

Sample Design
We used the two-stage stratified cluster sampling in which the population was distributed into four (4) strata. Each stratum represents a governorate. This ensures that the sample represents the population of each governorate and reflects the different characteristics within these governorates.

Sample Size Determination
The total sample size for the survey is 1764 households distributed proportionately among the four governorates. This sample size was determined in view of budgetary constraints and taking into account the quality of the results. An additional 10% was accounted for nonresponse. The sample size was distributed among the four governorates using the probability proportional to size (PPS) in each governorate. The PPS is a sampling technique used to give all households an equal probability of being selected.

$$\textbf{Sample size in the stratum} = \frac{\text{Number of HHs in stratum}}{\text{Total number of HHs in the study population}} \times 1764$$

The following table shows the distribution of households in the sample among the population strata using PPS.

Table 1: Distribution of the sample among the four strata

Governorate (stratum)		number of HHs in 2004	number of HHs in sample	number EAs sampled
Code	**Name**			
12	Abyan	58,833	144	8
15	Taiz	367,732	828	46
17	Hajja	194,972	504	28
29	Amran	106,732	288	16
	Total	**728,269**	**1,764**	**98**

1.3.3 Stratification and Sample Selection

- **Stratification**

  The sample is designed using a two-stage stratified cluster as outlined below:

  Initial Stage: Selection of EAs - primary sampling units. During this stage the EAs (primary sampling units) were selected. Total EAs selected reached 98 distributed among the surveyed population.

  Second Stage: Selection of HHs - final sampling units. After the completion of the household listing 18 HHs were selected from each EA using systematic random sampling technique.

- **Sample Selection**

  Initial Stage: Selection of EAs - primary sampling units
  The EAs were selected from each individual stratum using PPS based on the following formula:

$$p_1 = \frac{K * n}{N}$$

  Where:

  K = number of enumeration areas selected from each layer
  n = the number of HHs in each EA from the 2004 Census
  N = total number of households in each layer

  Second Stage: Selection of HHs - final sampling units
  The 18 HHs are drawn from each EA representing a cluster in the EA, which were selected during the first stage through systematic random sampling. The selection of HHs is made using the following formula:

$$p_2 = \frac{18}{n'}$$

Where 18 refers to 18 HHs, which is the cluster size and n' is the number of HHs in the EA from the 2004 Census. The final probability for the cluster is:

$$P = P_1 * P_2$$

$$P = \frac{K * n_{2004}}{N} * \frac{18}{n'_{2004}}$$

- **Procedure for HHs Sample Selection within the selected EAs:**

When selecting HHs within the selected EAs we used the systematic random selection as outlined in the following steps:

1. Sort households in each EA in ascending order. For example if an EA contains 180 households then they are sorted from 1 to 180.
2. Determine the *Sampling Interval (SI)* by dividing the total population in each by the number of clusters in each EA as follows:

$$SI = \frac{180}{18} = 10$$

3. Choose a number at random from the random list, which can for example be 0.362.
4. Multiply the random number by the SI (0.362x10=3.62). This is rounded up to 4 and becomes the first household selected in the EA.
5. Add SI (10) to the first household selected (10x4=14). The second household selected is then 14.
6. Add SI (10) to the second household selected (10x14=24). The second household selected is then 24.
7. Continue this process until selecting all the 18 households required in the sample within each EA.

1.3.4 Weights for inflating coefficient

Since the weight is inversely proportional to the final probability or inversely proportional to the stratification then the weight given to household in the EA of each stratum is calculate as follows.

$$W = \frac{1}{p} = \frac{N * n'_{2004}}{k * n_{2004} * 18}$$

$$W = \frac{N_{2004}}{K * 18}$$

In case the response rate from one EA to the other EA varies then it was necessary to modify the weight (W) by multiplying with the response rate.

1.3.5 Sample Coverage

Of the total 1746 household planned to be interviewed only 1718 were actually interviewed, which constitutes 98.7 percent of the total sample, while 23 households (1.3 percent) were non-responsive (14 households refused to response and 9 households were not available during the visit. The analysis of the data throughout the report will thus be based on the households interviewed.

Table 2: Sample Coverage

Results	Governorate								Total	
	Abyan		Taiz		Hajja		Amran			
Fully completed	136	94.4%	820	99.0%	495	98.2%	267	98.9%	**1718**	**98.4%**
Partially completed	3	2.1%			2	0.4%			**5**	**0.3%**
Refused to respond	1	0.7%	4	0.5%	7	1.4%	2	0.7%	14	0.8%
HH unavailable during visit	4	2.8%	4	0.5%			1	0.4%	9	0.5%
Total	144	100.0%	828	100.0%	504	100.0%	270	100.0%	1746	100.0%

1.4 Assessment Methodology

1.4.1 Data Collection Method and Instrument

Household interview was the data collection method used in the survey. The instrument used to guide the interview was semi-structured questionnaire that includes questions covering the following topics:

Section 1: Housing Characteristics
Section 2: Household & Demographic Characteristics, including education, employment, and skills
Section 3: Livelihood Strategies including main sources of income and food
Section 4: Effects of Conflicts and Coping Strategies
Section 5: Household Assets
Section 6: Household Access to Remittance, Credits or Loans

A copy of the household questionnaire is enclosed as a separate appendix to this report.

1.4.2 Implementation

Data collection was carried out by 41 experienced fieldworkers (34 were female enumerators and 9 field team leaders) following six days intensive training. The 41 fieldworkers were organized in 8 teams. The number of teams per governorate varies to account for larger sample size in order to complete fieldwork within the scheduled date. The major challenge faced was in Amran where the team was stopped for several hours by armed tribesmen.

Table 3: Fieldwork Organization of Data Collection Teams

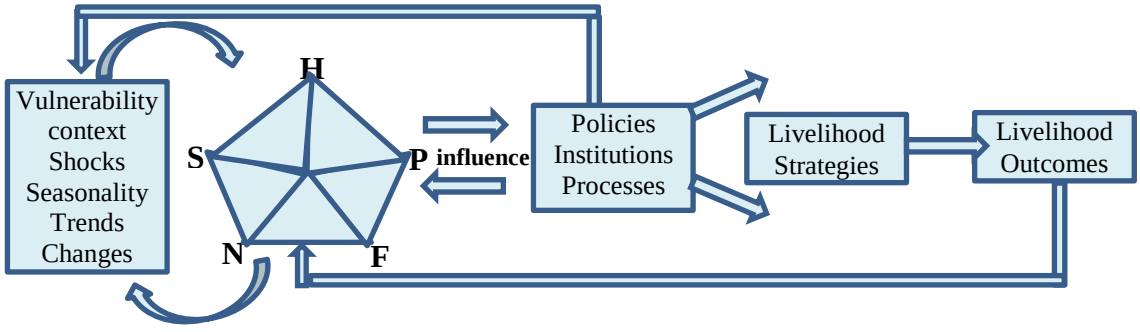
Governorates	number of teams	number of days
Abyan	1	14
Hajja	1	21
Taiz	4	38[a]
Amran	2	19[b]

Note [a]: 2 teams had 20 days and the other 2 had 18 days
Note [b]: 1 team had 22 days and the other one had 19 days

1.4.3 Sustainable Livelihoods Framework and Sustainable Livelihoods Approach

The survey employed the Sustainable Livelihoods Framework (SLF) and the Sustainable Livelihoods Approach (SLA) to analyze data and to structure the survey report. The SLF is depicted in Figure (4) below in which the five Livelihood Capitals around the pentagon shape are denoted by five letters Human (H), Physical (P), Financial (F), Natural (N), and Social (S).

Figure 4: Simplified operational version of SLF (modified from Ashley and Carney: 1999)



1.4.4 Wealth Index and Wealth Quartiles

In the absence of data on the level of income and expenditure for households we followed the steps proposed by ORC Macro published in the DHS Comparative Report No. 6 to construct the wealth index (WI) as a proxy measure of wealth or economic status of households, which in turn was used to rank households according to the level of wealth. The WI is a composite index constructed from the 26 variables comprising 14 household' unproductive assets; 7 productive assets; and 5 improved amenities. These are all listed in Table (5).

Table 5: Households assets & amenities used to construct WI

Unproductive Assets	Productive Assets	Improved amenities
TV set	Hoes	Permanent roof
Landline phone	Plows	Permanent floor
Fridge	Tractor	Gas fuel for cooking
Gas cooker	Animal cart	Light
Washing machine	Irrigation infrastructure	Sewerage
Electric fan	Boat	
Iron	Fishing equipment	
Computer		
Laptop		
Air conditioner		
Generator		
Satellite		
Wood stove		
Private car		

To construct the WI we used principal component analysis (PCA), which besides reducing the number of variables also scans patterns of relationship between variables to discover the underlying variations affecting them. This procedure first standardizes the indicator variables (calculating z-scores); then the component coefficient scores (component loadings) are calculated; and finally, for each household, the variable values are multiplied by the loadings and added together to create the household's wealth index value. In this process, the first component generated is often used to represent the wealth index. In our case we had to use three components to reflect the variability in the data. The three components preserved 35.83% percent of the data. Component (1) is correlated with assets that run on electricity (i.e. television, landline phone, fridge, gas cooker, washing machine, electric fan, iron, computer, laptop, generator, air-conditioner, gen-set, satellite), as well as improved amenities (i.e. permanent roof, permanent floor, gas fuel for cooking, light/electricity, and sewerage) that are mostly in urban areas. Component (2) is correlated with farming (hoes, plows, tractor, animal cart, irrigation infrastructure, and wood stoves) that are mostly in rural areas. Component (3) relates to fishing (boat, fishing equipment) logically located in coastal areas, which are characterized by their hot climate, and thus share similar assets (electric fan and air-conditioner) with Component (1). The loading coefficients are attached in annex one. The four wealth quartiles (Poorest, Poor, Less poor, and Better-off) used throughout the analysis of the report were classified by ranking households based on the WI value. We have chosen to have quartiles rather than quintiles purely for ease of presenting the charts by quartiles and locations next to each other.

Table 6: Rotated Component Matrix

Variables	Component 1	Component 2	Component 3
Private car	-.059	.007	.455
TV set	.695	.009	-.090
Landline phone	.476	.010	.108
Fridge	.735	-.003	.069
Gas cooker	.412	.137	-.069
Washing machine	.704	-.025	.082
Electric fan	.483	-.227	.211
Iron	.666	-.054	.080
Hoes	-.224	.653	-.103
Plows	-.112	.769	-.026
Tractor	.061	.607	.032
Animal cart	.004	.648	.039
Irrigation infrastructure	.104	.436	.026
PC	.313	.101	.051
Laptop	.368	-.005	.064
Boat	-.018	.015	.709
Fishing equipment	-.027	.017	.853
Air conditioner	.225	-.007	.350
Generator	.376	.091	-.010
Satellite	.582	.050	-.111
Wood stove	-.039	.279	-.272
Permanent roof	.396	-.226	-.039
Permanent floor	.592	-.114	.034
Gas fuel for cooking	.631	-.353	.020
Light	.653	-.067	-.078
Sewerage	.606	-.230	-.001

Overall the results of KMO and Bartlett's Test shows that Kaiser-Meyer-Olkin Measure of Sampling Adequacy is high (0.839) although the Measure for three variables namely private car, boat, and fishing equipment was lower than 0.5 The significant value (.000) of our analysis leads us to conclude that there are correlations in the data set that are appropriate for Factor Analysis.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.839
Bartlett's Test of Sphericity	Approx. Chi-Square	10663.280
	df	325
	Sig.	.000

1.4.5 Household Food Consumption Score (FCS)

Household Food Consumption Score (FCS) is a composite score based on dietary diversity, food frequency, and relative nutritional importance of different food groups (WFP, 2008). The FCS is widely being used in various countries as part of the Comprehensive Food Security and Vulnerability Analyses.

As part of this survey, households were asked to recall the food types they consumed and the frequency of consumption of each type in the last 7 days irrespective of whether a particular type was consumed once or more. To facilitate the interpretation of the results, the food types were reordered and grouped into 8 food groups following WFP Technical Guidance Sheet Calculation and use of the food consumption score (WFP, 2008). The consumption frequency of each food group in days was multiplied by an assigned weight that is based on its nutrient content as outline in Table (7) below.

Table 7: Food Items, Food Groups and Weights for Calculating FCS

	Food Items as stipulated in the questionnaire[1]	Food groups[2]	Weight[2]
1	Bread Potatoes Rice and cereals	Cereals tubers, & root crops	2
2	Vegetables	Vegetables	3
3	Fruits	Fruits	1
4	Beans, peas and nuts	Pulses	1
5	Meat & poultry Fish Eggs	Meat and fish	4
6	Dairy products excluding butter	Milk	4
7	Oil/fats (oil, fat or butter)	Sugar	0.5
8	Sugar, honey	Oil	0.5
	Condiments (small quantities to add flavor)		0.0

Source 1: Compiled from MULACAA survey data (UNDP, 2013)
Source 2: Technical Guidance Sheet Calculation and use of the food consumption score (WFP, 2008)

The FCS is a continuous variable, and to enhance interpretation we used the two thresholds (21 and 35) to distinguish consumption level as proposed by WFP (WFP, 2008). The thresholds define three groups: poor consumption (up to 21); borderline consumption (between 21.5 to 35, and acceptable food consumption over 35.

Table 8: Typical Thresholds

Typical Thresholds	Category
0 – 21	Poor food consumption
21.5 - 35	Borderline food consumption
> 35	**Acceptable food consumption**

1.4.6 Coping Strategies Index

It was not possible to calculate the *coping strategies index*, which combines the household's coping strategies into a single index, because the questionnaire referred to 'shortage of the quantity of food consumed since the start of the conflict in 2011', and was not specifically referring to the past seven days preceding the household interview, and so there was no information on the frequency of each coping strategy (i.e. for how long the household adopted each strategy). We recommend that the question on coping strategy is formulated correctly in future surveys, and also include a question specifically referring to coping strategies in relation to livelihood and conflicts not necessarily food security.

Executive summary

This report presents the results of a comprehensive Livelihoods Assessment in the four governorates of Abyan, Amran, Hajja and Taiz in Yemen. The objective of the assessment is to assess the effects of conflicts and other shocks on people's livelihoods particularly the most vulnerable groups, their livelihood strategies and coping mechanisms pursued to respond to shocks, and to identify priorities that can be used to help the country and communities to stem the tide of increasing vulnerability, to foster peace and stability, to build resilience to future crises, and to set in motion an equitable and sustainable process of development.

The assessment comprised a household survey of a representative sample size of 1,764 households in randomly selected from 59 districts in the four targeted governorates. The household survey was substantiated by a qualitative assessment in 8 districts on the basis of 2 districts in each governorate.

The assessment revealed the following findings:

- In general, households in the better-off quartile scored better than households in lower quartiles in a number of indicators related to **human capital** with only 20.6 percent of the persons aged 15 years and over are currently on **paid work** (31.3 percent from the better-off compared to only 11.4 percent from the poorest), a positive correlation is observed, which is statically significant between **higher education** and 'paid work' and also with 'regular salary' suggesting that higher education can increase human capabilities and enhance the prospects for improving livelihoods. However, with the drastic disparity in access to education between the poorest and the better-off on the one hand, and between male and female on the other, the prospects for enhancing the livelihoods of the poor are diminishing, which is an equity issue. Households in the poorest and poor quartiles are also overburdened with an **age dependency ratio** higher than that of the less poor and the better-off, and this again reduces their prospects of improving their livelihoods when faced with too few income earners feeding too many income earners, a situation that leads to a potential risk of vulnerability. **Female headed households** constitute 5.7 percent, and this figure tends to increase in lower quartiles, and almost all female heads did not complete secondary education compared to 24.6 percent of the better quartile who did.

- In a vulnerability context of unpredictable natural events that can undermine livelihoods and cause households to fall into poverty, housing elements in terms of **durability of walls**; **roof** and **floor** becomes a necessity in providing a safe shelter, saving lives and preserving livelihoods. 31.5 percent of the households (55.2 percent of the better-off compared to 2.6 percent of the poorest) live in durable buildings.

- Of the about 50.4 percent of the households in the four governorates that fetch water from the source, most of them are from the poorest. Around two thirds of the households reported not having sufficient water most of them are from the poorest quartile. The proportion of households with **inappropriate sanitation** is 58.5 percent compared to 7.1 percent among the better-off. Inappropriate sanitation has health implications on households members particularly diarrhea infections, and children are the most affected since they are the most vulnerable, which may result in malnutrition if left untreated. For school-aged children, it may result in absenteeism from school, and in reduced number of working days for adults, and consequently a loss of livelihoods for daily wagers who mostly belong to the poorest and the poor.

- Fifty six percent of the households are still using fossil **fuel for cooking.** Those using gas constitutes 44 percent (63.1 percent of the better-off and 16.2 percent of the poorest). By region, 94 percent urban households are gas users compared to 30.9 percent rural households. Two thirds of the households reported **using electricity for lighting** (90.7 percent of the households in the top quartile have electricity compared to only 21.3 percent from the poorest quartile).

- Livestock holders currently own on average 1.42 cows, 4 goats, 4 sheep, a camel, and a donkey. There does not seem to be any significant association between animal keeping and wealth ranking, possibly because the number of animals kept is not significant.

  Over thirty percent of rural households do not have any form of **access to agricultural land**. The overall average of **cultivated landholding** is 4.59 hectare (2.47 the average for the poorest and 9.25 for the better-off). Over two third (68.5 percent) of the farming households rely solely on rain-feed for irrigating of which the poorest constitutes the most. **Access to grazing areas** is constrained by landmines buried by Houthis in Mastaba (Hajja governorate) and by Al-Qaeda in Khanfar (Abyan Governorate) preventing farmers from cultivating their own land or from using the land for grazing. In Mastaba (Hajja governorate) Houthis were said to be preventing land owners from cultivating or grazing.

- A significant proportion of households (46.6 percent) obtain their food through barter exchange of goods, 32.4 percent borrow money from others while 36.7 percent through food for work, and such arrangements signifies strong **social capital** and a high level of trust. **Access to local formal institutions** (such as banking) was limited although mentioned by several households mostly in Hajja. **Access to formal credit** is very much impeded by collateral requirements that cannot be fulfilled by poor households, although 19 percent of the households from the poorest quartile reported getting credit through the informal sector and social networks, and local informal lenders, which is gratifying. **Access to cash assistance from the SWF** was reported by 4 percent of the households. Those who receive **remittance from inside Yemen** constitute 17 percent of the total sample of which 6.1 percent comes from a relative working in another governorate, 7.7 percent comes from SWF, and 1.3 percent pension. There is no significant difference between remittances before 2011 and in 2013.

- The poorest and the poor work as wage labor in agriculture and none have agriculture as the main **source of income** while some of them tend to loan from friends and relatives for support, and 7% rely on remittance from outside Yemen. Regular salary is the main income source for the better-off and the less poor while some are engaged in the production of qat. 'Buying on credit' seems to be the most common means of **'paying for food'** as reported by 54.6 percent of the households followed by 'cash purchase' reported by 28.8 percent. 'Borrow money from others' and bartering was reported by 5.7 and 4.6 percent respectively. By quartile, 'buying on credit' seems to be the most common means across all wealth groups. However, 'cash purchase' seems to be positively associated with increased wealth.

- The results of the household survey revealed that most households reported to have been affected` by conflicts in one way or another, and mostly referred to the 2011 conflict. Even households in the better-off quartile were not all immune to the effects of shocks and stresses. The main effects of the conflicts include insecurity; roadblocks and banditry; increase in price of productive resources; limited access to markets; and in the case of the market in Mastaba (Hajja governorate) the whole market was forcibly closed; loss or lack of access to productive

resources; and loss of livestock (shooting / looting). These shocks and conflicts resulted in extremely limited access to food to 4.6 percent of the poorest compared to 23.6 percent of the better-off, and consequently most households (89.2 percent) reported experiencing a decline in food availability, but the poorest and the poor were severely affected. Almost all (90.6 percent) of the poorest households have reduced their food intake, and nearly half of them (45.5 percent) have no food reserve, and with very limited choices before them, they tend to adopt negative coping strategies that include selling their assets and reducing the quantity and the quality of meals, and taking children from schools partly, because they cannot afford the costs of schooling, in order for the boys to support raising income. The food consumption score shows that 43.3 percent of the households exhibits acceptable food consumption, 36.2 percent seems to be on borderline, while 20.5 percent are already in a state of poor food consumption.

2. Findings

2.1 Livelihood Capitals

The five capitals and their relevant indicators of analysis are:

Capitals	Relevant Indicators
Human	Household characteristics, level of education, available skills, participation in the labor force, age dependency ratio, and health particularly disability and chronic diseases
Physical	Housing and shelter, water supply system and sanitation facility used by households, household assets, transport infrastructure, and telecommunications
Social	Social fabrics and networks, including support and gifts from friends and relatives, ability to influence and participate in decision making, gender roles, rights and entitlements
Financial	Salaries, livestock, remittances, access to credit, support from Social Welfare Fund, food security
Natural	Landholding, food security and agriculture, access to common resources, rainfall and vegetation, land use and environmental degradation

2.1.1 Human Capital

Human capital includes indicators related to household size and composition, level of education, available skills or ability to work, participation in the labor force, dependency ratio, and health particularly disability and chronic diseases.

2.1.1.1 Household Size and Composition

Household characteristics in terms of size and composition are quite relevant to household's livelihoods as these demographic indicators provide the first glance of the basis to assess household's opportunities and limitations to livelihoods vis-à-vis food security.

The overall average household size in the four governorates is 6.5, and this figure marks a drop from the 7.1 stipulated in the 2004 national census, and it is highly likely that household size has reduced over time. At the level of each governorate the household size varies with Amran having the largest household size (7.0) while Taiz has the lowest (6.3).

Figure 9: Average HH size by governorate

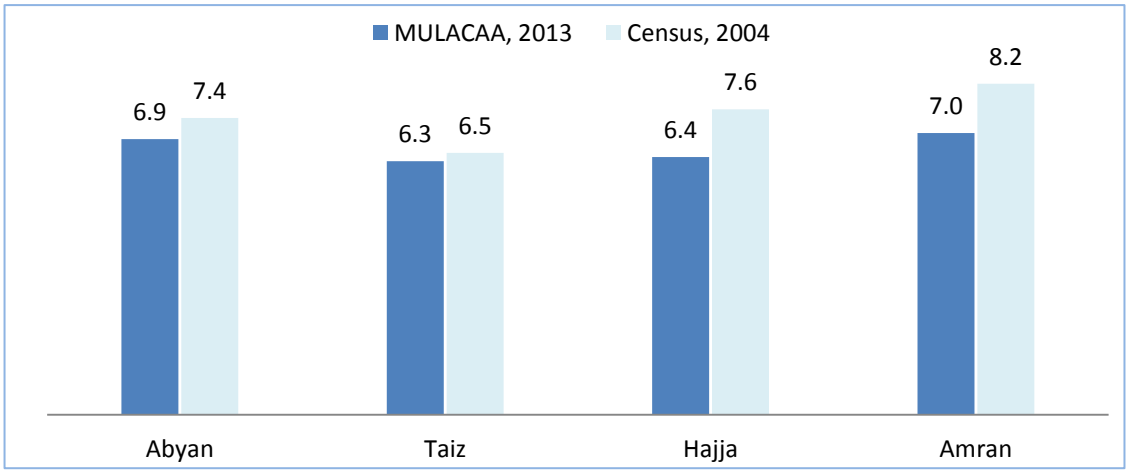
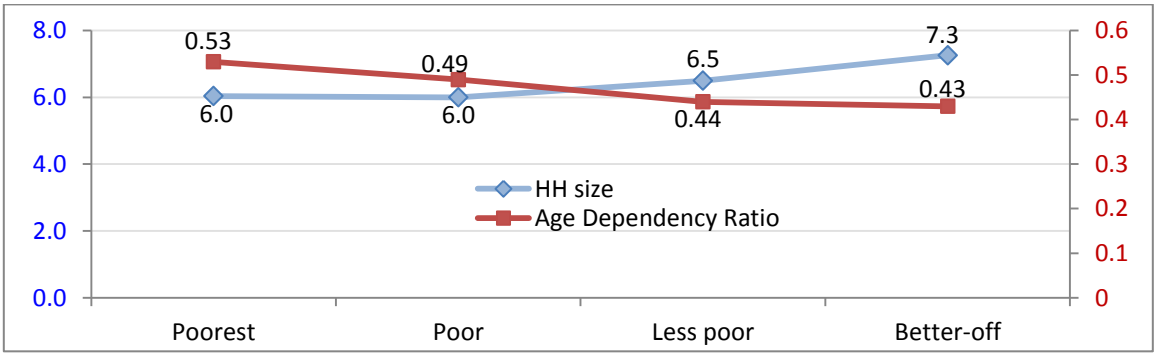


Figure (10) shows that the household size (indicated in blue line) increases with the increase in wealth. This means that, in general, there is a positive association between household size of mostly adult members and household's level of wealth. However, the age dependency ratio[1] (indicated in brown line) increases with the decrease in wealth. So how does the household size and dependency ratio correlate to livelihoods and consequently vulnerability or resilience? Well, a high proportion of adults within a household increases the number of income earners while a high proportion of dependents reduces the prospects of improving livelihoods. That says, households within the lower quartiles are faced with too many non-income earners depending on too few income earners, a situation that leads to a potential risk of vulnerability when the main breadwinner becomes out of work for any reason.

Figure 10: HH size & dependency ratio by wealth quartile



Gender and education of household heads

Female headed households constitute 5.7 percent of all the households, and in almost all of them (5.4 percent) the female head has not completed secondary education, and these households seem to concentrate in the lower quartiles. In short, female headed households are vulnerable in a male dominated society. Male headed households make up 94.3% of which 24.6% have completed secondary education.

Figure 11: Distribution of HHs by sex and education of the HH head

	Gender		Total
	Male	Female	
Abyan	7.3%	.8%	8.1%
Taiz	47.1%	3.7%	50.8%
Hajja	26.1%	1.0%	27.2%
Amran	13.7%	.2%	13.9%
Total	94.3%	5.7%	100.0%
Has secondary education	24.6%	0.3%	24.9%
No secondary education	69.6%	5.4%	75.1%
Total	94.3%	5.7%	100.0%
Poorest	23.1%	1.8%	24.9%
Poor	23.5%	1.4%	25.0%
Less poor	23.7%	1.4%	25.1%
Better-off	24.0%	1.0%	25.0%
Total	94.3%	5.7%	100.0%

[11] The age dependency ratio for each quartile is calculated by adding up the number of persons under the age of 15 and over the age of 64 in each quartile and dividing by the total number of persons in the quartile.

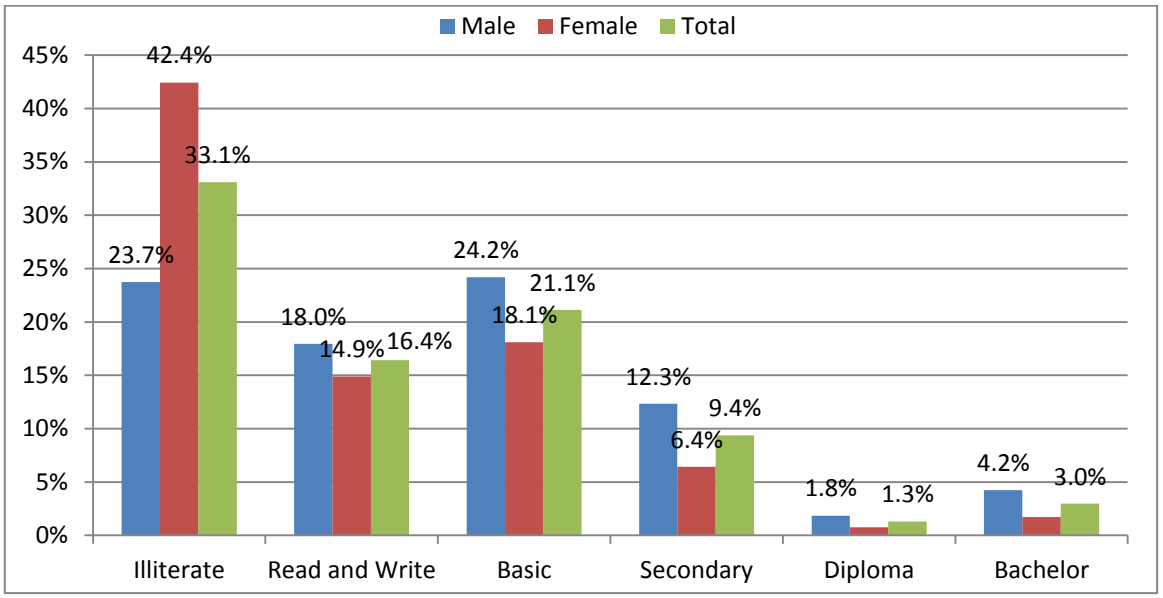
2.1.1.2 Education

Education is an important indicator of human capital, and it is generally positively associated with higher income, and there is a global body of evidence correlating the effect of the level of education to longevity (Ricci and Zachariadis, 2012), and to peace and stability), although education's inequalities among groups, and the content and quality of education might fuel conflict (UNESCO, 2010). Investing earlier in life is among the most effective ways to enhance human capital (Heckman, 2004). The right to free education is a basic right in the Yemeni constitution.

Education level of household members

The illiteracy ratio is 33.1 percent (23.7 male and 42 female). There are 16.4 percent (18 male and 14.9 female) who can read and write, but never attended formal education. Those who reached basic education constitute 21.1 percent (24.2 male and 18.1 female); 9.4 percent have secondary education (12.3 male and 6.4 female), while 1.3 percent have diploma (1.8 male and 0.8 female), and 3 percent have bachelor degree (4.2 male and 1.7 female). The data shows a drastic gender disparity in access to education between male and female.

Figure 12: Education level of persons aged 6 years and over



We conducted analysis of cross-classifications using cross tabulation to determine the strength of the relationship between the level of education and gender. The results observed show a significant relationship between gender and the level of education and such relationship is real, not by chance (the two-sided asymptotic significance of the chi-square statistic was 0.000, which is less than 0.05). We have repeated the Chi-square test by adding the wealth index as a layer variable, and the relationship was significant. We have also attempted to quantify such relationship using the symmetric measures (Phi, Cramer's V and Contingency Coefficient). The significance values of all three measures are 0.012, indicating a statistically significant relationship.

Table 13: Symmetric Measures on education level and gender by wealth rank

			Value	Approx. Sig.
Poorest	Nominal by Nominal	Phi	.257	.000
		Cramer's V	.257	.000

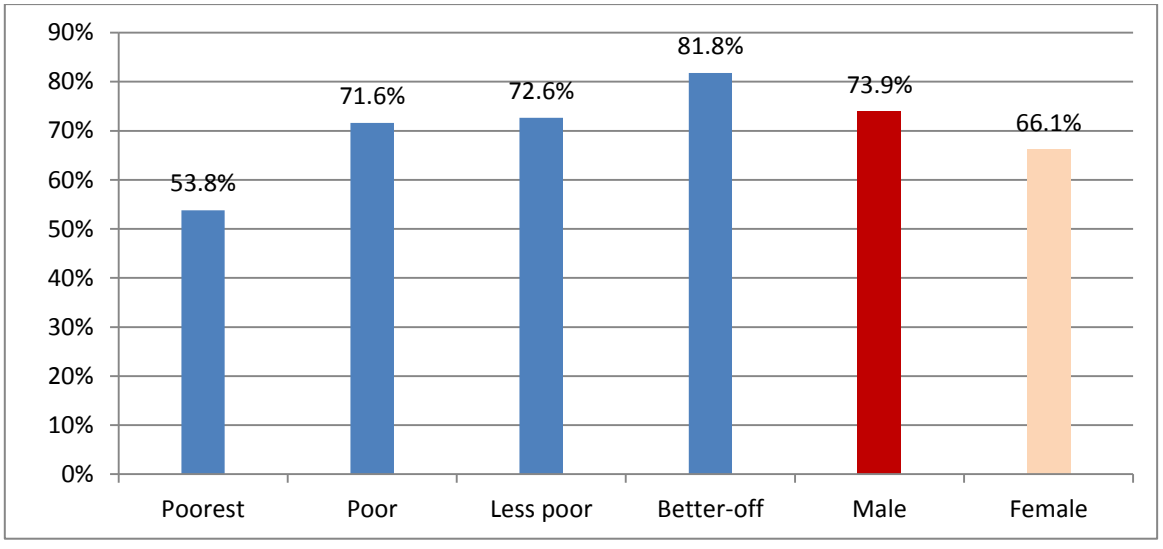
		Contingency Coefficient	.249	.000
	N of Valid Cases		2611	
Poor	Nominal by Nominal	Phi	.263	.000
		Cramer's V	.263	.000
		Contingency Coefficient	.254	.000
	N of Valid Cases		2575	
Less poor	Nominal by Nominal	Phi	.205	.000
		Cramer's V	.205	.000
		Contingency Coefficient	.201	.000
	N of Valid Cases		2800	
Better-off	Nominal by Nominal	Phi	.216	.000
		Cramer's V	.216	.000
		Contingency Coefficient	.211	.000
	N of Valid Cases		3131	
Total	Nominal by Nominal	Phi	.222	.000
		Cramer's V	.222	.000
		Contingency Coefficient	.217	.000
	N of Valid Cases		11117	

a. Not assuming the null hypothesis.
b. Using the asymptotic standard error assuming the null hypothesis.

Enrollment in Basic Education among children aged 6 to 14

The survey revealed that enrolment among children aged 6 to 14 years is positively associated with wealth. That says, the wealthier the household the higher the probability of its members aged 6 to 14 being enrolled. This is clearly depicted in Figure (14) below, which shows that enrollment is the lowest among households within the poorest quartile (53.8 percent), and goes up to 71.6 percent among the poor followed by 72.6 percent among the less poor to reach 81.8 percent among households with the better-off quartile. By gender, the enrolment ratio is skewed in favor of boy (73.9 percent) compared to girls (66.1 percent).

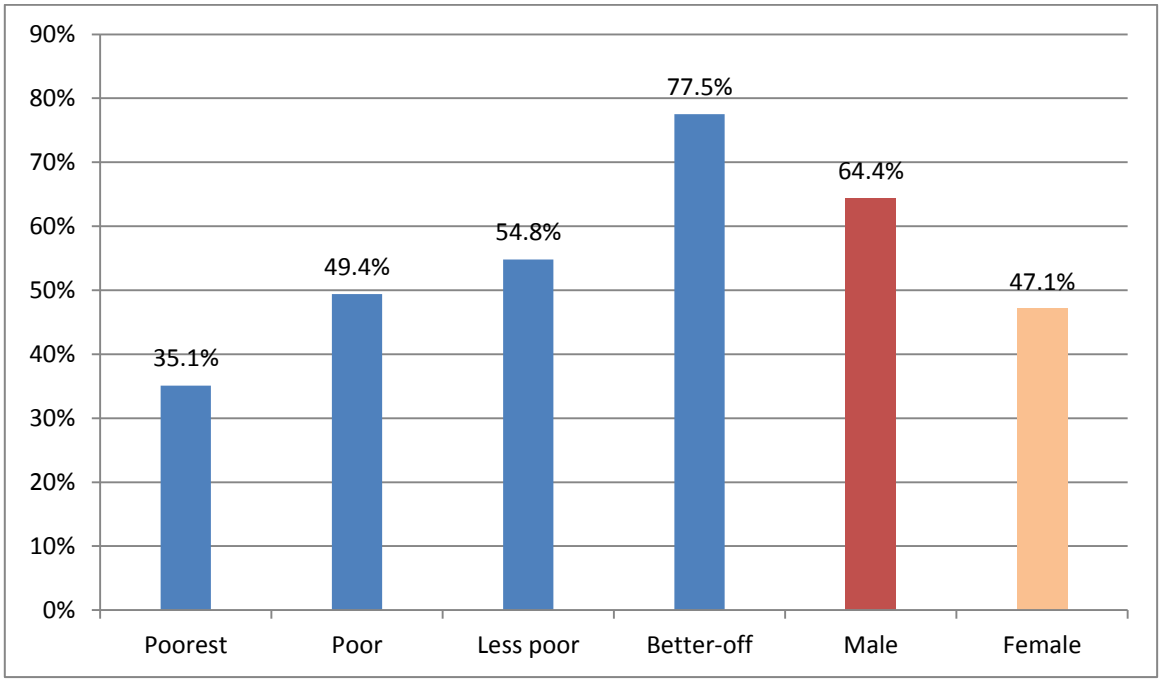
Figure 14: Net enrolment of population aged 6 to 14 years



Net Enrollment in Secondary Education for youth aged 15 to 17

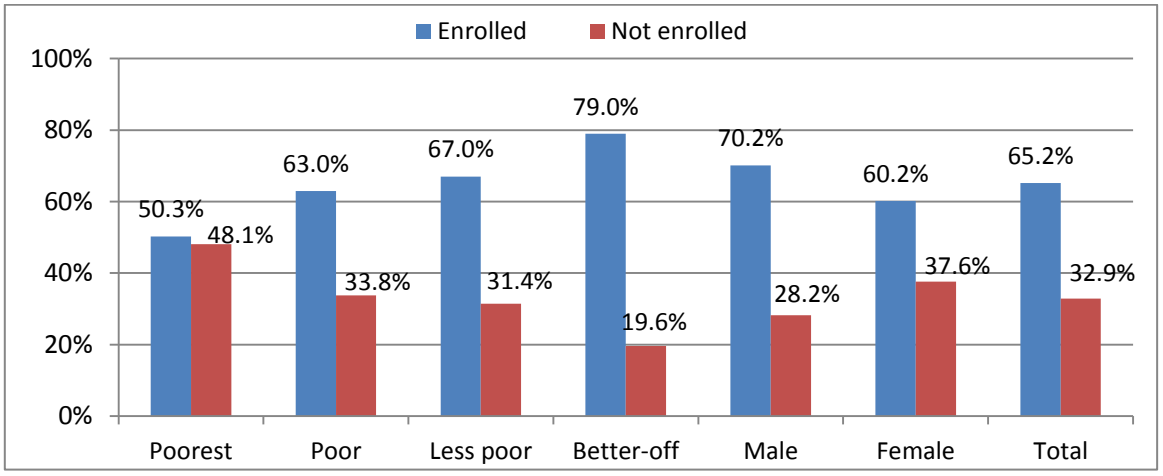
Overall, only 55.8 percent of youth 15 to 17 years are currently enrolled in education. Enrollment drastically varies by wealth quartile with 77.5 percent are enrolled in the top quartile compared with only 35.1 percent in the lowest quartile signaling an equity issue. Enrollment by gender shows an obvious gender gap with enrollment among male youth being 64.4 percent compared to 47.1 percent among female.

Figure 15: Population aged 15 to 17 years enrolled in secondary education



Around a third (32.9 percent) of the population aged 6 to 17 years of age who did not enroll in the education year 2012/2013 of which 28.2 percent are male and 37.6 percent are female. The correlation of lack of enrolment is highly significant among the lowest quartile.

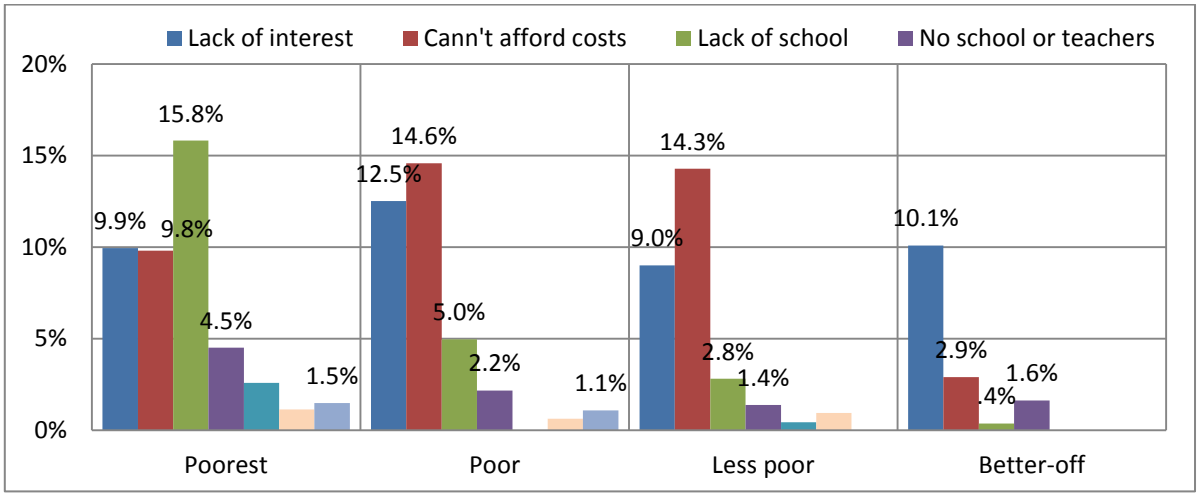
Figure 16: Population aged 6 to 17 years based on enrollment status in 2012/2013 school year



The reasons for those who did not enroll in school in 2013 was explored, and the three most common reasons that came up include no school; lack of interest in education; and lack of money to pay for schooling. The latter also came up in the qualitative assessment in various ways: either the household could not pay for the cost of uniform and school kits (notebooks, pens, etc.), children drop out from school to make a living and contribute towards household's income, and girls particularly drop out, because they cannot afford to buy the school uniform - not that the school asks for it, but for fear of embarrassment. The security concerns did not come up in the household survey as an issue constraining children from going to school although it was one of the key issues raised in the qualitative assessment particularly landmines in Khanfar (Abyan Governorate), and Mastaba (Hajja governorate) preventing children from going to schools. Another issue that was not reported in the household survey,

but was captured in the qualitative assessment was sexual harassment from youth on the way to school, and was a reason for girls not going to school in Mastaba (Hajja governorate) and Al-Qahera (Taiz governorate). Sexual harassment is a sensitive issue that may not be reported by households and also the security issue and landmine related to Houthis might not be reported by households out of fear of being punished.

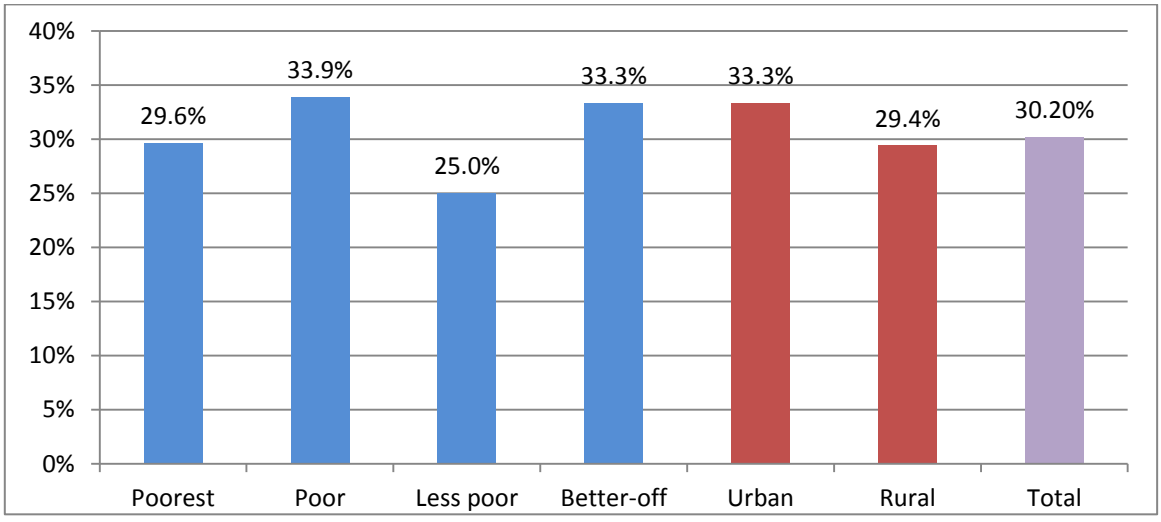
Figure 17: Reasons for none enrollment in the school year 2012/2013



Enrollment of population aged 6 years of age

Only 30 percent of children aged 6 years are currently enrolled in basic education (28.3 male and 31.5 female), while 70 percent are not enrolled. This finding is close to the 33 percent reported by the most recent nationwide Social Protection Monitoring Survey (NSPMS, 2012). Enrollment in urban area is 33.33 percent, which is higher than in rural areas. In rural areas, enrollment among girls seems to be higher than boys. There does not seem to be any association between the age of enrollment in school and the wealth of households. Education in Yemen is free of charge, but the qualitative assessment has revealed that cost of schooling particularly school uniform has come up as a reason for lack of enrollment and drop out.

Figure 18: Percentage of population aged 6 years enrolled in basic education



We analyzed the data to determine the correlation between the level of education and household wealth, and - if any - the strength of such relationship. The results of the Chi-square tests show a positive relationship (the higher the wealth of a household the more likely it has at

least one member in a secondary or higher education), and such relationship is significant (i.e. the two-sided asymptotic significance of the chi-square statistic is less than 0.05).

Figure 19: Distribution of population in secondary or higher education by quartile

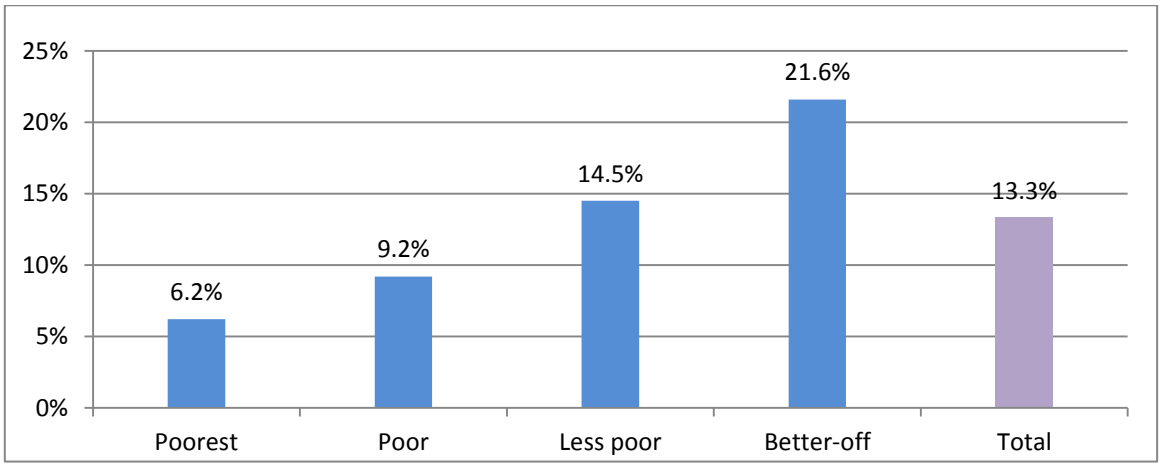


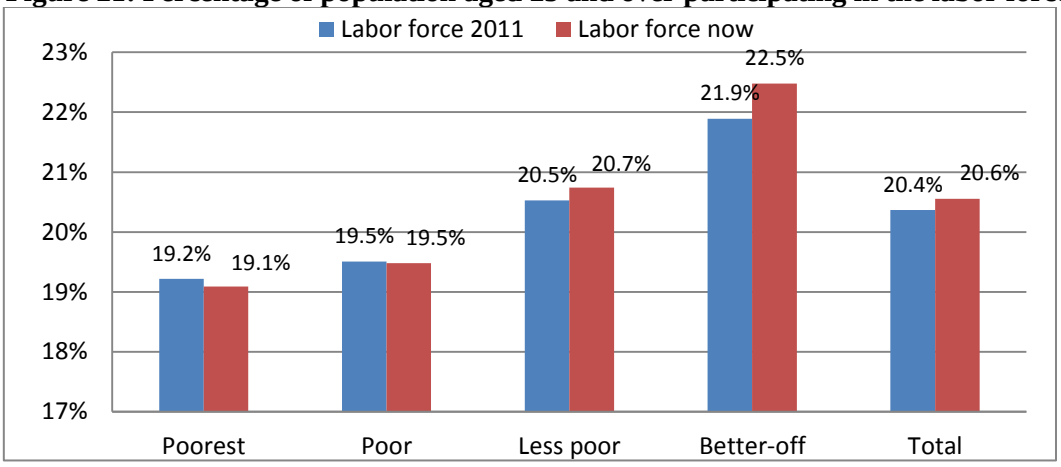
Table 20: Chi-Square Tests for at least secondary education and wealth ranking

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	341.110	3	.000
Likelihood Ratio	344.542	3	.000
Linear-by-Linear Association	331.069	1	.000
Number of Valid Cases	11117		

2.1.1.3 Participation in the Labor Force

Overall, only 20.6 percent of the persons aged 15 years and over are participating in the labor force (i.e. working) during the survey period compared with 20.4 percent before 2011. By wealth quartile, there is a 0.6 percent increase in participation in the labor force among people in the better-off compared with the period before 2011, and households within the less poor have also reported a slight increase by 0.2 percent indicating that they were both able to bounce back better. Households in the poorest quartile have experienced a decline in participation in the labor force among its members by 0.1 percent (bounced back, but worse), while the second lowest did not experience any change (bounced back).

Figure 21: Percentage of population aged 25 and over participating in the labor force



The survey revealed a positive relationship between education and the labor force as shown in the cross-tabulation in Table (22). The results of the Chi-square test shows a significant

relationship between secondary or higher education and the labor force (two-sided asymptotic significance of the chi-square statistic was 0.000, which is less than 0.05) and the results of the symmetric measures (Phi, Cramer's V and Contingency Coefficient) show the significance values of all three measures are 0.000, indicating a statistically significant relationship. This survey has therefore proved that education can increase the labor productivity of individuals and human capabilities.

Table 22: Population currently working by secondary or higher education

		Secondary or higher education		
		No	Yes	**Total**
At least one person participating in labor force	No	83.3%	52.7%	79.4%
	Yes	16.7%	47.3%	20.6%
	Total	100.0%	100.0%	100.0%

Table 23: Directional Measures for labor force by secondary or higher education

		Value	Asymp. Std. Error[a]	Approx. T[d]	Approx. Sig.
Goodman and Kruskal tau abd	Number of persons participating in labor force Dependent	0.064	0.006		.000[c]
	Number of HH members with secondary or higher education Dependent	0.064	0.006		.000[c]
Uncertainty Coefficient	Symmetric	0.061	0.005	11.591	.000[e]
	Number of persons participating in labor force Dependent	0.053	0.005	11.591	.000[e]
	Number of HH members with secondary or higher education Dependent	0.07	0.006	11.591	.000[e]

Table 24: Symmetric Measures for labor force by secondary or higher education

		Value	Approx. Sig.
Nominal by Nominal	Phi	.253	.000
	Cramer's V	.253	.000
	Contingency Coefficient	.246	.000
Number of Valid Cases			11117

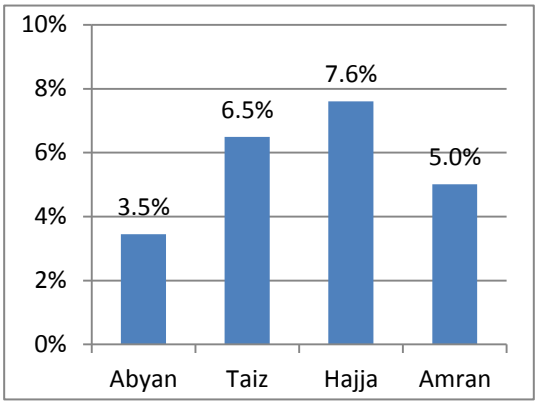
2.1.1.4 Health

Prevalence of health problems

The household survey questionnaire did not enquire about disability per se, and the findings reported here on disability were captured by transforming a response category on disability as one of the reasons for persons aged 15 years and over who cannot work due to disability.

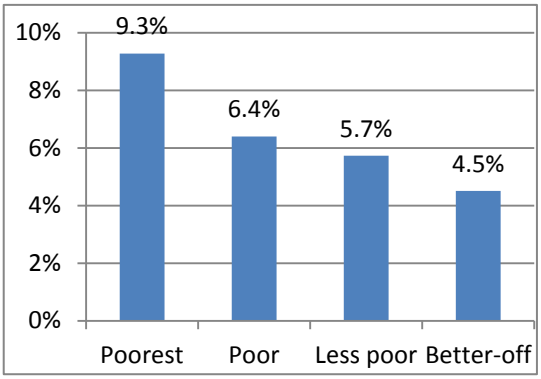
The overall prevalence of disability reported among persons aged 15 years and over is 6.3 percent. Disaggregation of disability by geographical location shows that Hajja governorate with 7.6 percent has the highest proportion of persons aged 15 years and over with disability followed by 6.5 percent in Taiz, 5 percent in Amran, and 3.5 percent in Abyan. The survey did not enquire about the cause of disability, and the cause could be tribal/ political armed conflicts, traffic accidents, work-related injuries, acts of nature, or due to illness.

Figure 25: Persons aged ⩾ 15 years who cannot work due to disability by location



By wealth quartile, disability is highest among the poorest of the poor (9.3 percent), followed by 6.4 percent among the poor, 5.7 percent among the less poor, and the least (4.5 percent) among the better off. The fact that disability was reported as a reason for inability to work among persons aged 15 years and over, and the fact that disability is highest among the poor is evident that disability and poverty are interchangeably linked leading to a vicious cycle with one being both a cause and a consequence of the other. Disability can limit households' opportunities and prospects to improve their livelihoods, and the poor are mostly affected.

Figure 26: Persons aged ⩾ 15 years who cannot work due to disability by quartile



In future surveys on conflicts and livelihoods it is advisable to include a separate question on health problems faced by household members with a focus on disability and diarrhea, because these two health problems impact negatively on education and also on employment in terms of the number of days absent.

Crowding

Crowding measures the average number of persons per sleeping room, and often leads to poor health. The proportion of households with crowding condition constitutes 54 percent of the total sample. By region, crowding is more prevalent in rural areas being 59.1 percent compared to 34.6 percent in urban. By geographical location, Abyan seems to be the worse with 69.6 percent followed by Hajja with 64.9 percent, then Taiz with 49.5 percent, while the lowest proportion was reported in Amran. By wealth quartile, the poorest quartile has the highest proportion (73.9 percent) of its households living in crowded condition, and the prevalence of crowding decreases with the increase in wealth to reach 29.9 percent among the better-off.

Table 27: Distribution of households based on crowding condition

	HHs with crowding	*HHs without crowding*	*Total*
Total	54.0%	46.0%	100%
By region			
Urban	34.6%	65.4%	100%
Rural	59.1%	40.9%	100%
By governorate			
Abyan	69.6%	30.4%	100%
Taiz	49.5%	50.5%	100%
Hajja	64.9%	35.1%	100%
Amran	40.4%	59.6%	100%
By wealth quartile			
Poorest	73.9%	26.1%	100%
Poor	62.9%	37.1%	100%
Less poor	49.6%	50.4%	100%
Better-off	29.9%	70.1%	100%

2.1.2 Physical Capital

Physical capital refers to housing characteristics, water & sanitation, the source for fuel and lighting, and asset ownership. Housing characteristics include dwelling ownership, quality & safety of building, and the source of energy for lighting and cooking.

2.1.2.1 Housing characteristics

Yemen is located in the active seismic zone between the Arabian and African tectonic plates, and the four governorates targeted by this survey are located in the western and southern parts of Yemen around the rifts of the Red Sea and the Gulf of Aden and are thus vulnerable to earthquakes. Yemen is also at-risk of flood from high-intensity rainfall, and sometimes from coastal storm surges affecting the western parts of Yemen. Three of the governorates targeted by this survey (Abyan, Taiz and Hajja) are prone to floods, and have already experienced floods in recent years. In such a vulnerability context of unpredictable natural events that can undermine livelihoods and cause households to fall into poverty, housing characteristics in terms of **dwelling type**; **walls**; **roof** and **floor** becomes a necessity in providing a safe shelter, saving lives and preserving livelihoods. Durable roofs (reinforced concrete or plywood covered by a layer of concrete), durable walls (stone, or bricks or cement block walls), and durable floor made of cement tiles or concrete flooring can protect the lives of household members against these unprecedented events.

In terms of **dwelling type** (house, apartment, villa, makeshift, hut or tent), most households (79.9 percent) live in detached houses, 8.4 percent live in apartments largely in urban areas, 7.8 percent live in huts, one percent live in makeshift housing or a tent. Those who live in huts do so as a coping strategy to overcome the prolonged hot weather in Abyan, the lowlands and/or

coastal areas of Hajja and Taiz. It is therefore generally acceptable and also safe to live in these huts, as they have stood the test of time, and whereas they are not earthquake-resistant, they do not pose threats to lives during earthquakes, because they have a relatively lighter weight compared with traditional stone buildings. Huts, tents and makeshifts can however pose potential risks of being swept away during heavy rains or floods.

Table 28: Distribution of households based on dwelling type

Dwelling Type	**Governorates**				**Total**
	Abyan	Taiz	Hajja	Amran	
Detached house	92.1%	83.4%	64.6%	89.8%	79.9%
Apartment		14.0%	0.4%	8.7%	8.4%
Villa		0.1%			0.1%
Inhabited facility			0.4%	0.4%	0.2%
Makeshift	4.3%	0.8%	0.2%		0.8%
Hut	3.6%	1.6%	24.8%		7.8%
Tent			0.6%		0.2%
Other			8.9%	1.1%	2.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%
HHs in the sample	136	820	495	267	**1,718**
Total Households	58,833	367,732	194,972	100,061	721,598

Overall, households living in a durable building constitute 88.4 percent. By wealth quartile, almost all the households (98.4 percent) of the top quartile live in durable buildings that have permanent structure, and the proportion of households with a durable building seems to decline with the decrease of wealth.

Table 29: Distribution of households based on dwelling type by wealth quartile

Dwelling Type	**Wealth Quartiles**				**Total**
	Poorest	Poor	Less poor	Better-off	
Not durable	28.4%	11.8%	4.8%	1.6%	11.6%
Durable	71.6%	88.2%	95.2%	98.4%	88.4%

In terms of **walls,** 55 percent of the households live in buildings made of stone walls (stones differ in the type of finishing, the improved finishing denotes wealth status), 28 percent have cement block, 8.1 percent clay walls, 4.7 percent bricks, 3.1 percent straw/cane often used in huts, and 0.1 percent tarpaulin, and are often used by *Akdham* or IDPs. The four governorates have mountains that have plenty of stones as a natural resource cut to shape and used in building walls, but the cost of stones are generally more expensive than cement block. Nicely cut stones are thus associated with better wealth.

Table 30: Distribution of households based on wall type

Wall Type	***Governorates***				***Total***
	Abyan	Taiz	Hajja	Amran	
Plain stone	8.1%	47.1%	42.6%	39.7%	41.6%
Good finished stone	11.4%	18.3%	3.8%	15.6%	13.4%
Cement block	43.3%	27.5%	22.7%	34.4%	28.4%
Clay	9.2%	4.0%	16.1%	7.0%	8.1%
Brick (locally produced)	18.8%	1.9%	6.3%	3.2%	4.7%
Straw / Cane	6.5%	.8%	7.9%		3.1%
Other	2.9%	.4%	.6%		.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%
Households in sample	136	820	495	267	**1,718**
Total Households	58,833	367,732	194,972	100,061	721,598

Overall, households living in building with durable walls constitute 88.1 percent. By wealth quartile, almost all the households (95.9 percent) within the better-off live in buildings that have durable walls compared to only 30.4 percent of the households among the poorest.

Table 31: Distribution of households based on wall type by wealth quartile

Wall Type	Wealth Quartiles				Total
	Poorest	Poor	Less poor	Better-off	
Not durable	30.4%	8.7%	4.5%	4.1%	11.9%
Durable	69.6%	91.3%	95.5%	95.9%	88.1%

Roofing in 46.6 percent of the households are made from wood covered with clay layer or just plywood, 28.3 percent have wood with cement layer, 13.5 percent reinforced concrete roofing, 10.5 percent are made of straw/cane or cane and clay while 0.4 percent are made of sheet metal. Households with durable roofing are those built from reinforced concrete and to some extent wood covered with cement, but reinforced concrete roofs also protects against earthquakes. Roofs made from wood and clay can be affected by prolonged and excessive rain leading to leakage. As mentioned earlier straws/cane or cane with clay are generally acceptable in hot areas to protect from the heat, but can be affected by prolonged heavy rains.

Table 32: Distribution of households based on roof type

Roof Type	Governorates				Total
	Abyan	Taiz	Hajja	Amran	
Wood covered by clay layer	4.9%	40.1%	33.0%	53.1%	37.1%
Wood covered by cement layer	31.1%	28.0%	32.1%	20.4%	28.3%
Reinforced concrete	4.4%	20.6%	5.2%	9.5%	13.5%
Wood	45.6%	8.0%	.9%	10.4%	9.5%
Straw / Cane	4.3%	1.9%	22.7%	1.5%	7.7%
Cane with clay	3.4%	.7%	5.6%	4.4%	2.8%
Sheet metal	.7%	.5%	.2%		.4%
Other	5.6%	.1%	.2%	.7%	.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%
Households in sample	136	820	495	267	**1,718**
Total Households	58,833	367,732	194,972	100,061	721,598

Overall, 41.9 percent of the households live in buildings that have durable roofs. By wealth quartile, 60.4 percent of the households in the top quartile live under durable roofs compared with only 16.6 percent in the lowest quartile.

Table 33: Distribution of households based on roof type by wealth quartile

Roof Type	Wealth Quartiles				Total
	Poorest	Poor	Less poor	Better-off	
Not durable	83.4%	61.2%	48.6%	39.6%	58.1%
Durable	16.6%	38.8%	51.4%	60.4%	41.9%

Floors in 45.5 percent of the households are made from earth or sand floors while 38.6 percent have cement/concrete floor, 13.2 percent have tiles, 1.4 percent have marbles, and 0.9 percent have stones. Marble, plain tiles and cement concrete are good quality materials for flooring while Earth flooring are generally associated with low socioeconomic status, and also increases child's vulnerability to diarrhea.

Table 34: Distribution of households based on floor type

Floor Type	*Governorates*				*Total*
	Abyan	**Taiz**	**Hajja**	**Amran**	
Earth / Sand	23.2%	38.3%	73.7%	30.0%	45.5%
Cement / Concrete	58.5%	40.1%	22.8%	52.3%	38.6%
Plain tiles	17.6%	17.5%	2.8%	15.1%	13.2%
Marble		2.6%	.2%		1.4%
Stone	.7%	1.2%	.2%	1.5%	.9%
Other		.3%	.2%	1.1%	.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%
Households in sample	136	820	495	267	**1,718**
Total Households	58,833	367,732	194,972	100,061	721,598

Slightly over half (53.2 percent) of the households have durable floors in their homes (tiled or concrete slab). By wealth quartile, 82.7 percent of the households from the top quartile have durable floors, and the proportion of households with durable floor buildings seems to decline as we go from top to reach 10.4 percent within households of the bottom quartile.

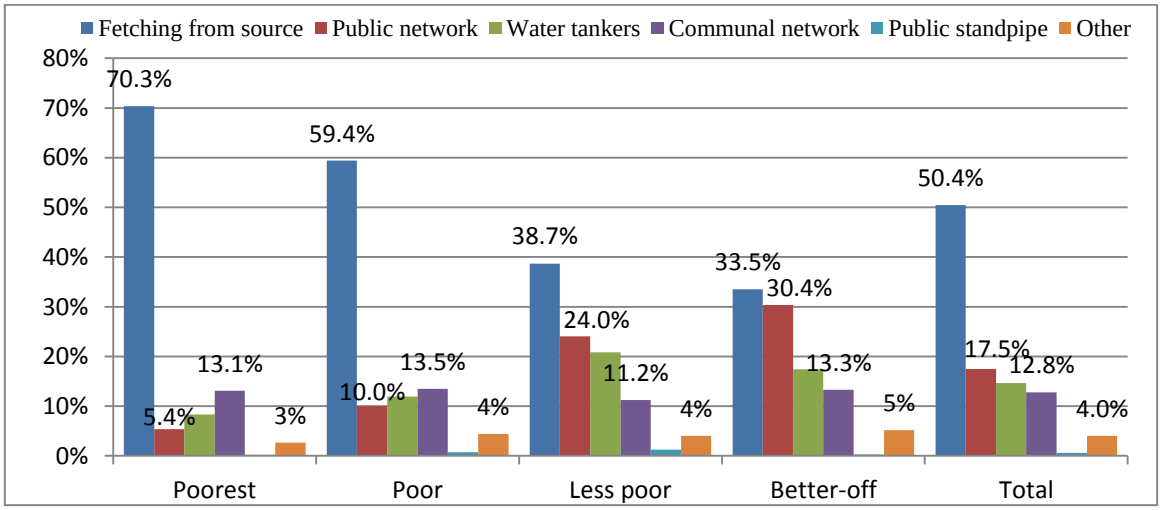
Table 35: Distribution of households based on floor type by wealth quartile

Floor Type	**Wealth Quartiles**				**Total**
	Poorest	Poor	Less poor	Better-off	
Not durable	89.6%	55.0%	25.8%	17.3%	46.8%
Durable	10.4%	45.0%	74.2%	82.7%	53.2%

2.1.2.2 Water Supply and Sanitation

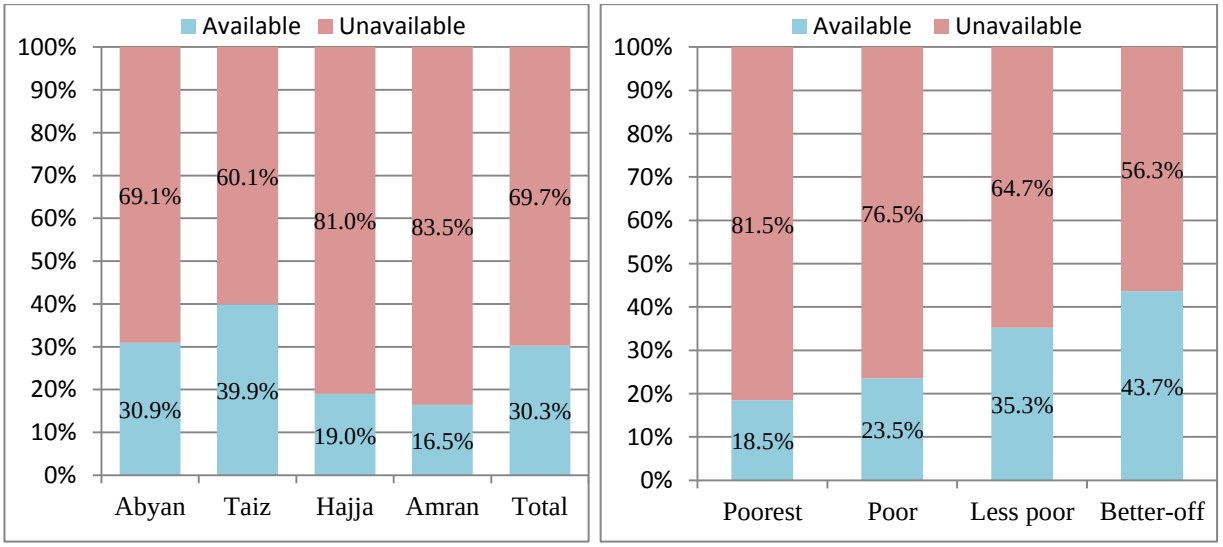
Around half (50.4 percent) of the households in the four governorates fetch water from the source. By wealth quartile, the highest proportion (70.3 percent) of those who fetch water from the source falls in the lowest quartile and decreases with the increasing wealth. Fetching water from the source is usually the task of children and women. For children, this is often done at the expense of their educational attainments and consequently future employment, and households bargain for their short term needs against long term sustained livelihoods of their children. This is a conflict of interest, because it is not in the children's best interest and an example of a transmission of livelihood vulnerability. Women are also involved in fetching water from the source although they are already overburdened with other chores. Fetching water has traditionally been assumed a woman's responsibility although men were gifted with the muscles, and this illustrates the gender roles and skewed power relation.

Figure 36: Distribution of households based on type of water supply system by quartile



On average, households connected to piped water network constitute 30.3 percent of the total households in the sample. Amran and to some extent Hajja are even twice as worse with only 16.5 percent of the households in Amran and 19 percent in Hajja who are connected to piped water network. By wealth quartile, the proportion of households connected to piped water network increases with increasing wealth.

Figure 37: Distribution of households based on access to piped water network



Households who reported using spring or open cistern as the source of water were asked whether they use processed water before drinking, most of them (77.9 percent) said no, while 13.8 percent buy processed water from the market, 2.5 percent filter water, and 1.2 percent boil water prior to drinking. By wealth quartile, drinking water without treatment is most prevalent (89.9 percent) among the lowest quartile, and gradually decreases with increasing wealth to reach 59.5 percent among the top wealth quartile.

Table 38: Distribution of HHs based on protection of water source and quality of water by quartile

Protection of water source	Wealth quartiles				Total
	Poorest	Poor	Less poor	Better-off	
Water source not protected	73.0%	63.3%	53.2%	45.0%	58.6%
Water source protected	27.0%	36.7%	46.8%	55.0%	41.4%

Processing water prior to drinking	Wealth quartiles				Total
	Poorest	Poor	Less poor	Better-off	
We do not use processed water	89.9%	86.3%	75.9%	59.5%	77.9%
Buying water from the market	6.0%	5.3%	16.6%	25.8%	13.5%
Using filter	1.1%	1.8%	1.8%	5.2%	2.5%
By boiling	0.5%	2.0%	1.2%	1.0%	1.2%
Chemical processing		0.2%		1.1%	0.3%
Not applicable	2.4%	4.4%	4.5%	7.4%	4.7%

Water sufficiency

Around two thirds (65.4 percent) of the households reported not having sufficient water. By wealth quartile, the proportion of households facing water shortage is higher (76.7%) in the lowest quartile and decreases with increasing wealth.

Table 39: Is water quantity sufficient for your household?

Water sufficiency	Wealth Quartiles				Total
	Poorest	Poor	Less poor	Better-off	
Yes	23.3%	33.8%	37.3%	43.9%	34.6%
No	76.7%	66.2%	62.7%	56.1%	65.4%

For over half (56.7 percent) of those who face water shortage, the strategy to cope with water shortage is to purchase water from vendors through water tankers, the quality of which is not known.

By wealth quartile, over two thirds (66.9 percent) of the households in the top quartile who face water shortage seem to buy water compared with 49.8 percent of the households in the lowest quartile. Water vending through tankers has become very common in cities particularly in Taiz, and it is one of the main livelihoods for many family , that when the public water improves its supply, which might be sometime in the future, these water vendors will have to find alternative options to make a living.

Table 40: Coping strategies when facing water shortage by wealth quartile

Coping Strategies	Wealth Quartiles				Total
	Poorest	Poor	Less poor	Better-off	
Purchase	49.8%	47.7%	65.7%	66.9%	56.7%
Other	50.2%	52.3%	34.3%	33.1%	43.3%

Sanitation

In terms of sanitation, there are 19.6 percent of the households without any appropriate facility. At the level of each governorate Hajja is the worst with 42.9 percent of its households without appropriate sanitation followed by Amran with 19.5 percent, then Abyan with 10.8 percent and finally Taiz with 8.8 percent having no sanitation. Availability of appropriate sanitation by wealth quartiles (bottom right chart) shows that the proportion of households with inappropriate sanitation is 58.5 percent among the poorest, which is the highest of all wealth quartiles, and the proportion declines with increased level of wealth to reach 7.1 percent among the better-off. Lack of sanitation has health implications on household members particularly diarrhea infections. Children are mostly affected with diarrhea since they are the most vulnerable, which can result in slow growth if left untreated, and the cost of treatment can

be at the expense of other basic needs. For school-aged children, the incidence of diarrhea may result in absenteeism from school. The incidence among adults can result in reduced number of working days, and consequently a loss of income for daily wagers.

Figure 41: Households distribution based on the availability of appropriate latrines

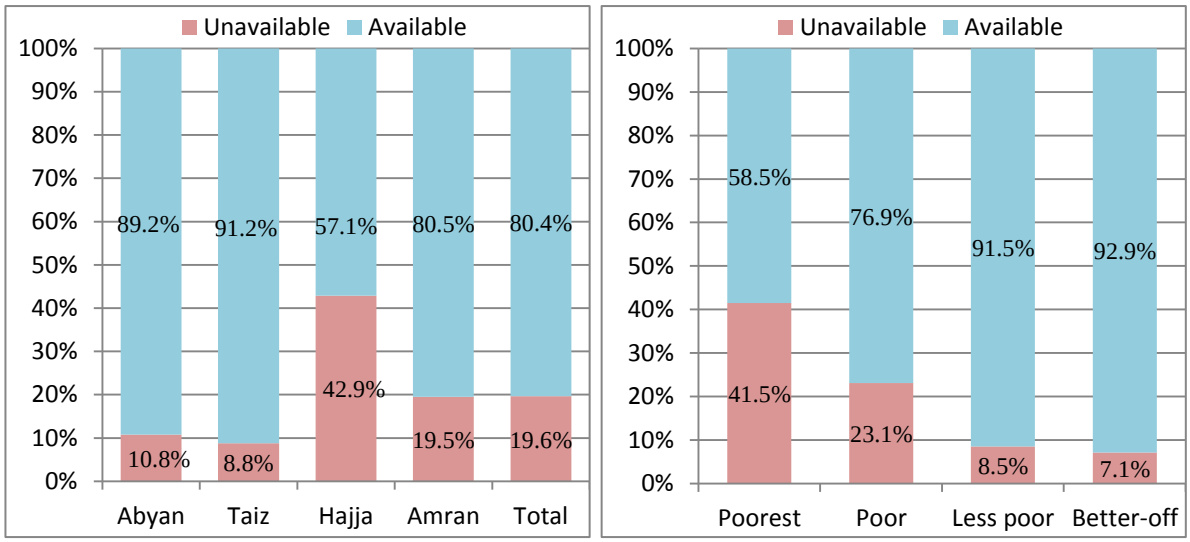


Table 42: Distribution of HHs based on availability of appropriate latrines by region

Latrine	Regions		Total
	Urban	Rural	
Unavailable	1.8%	24.5%	19.6%
Available	98.2%	75.5%	80.4%

Source of fuel for cooking

Over half (56 percent) of the households are still using fossil fuel for cooking, and only 44 percent are using gas cylinders. By wealth quartile, 63.1 percent of the households in the top quartile use gas cylinders compared to only 16.2 percent of the poorest.

Table 43: Distribution of HHs based on the source of fuel for cooking by wealth quartile

Source of fuel for cooking	Wealth Quartiles				Total
	Poorest	Poor	Less poor	Better-off	
Fossil fuel	83.8%	66.6%	37.1%	36.9%	56.0%
Gas	16.2%	33.4%	62.9%	63.1%	44.0%

By region, 94 percent of the households in urban areas are mainly using gas as fuel for cooking compared to only 30.9 percent of the households in rural areas.

Table 44: Distribution of HHs based on the source of fuel for cooking by region

Source of fuel for cooking	Regions		Total
	Urban	Rural	
Fossil fuel	6.0%	69.1%	56.0%
Gas	94.0%	30.9%	44.0%

Source of energy for lighting

Two thirds of the households reported using a safe source for lighting the house (either public electricity or communal project or own generator). By wealth quartile, 90.7 percent of the households in the top quartile have a safe source of lighting compared with only 21.3 percent of the households from the lowest quartile. The unsafe means of lighting include candles, and kerosene lanterns that are potentially harmful, and have recently resulted in fire incidences in which the whole house or part of it was burnt, and caused burns to the members of the HHs, death or loss of livelihoods.

Table 45: Distribution of HHs based on the source of lighting for the house by wealth quartile

Source of lighting	Wealth Quartiles				Total
	Poorest	Poor	Less poor	Better-off	
Unsafe (lantern or candles)	78.7%	39.0%	9.4%	9.3%	34.0%
Safe (electricity)	21.3%	61.0%	90.6%	90.7%	66.0%

By region, 97 percent of the households in urban areas reported using electricity for lighting compared with only 57.8 percent of the households in rural areas.

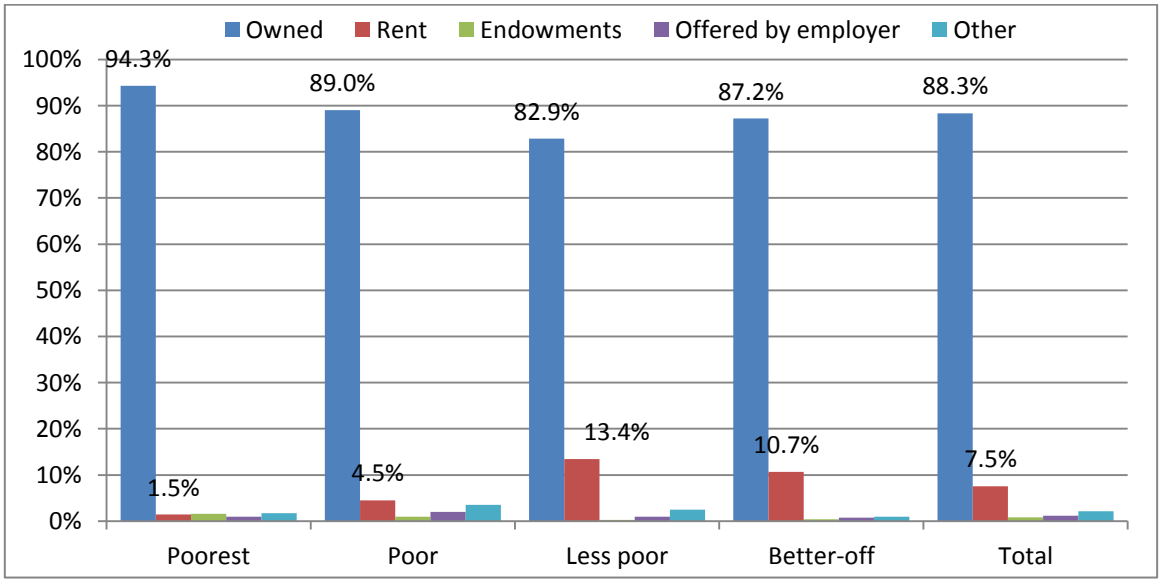
Table 46: Distribution of HHs based on the source of lighting for the house by region

Source of lighting	*Regions*		*Total*
	Urban	Rural	
Unsafe (lantern or candles)	2.5%	42.2%	34.0%
Safe (electricity)	97.5%	57.8%	66.0%

Dwelling ownership

Most households (87.2 percent) live in owned dwelling while 7.5 percent live in rented accommodation. By quintile, dwelling ownership does not seem to be associated with wealth. On the contrary, the proportion of those with rented accommodation are higher (although relatively small) in the two top quartiles compared with the two lowest quartiles.

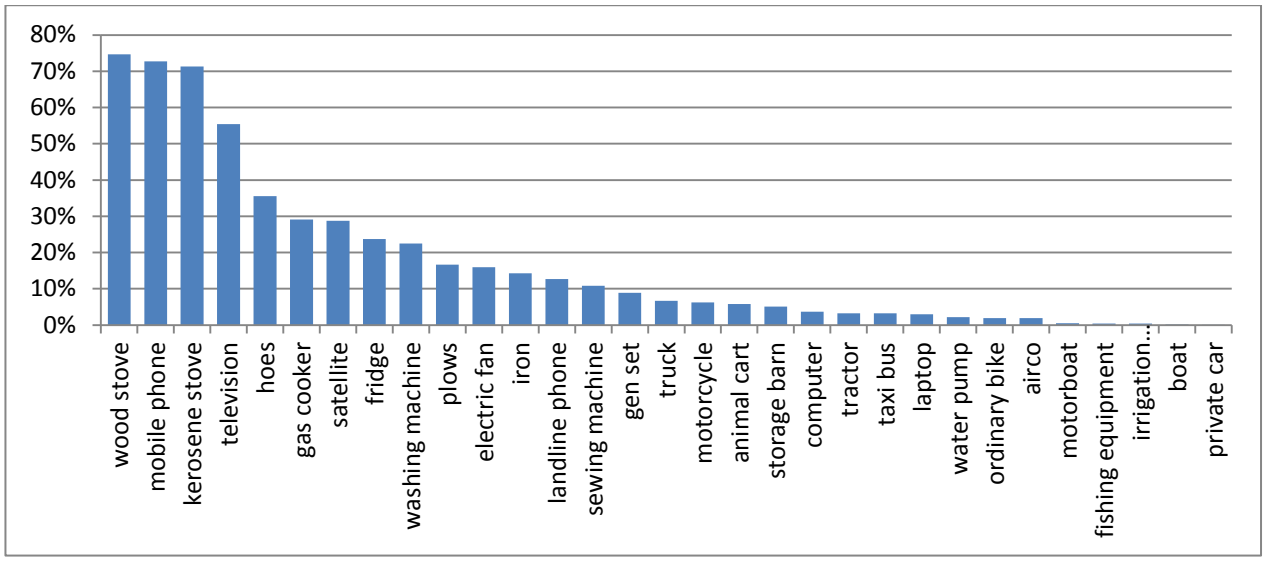
Figure 47: Distribution of HHs based on dwelling ownership by wealth quartile



2.1.2.3 Household Assets

The most frequently owned assets reported by households include wood stoves, kerosene stoves, mobile phone, TV, hoes, gas cooker, fridge, and washing machine among others indicated in Figure (48).

Figure 48: Distribution of HHs based on their assets



Information on households' physical assets was used to compute the household wealth index as a proxy measure of wealth by conducting principal components analysis (PCA) using wealth-related variables to compute the wealth index. The following chart shows households assets for each wealth quartile. Households assets seem to be possessed mostly by the better off and to some extent the less poor as shown in the circle.

Figure 49: Distribution of variables used in constructing Wealth Index by quartile

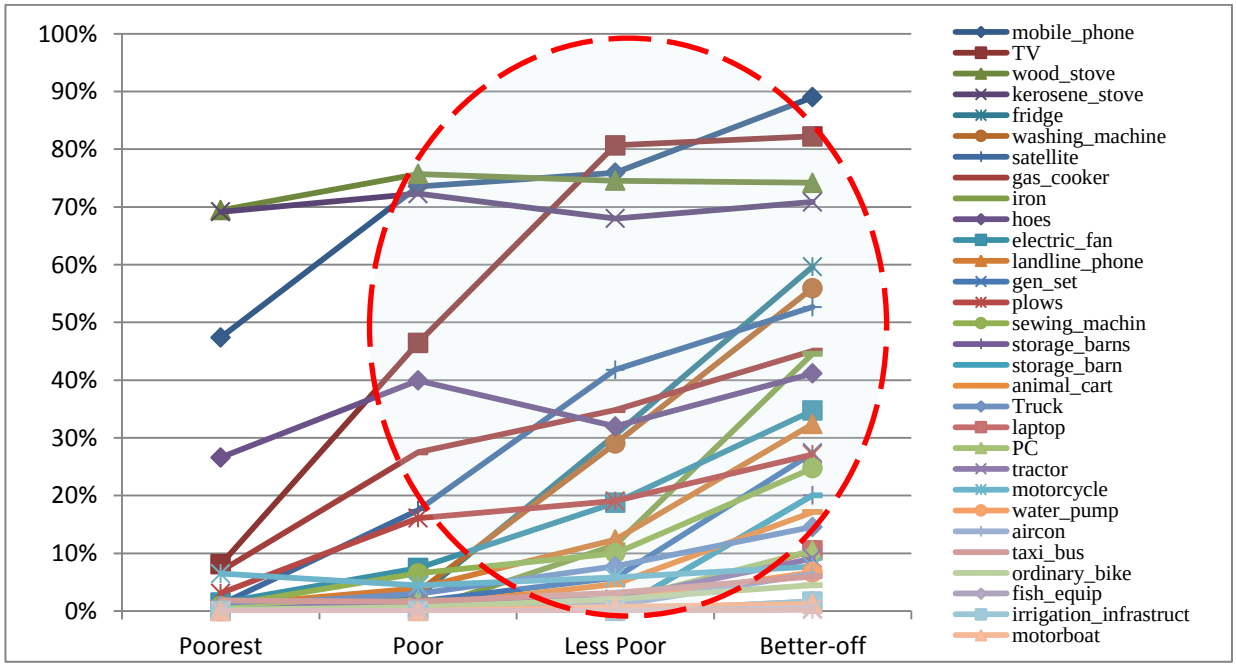


Table 50: Distribution of variables used in constructing wealth index by quartile

	Poorest		Poor		Less poor		Better-off		Total	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Air-conditioner	0.00	0.000	0.00	0.000	.01	.096	.06	.243	.02	.133
Animal cart	0.00	0.000	.01	.096	.05	.221	.19	.393	.06	.243
Boat	0.00	0.000	0.00	0.000	0.00	0.000	.00	.068	.00	.034
Electric fan	.01	.117	.07	.260	.18	.386	.33	.471	.15	.357
Fishing equipment	0.00	0.000	0.00	0.000	0.00	0.000	.02	.127	.00	.064
Fridge	.00	.048	.03	.158	.30	.459	.58	.493	.23	.420
Fuel	.15	.361	.33	.470	.62	.487	.61	.488	.43	.495
Gas cooker	.07	.255	.28	.449	.35	.478	.45	.498	.29	.452
Generator	0.00	0.000	.02	.127	.06	.235	.27	.446	.09	.282
Hoes	.28	.450	.41	.493	.33	.471	.43	.496	.36	.481
Iron	0.00	0.000	0.00	0.000	.11	.316	.43	.496	.14	.343
Irrigation infrastructure	0.00	0.000	0.00	0.000	0.00	0.000	.02	.135	.00	.068
Landline phone	.01	.096	.04	.196	.12	.327	.31	.463	.12	.326
Laptop	0.00	0.000	.00	.048	.01	.083	.10	.303	.03	.165
Light	.20	.402	.61	.489	.90	.298	.90	.297	.65	.476
Desktop computer	.00	.068	.02	.136	.02	.127	.10	.306	.04	.187
Permanent floor	.10	.300	.44	.497	.74	.441	.82	.384	.53	.499
Permanent roof	.17	.374	.39	.487	.51	.500	.59	.492	.41	.493
Plows	.03	.178	.17	.372	.20	.401	.29	.455	.17	.378
Private car	0.00	0.000	0.00	0.000	0.00	0.000	.00	.048	.00	.024
Satellite	.01	.107	.17	.375	.41	.492	.52	.500	.28	.448
Washing machine	.00	.000	.04	.184	.29	.455	.55	.498	.22	.414
Tractor	0.00	0.000	.02	.127	.02	.143	.10	.303	.03	.184
Television	.08	.274	.46	.499	.80	.399	.82	.387	.54	.498
Washing machine	.00	.000	.04	.184	.29	.455	.55	.498	.22	.414
Wood stove	.70	.457	.76	.425	.75	.432	.75	.434	.74	.437

2.1.3 Financial Capital

Financial Capital refers to the financial resources that households are using to attain their livelihood outcomes and includes flows and stocks that can contribute to consumption and production. It is the cash or assets that enable households to adopt different livelihood strategies to subsist. Indicators relevant under this section include salaries, remittance, access to credit, support from SWF, food security, productive assets, and livestock.

2.1.3.1 Wages and Salaries

Wages and salaries are one of the main financial sources for households. The proportion of households whose resources wage labor varies by type of wage labor **(**13% non-agriculture, 6% agriculture, 1% fishing). Households whose members have regular governmental salary constitute 13% while those who have regular salary (other than the governmental) 7%. The questionnaire did not include questions on the amounts of money received as a wage or salary.

2.1.3.2 Livestock

Overall, livestock holders currently own on average 1.42 cows (between 1 to 15), 4 goats (between 1 to 70), 4 sheep (between 1 to 50), a camel (between 1 to 5), and a donkey (between 1 to 5). There does not seem to be any significant association between animal keeping and wealth ranking because the number of animals kept is not significant.

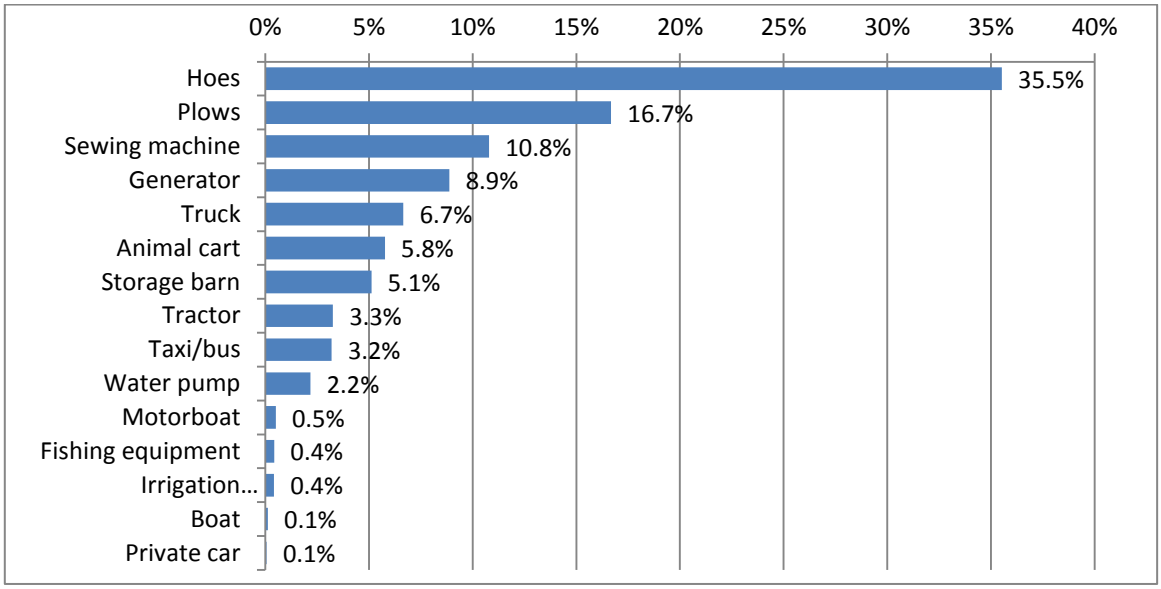
2.1.3.3 Income from Production and/or sale of qat

Production and/or sale of *qat* was reported as the main source of income for 11 percent of the households. **Production and/or sale of food crops** 3 percent and **production and/or sale of other agricultural crops** 4 percent**.**

2.1.3.4 Productive equipment

The following chart shows the distribution of households by their productive assets.

Figure 51: Distribution of households by their productive assets



2.1.3.5 Remittances

Households who reported receiving a remittance at least from one of the sources (a family member working in another governorate, a relative living abroad, pension, or the SWF) constitute 25.6 percent.

Figure (52) shows access to remittance by wealth quartile, and from the data observed there does not seem to be any association between access to remittance and wealth quartiles.

Figure 52: HHs with remittance by quartile

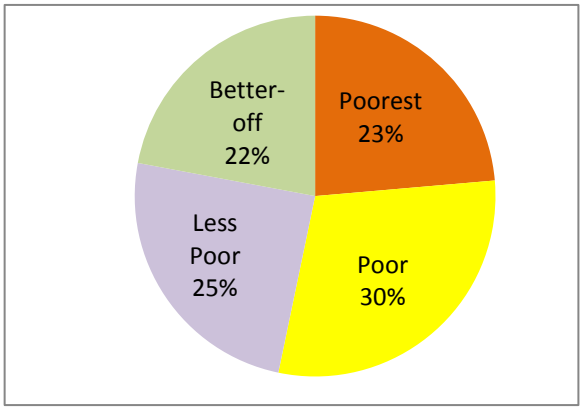
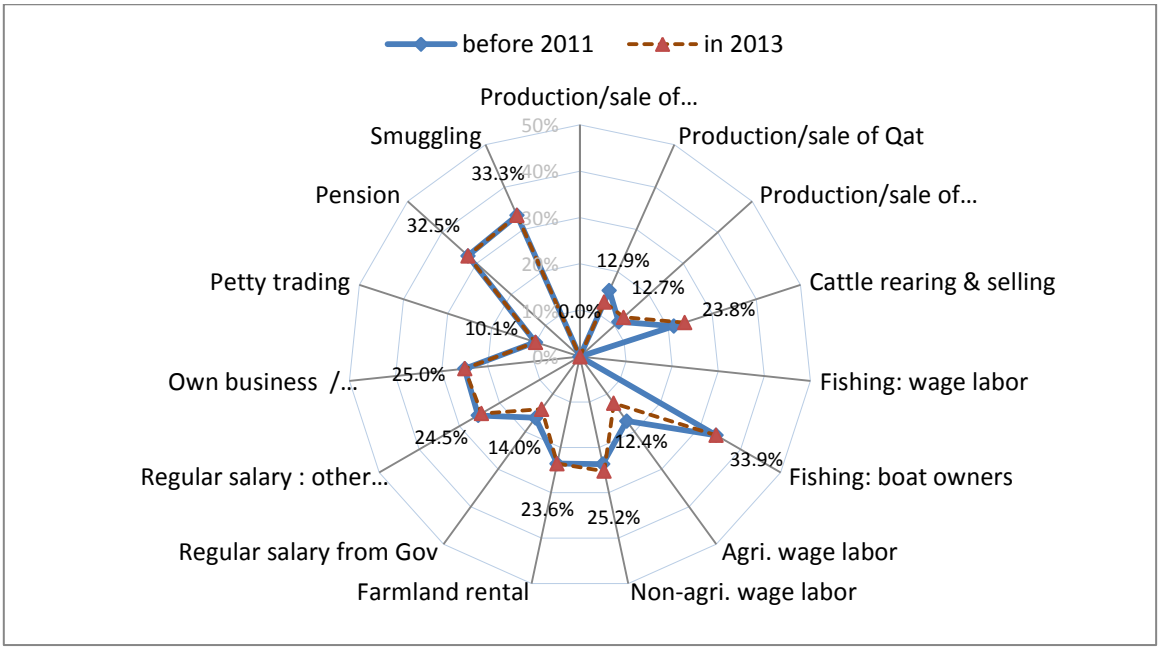


Figure (53) below shows access to at least one remittance by livelihood groups (does not include those who rely solely on remittance or financial support from others as their main source of income). The figure shows that with the exception of fishing wage labors who probably do not have any social capital for being out of the seas most of the time, all livelihood groups received at least one remittance. The proportion who received such remittance within each group varies between 10.1 percent among petty trading to as high as 33.9 percent among

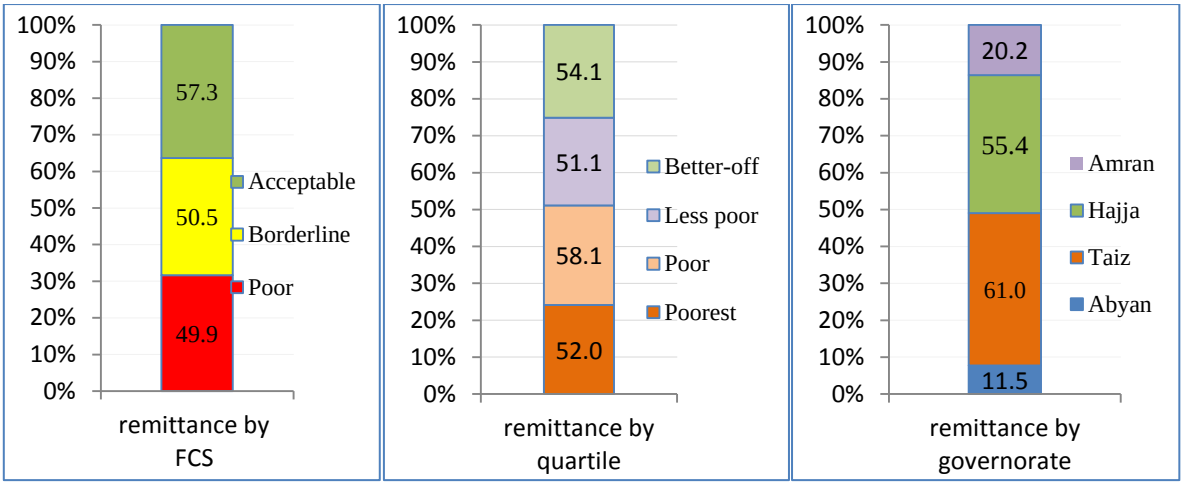
fishing (boat owners). There is no significant difference between remittance before 2011 (blue line) compared to remittance in 2013.

Figure 53: Distribution of households who receive remittance by their livelihood groups



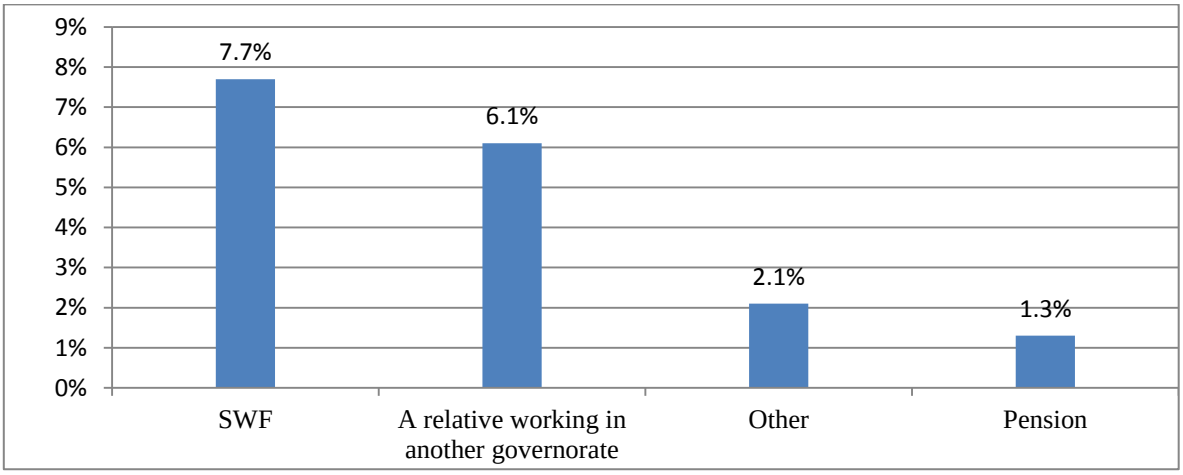
In the absence of information on the amounts of money received by households to check the quantity of remittance received, we have assessed the quality of remittance. Overall, remittance reported by households was said to cover 53.9 percent of their basic needs (food, health and education). To assess the influence of remittance on food consumption, we have used the information provided by households on how much the remittance covers of their basic needs, and analyzed according to household's food consumption score (CFS), and the results shows that remittance covers a higher proportion (57.3 percent) of the basic needs for households within the acceptable FCS, 50.5 percent of the basic needs of those who are on the borderline, and only 49.9 percent of the basic needs of those who are already in a state of poor food consumption. By wealth quartile, there does not seem to be any association between how much remittance covers of basic needs across wealth quartiles. By geographical location, remittance seemed to cover 61.0 percent of households' basic needs in Taiz, 55.4 percent of the basic needs of households in Hajja, 20.2 percent of households in Amran, and only 11.5 percent of the households' basic needs in Abyan.

Figure 54: Distribution of HHs with remittance by FCS (left), quartile (middle) and location (right)



Those who receive **remittance from inside Yemen** constitute 17 percent of the total sample (for 6.1 percent the remittance comes from a relative working in another governorate, 7.7 percent from SWF, 1.3 percent pension, 2.1 percent other). There is no significant difference between remittances before 2011 and in 2013.

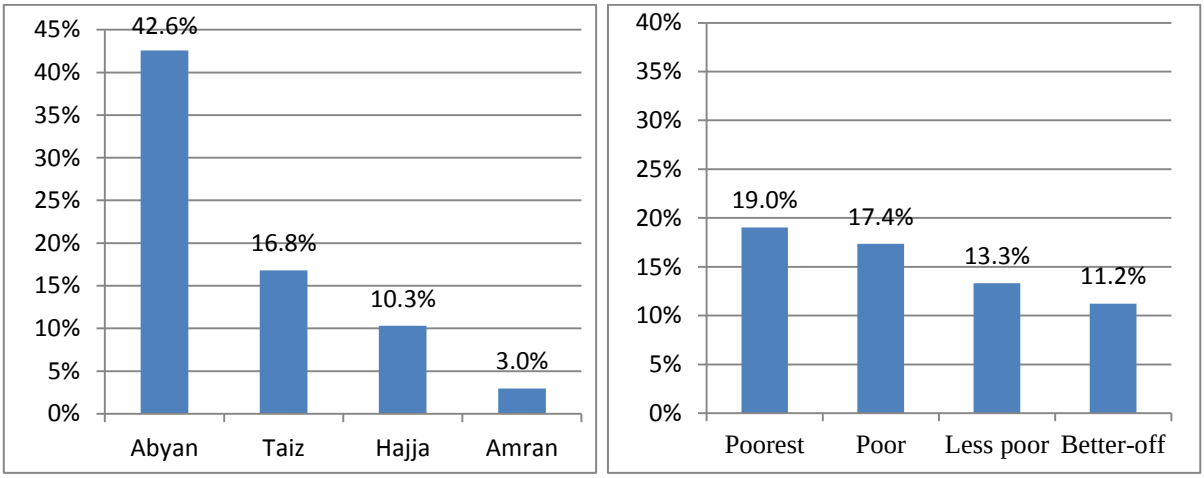
Figure 55: Distribution of households who receive local remittances by source



2.1.3.6 Credits

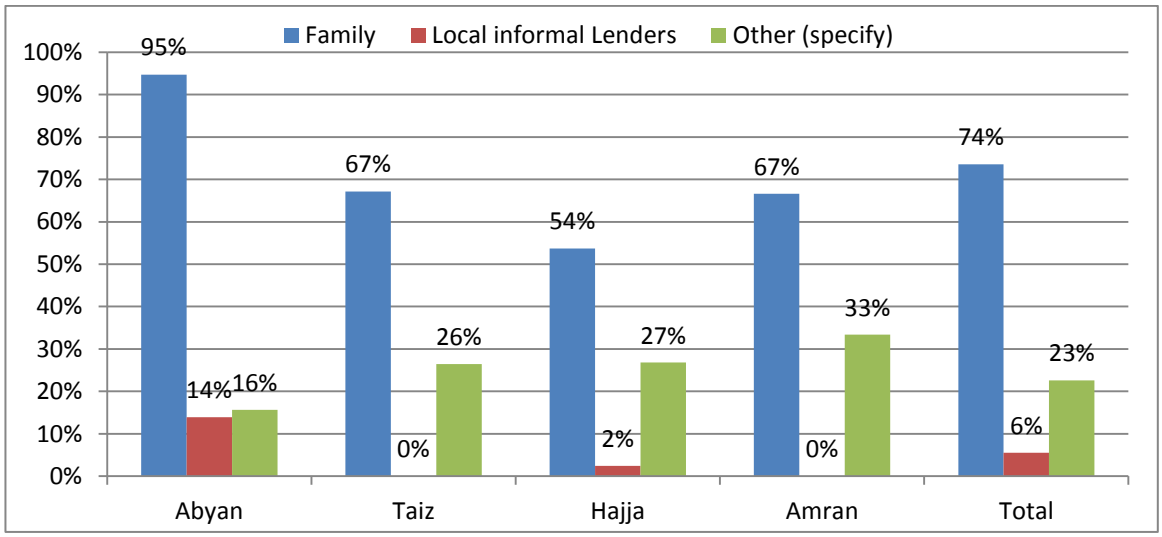
Households with access to credit constitute 15.2 percent of the total sample. By geographical location, Abyan seems to have 42.6 percent of its households claiming to have access to credit, which needs to be further investigated. Taiz has 16.8 percent, Hajja 10.3 percent, and Amran 3.0 percent. By wealth quartile, the proportion of households with access to credit seems to be the highest in the lowest quartile 19.0 percent), and this decreases gradually to reach 11.2 percent in the top quartile. With the exception of 20.8 percent most (79.2 percent) of the households who reported having access to credit do not channeled it through formal institutions particularly in Abyan (96.7 percent). Support to households in Amran, although small (3 percent) claimed to be formal. The information on the 42.6 percent of the households with access to credit in Abyan was contested by the findings from the qualitative assessment, which revealed that the persistence conflict in Abyan and the war against Al-Qaeda has torn the trust, and thus it is increasingly difficult for people to borrow money or buy on credit.

Figure 56: Distribution of HHs with present access to credit by location (left) and quartile (right)



Detailed analysis of the credits by source and location shows that the only formal institution reported in Hajja is the bank. The bank was also reported in other governorates, albeit on a small scale. The small and micro enterprises (SMIs) were only reported in Taiz by 11 percent of the households. Among those who reported getting access to informal credit, the most common source of informal credit seems to be the family reported by 74 percent of the households followed by informal local lenders reported in Abyan by 14 percent, and Hajja 2 percent.

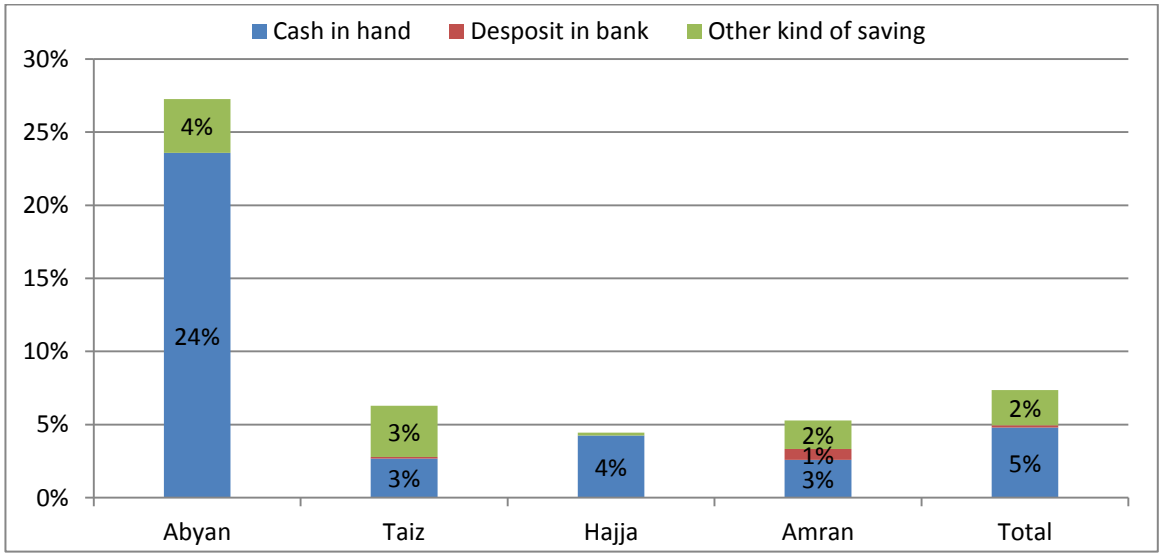
Figure 57: Distribution of households by source of informal credit



2.1.3.7 Savings

Households who reported having cash in hand constitute seven percent of the households of which 5 percent said they keep the money in the pockets or at home while two percent reported other form of savings. In Abyan, 24 percent of the households seem to have cash in hand. Bank deposits were only reported in Amran, but this was meager (one percent).

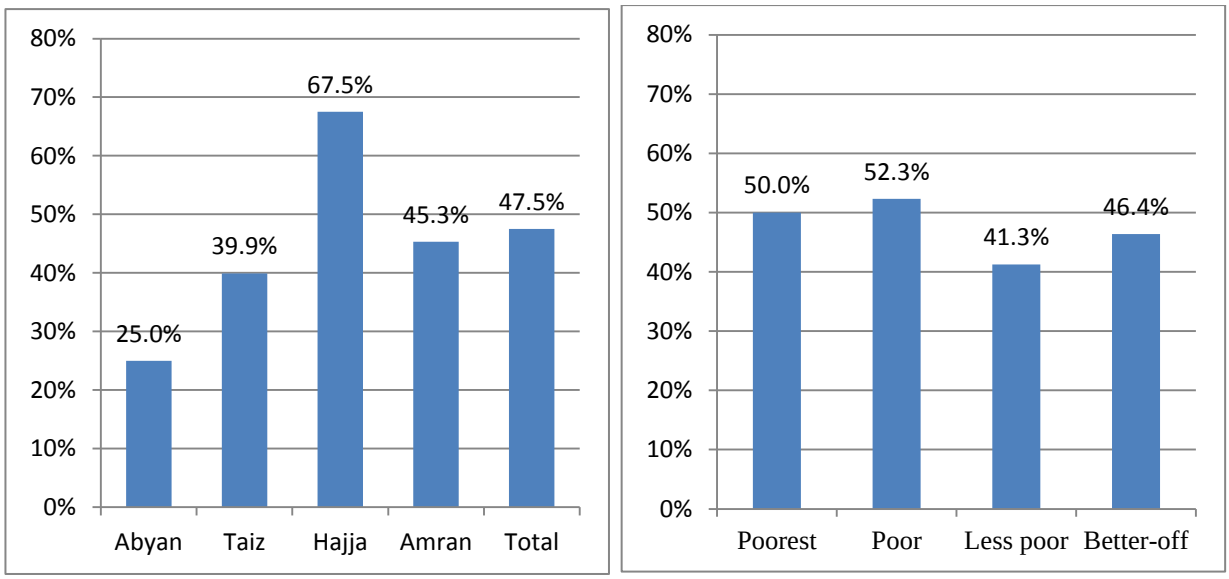
Figure 58: Distribution of households by type of savings



2.1.3.8 Livestock

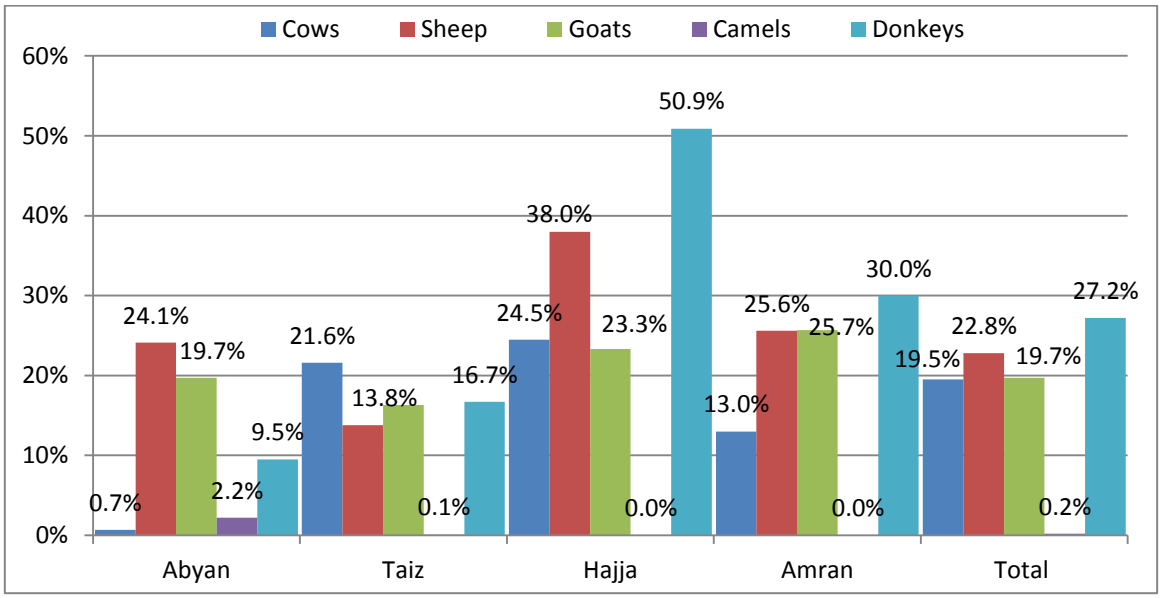
Households who keep livestock (at least a cow, a camel, a goat, sheep, or a donkey) constitute 47 percent of the total sample. By location, the highest proportion is in Hajja being 67.7 percent of the households, and the lowest is in Abyan being 24.8 percent.

Figure 59: Distribution of HHs keeping livestock by location (left) and quartile (right)



Livestock holders were asked of the number of animals they currently have, and the number they had in 2012 and also in 2011.

Figure 60: Distribution of households by type of livestock

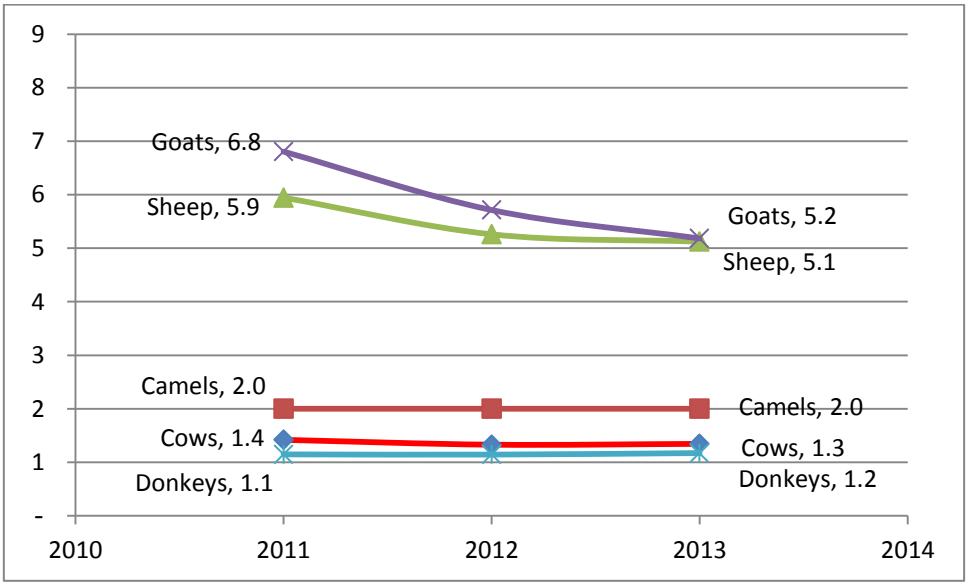


Overall, households currently own on average 1.42 cows (between 1 to 15), 4 goats (between 1 to 70), 4 sheep (between 1 to 50), a camel (between 1 to 5), and a donkey (between 1 to 5). There does not seem to be any significant association between animal keeping and wealth ranking because the number of animal kept is not significant.

Table 61: Livestock holders between 2012 and 2013

Livestock	Number of households	Sum of animals	Mean
Cows	389	508	1
Camels	22	8	0
Sheep	524	2633	5
Goats	453	2284	5
Donkeys	553	642	1

Figure 62: Mean number of animals kept by households 2011, 2012 and 2013



2.1.4 Natural Capital

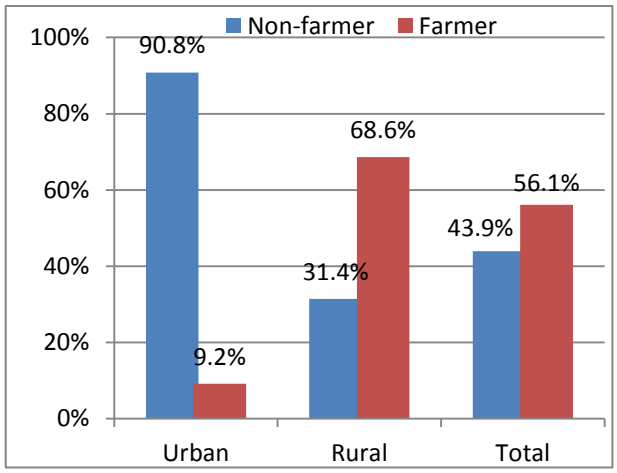
Indicators under the natural capital include landholding, access to common natural resources, food security and agriculture, rainfall and vegetation, land use and environmental degradation.

2.1.4.1 Access to common natural resources

This includes: (A) access to land for agricultural purposes including the type of access (owned, rented or sharecropped); (B) access to forests and bushes for cutting wood to make charcoal for cooking or for selling or for construction; and (C) water resources for agriculture, and distance to water source, and whether it is protected.

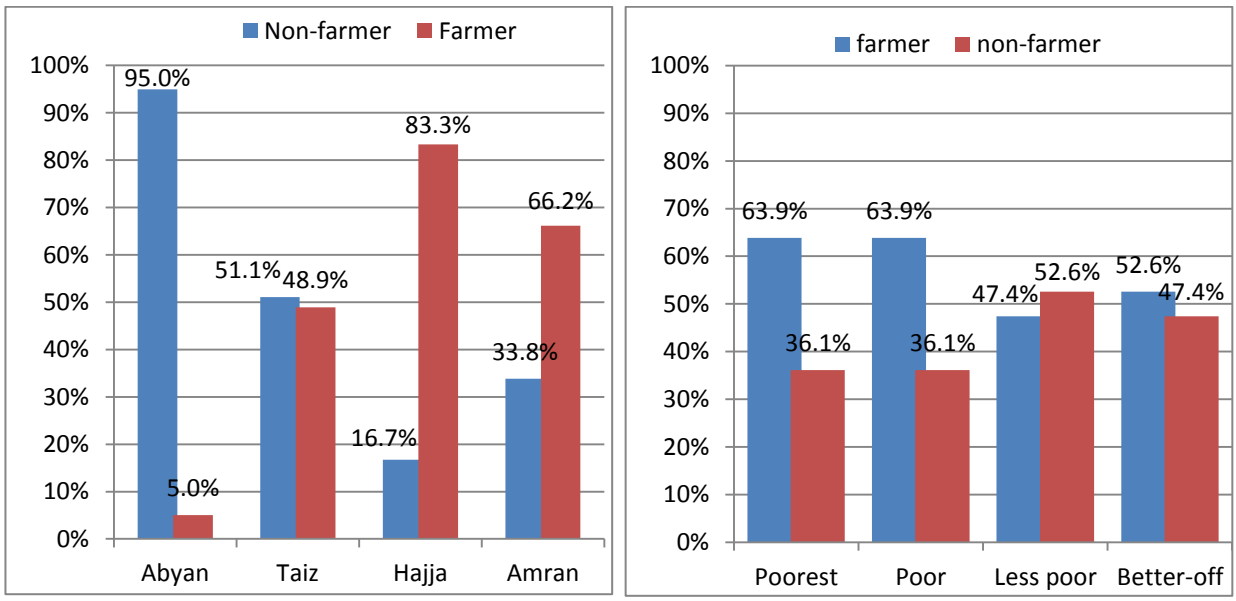
A. Access to land for agricultural purpose

Slightly over half (56.6 percent) of the population were reported to be farmers and 43.9 percent non-farmers. The farmers constitute 9.2 percent of the urban households and 68.6 percent of the rural households. Households with access to land in rural areas constitute 68.6 percent irrespective of the type of access (owner, renter or sharecropper), while the proportion of households who do not have any form of access to land constitutes 31.9 percent of the rural population. Rural households who generally have no access to land are considered vulnerable.



Distribution of farming households by geographical location shows that Abyan only has 5% of its households as farmers, which needs to be further investigated. By quartile, farming constitutes a large proportion of households of the two lowest quartiles (63.9 percent in each), thus farming in the surveyed population is correlated with poverty as these are generally smallholders consuming the majority of agricultural produce (subsistent farming).

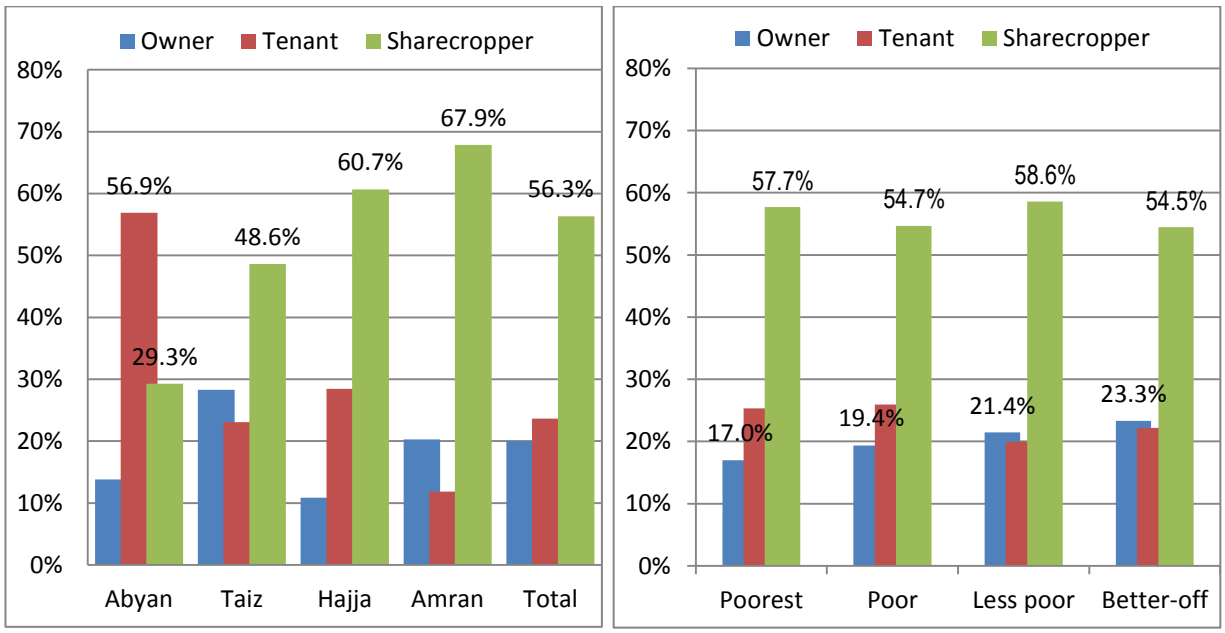
Figure 63: Farmers and non-farmers distributed by location (left) and wealth quartile (right)



In terms of the type of access to land (owned, rented or sharecropped) can also be associated with vulnerability among sharecroppers, as access is not secured, because a landowner, if powerful, which is usually the case, may suddenly ask the sharecropper to leave the land in absence of any land rights. Sharecropping, which is a land tenancy system based on Islamic Law can also be a potential risk of conflict, because the landowner leases his land not for cash, but in return for the share of crops, the quantity of which is not yet known at the time of contract signing! On the other hand sharecropping could also be seen as a positive sign, illustrating a high level of trust and solidarity due to the high social capital. Secure access to land reduces vulnerability to hunger and poverty. According to IFAD, land is fundamental to the lives of poor rural people. It is a source of food, shelter, income and social identity. In Yemen, land acquisition, particularly in the south was one of the issues that triggered the southern conflict following a long standing grievance (Yemen Conflict Assessment 6 April 2013). Land rights issue particularly in the south is now considered at the top of the policy agenda, and is taking precedence in the Comprehensive National Dialogue that is currently taking place in Sana'a with UN support.

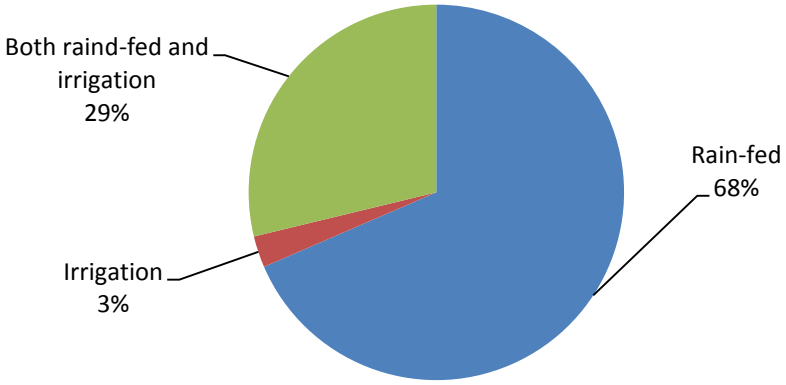
Only 20 percent of the households own arable land, while 56.3 percent are sharecroppers, and 23.6 percent are tenants. By geographical location, Taiz has a relatively higher proportion (28.3 percent) of its households who own the land followed by Amran (20.3 percent), Abyan (13.8 percent), and Hajja (10.9 percent). Tenancy (rental) was reported in Abyan among 56.9 percent of farmers - apparently the land was rented from the State prior to Yemen unification. Sharecropping seemed to be the most common among farmers across all governorates. In Amran (67.9 percent) followed by Hajja (60.7 percent), Taiz (48.6 percent), and Abyan has the least proportion of sharecroppers (29.3 percent). By wealth quartile, the type of access to land is associated with the level of wealth. That says, the wealthier the farmers the more they tend to be owners of the land, while land tenure and sharecropping seem to be associated with farmers in the lower wealth quartiles, and although such association is statistically significant, it is not very strong.

Figure 64: Distribution of households based on land tenure by location (left) and quartile (right)



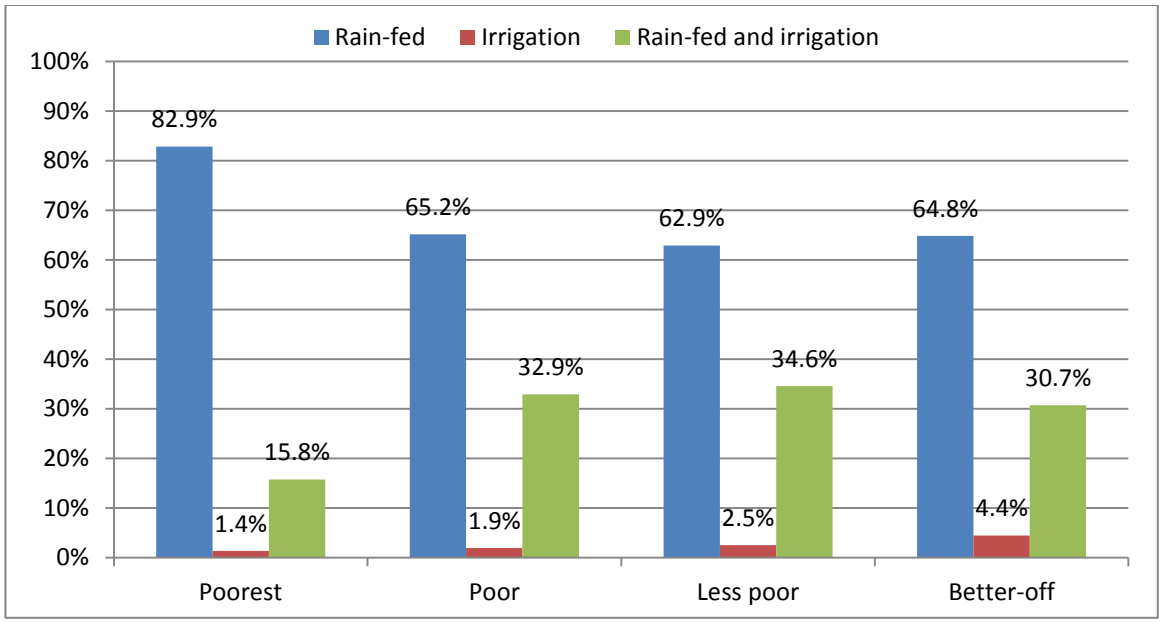
In terms of farming practices, over two thirds (68.5 percent) of the farming households said their land is rain-fed, 2.7 percent are irrigated and 28.8 percent rely on rain-fed and irrigation.

Figure 65: Farming Practices



Detailed analysis by wealth quartiles shows that most of the households within the lowest quartile (82.9 percent) rely heavily on rain-fed as a farming practice to provide much of the foods consumed by their members, while irrigation increases from 1.4 percent of the households in the lowest quartile to reach 4.4 percent of the households in the top quartile who can afford such type of irrigation. In general those who rely only on 'irrigation' as a farming practice - which is costly - do so as a coping mechanism due to lack of rain.

Figure 66: Distribution of farming households by type of irrigation system



Size of Landholdings

Overall, the average cultivated landholding is 4.59 hectare. This, however, varies by quartile in which the poorest has on average 2.47 hectare, the poor has 2.51 hectare, the less poor has 4.06 hectare, and the better off has 9.25 hectare.

Figure 67: Average landholdings in hectare by wealth quartile

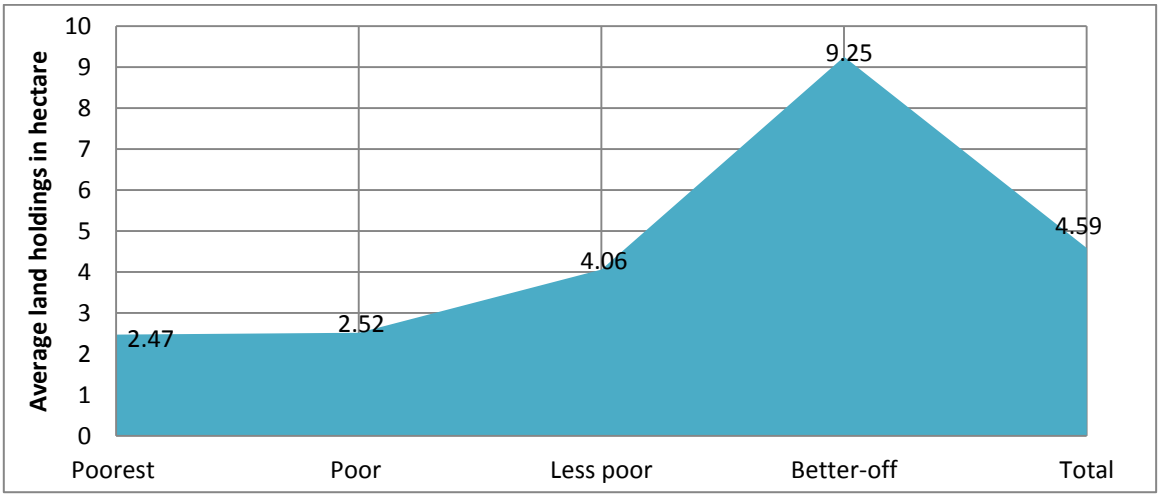


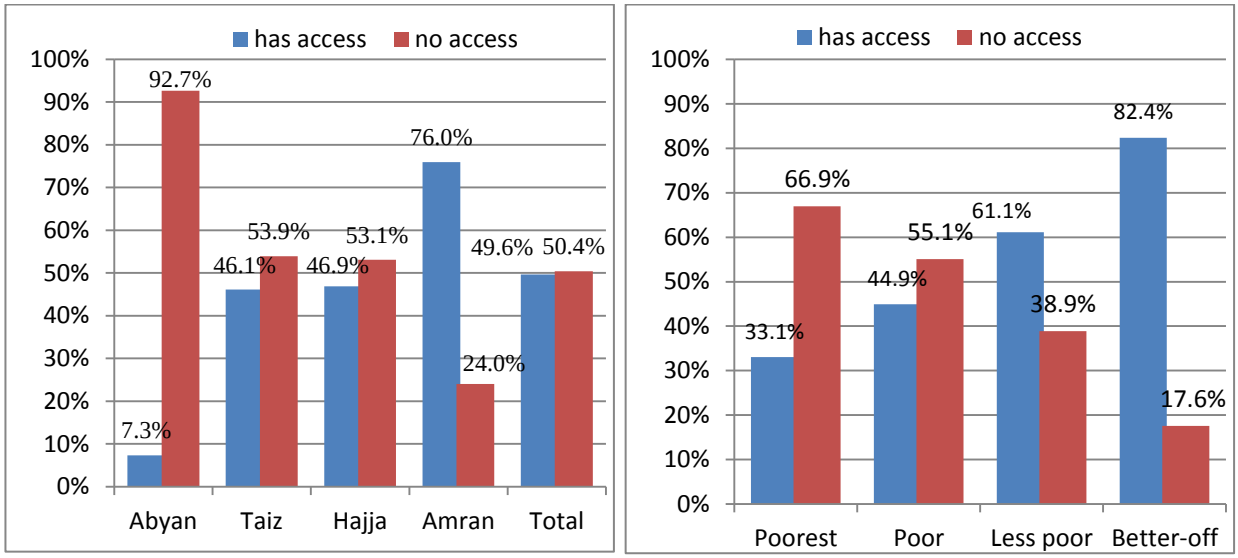
Figure 68: Distribution of farming households by wealth quartile

Wealth Quartile	Mean	Std. Deviation	Minimum	Maximum
Poorest	2.47	.61	1.23	8.43
Poor	2.51	.63	1.62	10.39
Less poor	4.06	1.89	3.37	25.37
Better-off	9.25	2.45	6.34	40.80
Total	**4.59**	3.09	1.23	40.80

Access to forest to collect wood for cooking

Households who are not using modern fuel for cooking were asked if they have access to forest, bushes or common areas to collect wood for cooking, and almost half (50.4 percent) said yes, and the other half (49.6 percent) said no. Distribution by geographical location shows that almost all the (92.7 percent) households in Abyan who need wood as fuel for cooking have no access. In Amran 76 percent have access and only 24 have no access. In Taiz and Hajja slightly over half of the households (53.9 and 53.1 percent) have no access. By wealth quartile, better access seems to correlate to the level of wealth quartile.

Figure 69: Access to common land to collect wood for cooking



B. Access to fishing resources

With the exception of Abyan and Taiz, most households in the four governorates have reported access to fishing even in Amran where there is no coastal area. In Abyan and Taiz the low access (16.5 percent and 24.1 percent respectively) need to be investigated. In the income section, households in Abyan did not report 'fishing' as a source of income although part of the governorate is situated on the Indian Ocean and this requires further enquiry.

C. Access to grazing areas

Access to grazing areas was said to be secured for 42.3 percent of livestock keepers while 56.9 percent claimed having no access. Access by governorate varies with Amran having a relatively better access (53.1 percent) compared to Hajja (44.7 percent) and Taiz (35.1 percent). Abyan is not included in the table as there was only households having livestock, an issue that needs to be checked.

Table 70: Access to grazing land for livestock keepers by geographical location

Location	Yes	No
Taiz	35.1%	64.9%
Hajja	44.7%	55.3%
Amran	53.1%	42.1%
Total	42.3%	56.9%

The qualitative assessment revealed that landmines buried by Houthis in Mastaba (Hajja governorate) and by Al-Qaeda in Khanfar (Abyan Governorate) prevent farmers from cultivating their own land or from using the land for grazing. In Mastaba (Hajja governorate) Houthis were also said to be controlling lands preventing land owners from cultivating or grazing.

D. Access to water resources for agriculture

The household survey did not include data on access to water resources for agriculture. Disputes over water was captured by the qualitative assessment in Thula (Amran governorate), which was triggered when landowners up stream of the wadi dug cisterns in the middle of the wadi to keep water, waging frequent disputes with landowners downstream, which could potentially become a source of conflict.

2.1.5 Social Capital

Social	Social networks, ability to influence and participate in decision making, access to services, support and gifts received from friends and relatives, gender roles, rights and entitlements

Social capital is one of the five livelihood capitals, and refers to social resources upon which households draw in pursuit of their livelihood outcomes. Social resources are developed through social networks and connectedness, membership in more formalized groups, and relationships of trust and reciprocity.

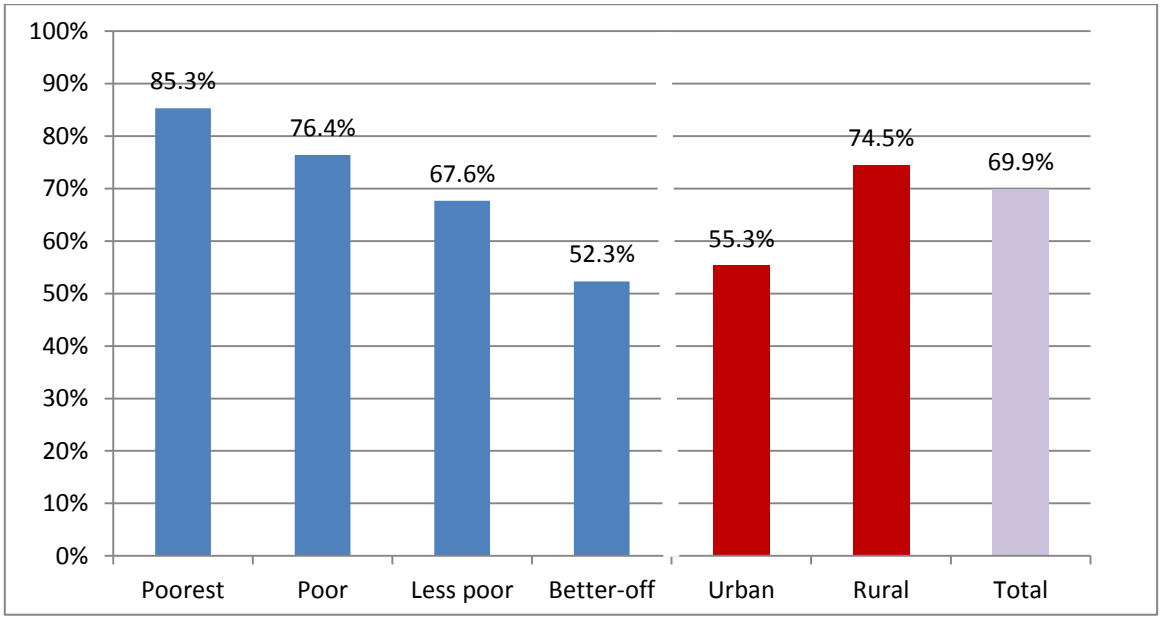
The household questionnaire did not have specific questions focusing on social fabrics and connectedness, nonetheless there is sufficient information in various parts of the questionnaire, which was used to analyze the social capital.

2.1.5.1 Social Support through relatives, extended families, friends and neighbors

Around a quarter of the households (25.6 percent) receive social support in the form of remittances from a relative or an extended family member working and living abroad while a small proportion (6.1 percent) of households receive remittance from a household member working in another governorate. On average the remittances were said to cover over half of the household's food consumption.

Of those who experienced a decline in food availability 69.9 percent reported borrowing money and/or food from relatives or neighbors as a coping strategy for food shortage. This illustrates the level of social support available for these households to rely on in times of need. This coping strategy is more common in rural than in urban areas, and seems to correlate with household's wealth. Borrowing is prevalent among the poorest and tends to decrease with the increase in wealth.

Figure 71: Households borrowing money/food as a percentage of those facing food shortage



2.1.5.2 Barter, exchange of benefits and labor reciprocity including sharecropping

A significant proportion of households (46.6 percent) obtain their food through barter exchange of goods, 32.4 percent borrow money from others while 36.7 percent through food for work. These forms of payment illustrate the level of trust and solidarity among households within the community.

While those who do not have access to land in rural areas are generally considered vulnerable and food insecure, the type of land tenure particularly in the case of sharecroppers and land renters might be associated with vulnerability, because access is not secured if a landowner suddenly asks the sharecropper to leave the land in absence of any land rights. The fact that a large number of farmers are engaged in temporary access to land (for instance, through sharecropping agreements) could result in discontent that may aggravate instability of the country let alone the sector. These sorts of agreements would thus need to be regulated and monitored over time. On the other hand sharecropping is based on Islamic principles that could be seen as a positive sign illustrating a high level of trust and solidarity among households within the community, and such support may be seen as a high social capital. Issues on sharecropping did not come up in the qualitative assessment. Due to the fact that the majority of farmers are engaged in sharecropping, we suggest introducing a question in forthcoming household surveys to capture the period in which the farmer has been involved in sharecropping (continuous variable), and the level of satisfaction with such an agreement (categorical variable), and if not why.

2.1.5.3 Access to formal and informal institutions

Access to local formal institutions (such as banking) was limited although mentioned by several households mostly in Hajja. **Access to formal credit** is very much impeded by collateral requirements that cannot be fulfilled by poor households, although 19 percent of the households from the poorest quartile reported getting credit through the informal sector and social networks, and local informal lenders, which is gratifying.

Those with access to safety nets. Those who receive **remittance from inside Yemen** constitute 17 percent of the total sample of which 6.1 percent comes from a relative working in another governorate, 7.7 percent comes from SWF, and 1.3 percent pension. There is no significant difference between remittances before 2011 and in 2013.

Access to formal institutions is generally impeded by on the hand high illiteracy rate, and lack of awareness among right holders (citizens) about their rights and entitlements to make their demands. On the other hand, duty bearers (public institutions and service providers) are impeded by lack of resources coupled with lack of a grievances system to foster accountability, which leads to dissatisfaction of public institutions and fuels conflicts.

2.2 Livelihood Strategies

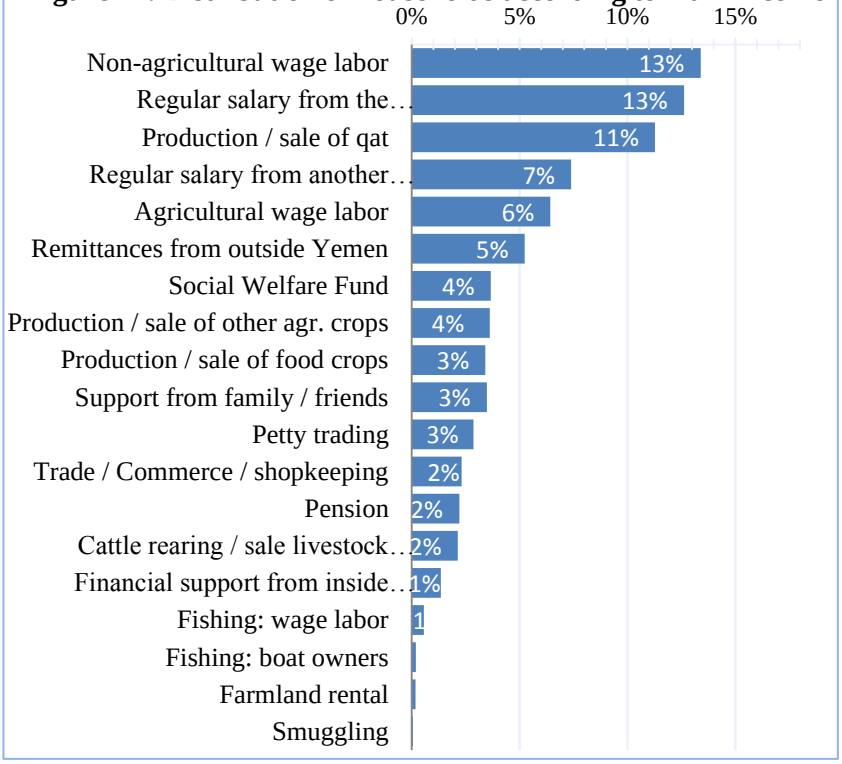
This section of the report analyses livelihood strategies households are employing or pursuing to make a living. The section will cover food and income sources, and coping mechanisms

2.2.1 Income Sources

- **Source of income (overall)**

Wage labor was reported to be the most important (main) source of income for households (13% non-agriculture, 6% agriculture, 1% fishing) followed by **regular salary** (13% from the government and 7% from an employer other than the government).

Figure 72: Distribution of households according to main income



Production and/or sale of *qat* was reported as the main source of income for 11 percent of the households. **Production and/or sale of food crops** 3 percent and **production and/or sale of other agricultural crops** 4 percent**.**

Five percent of the households depend on **remittance** from outside Yemen for income, one percent financial support from inside Yemen while one percent support from friends/relatives, 4 percent from the **SWF** and two percent **pension** salary. **Cattle rearing and/or sale of animal products** was reported as the main source of income for two percent while **fishing** (**boat owner**) was reported as the main income by only 1 percent despite the fact that Yemen has a coastline of over 2,100 kilometers long - around a third of it is along the Red Sea where parts of the three governorates of Abyan, Hajja and Taiz are located. An issue that requires further investigation!

- **Source of income (by wealth quartile)**

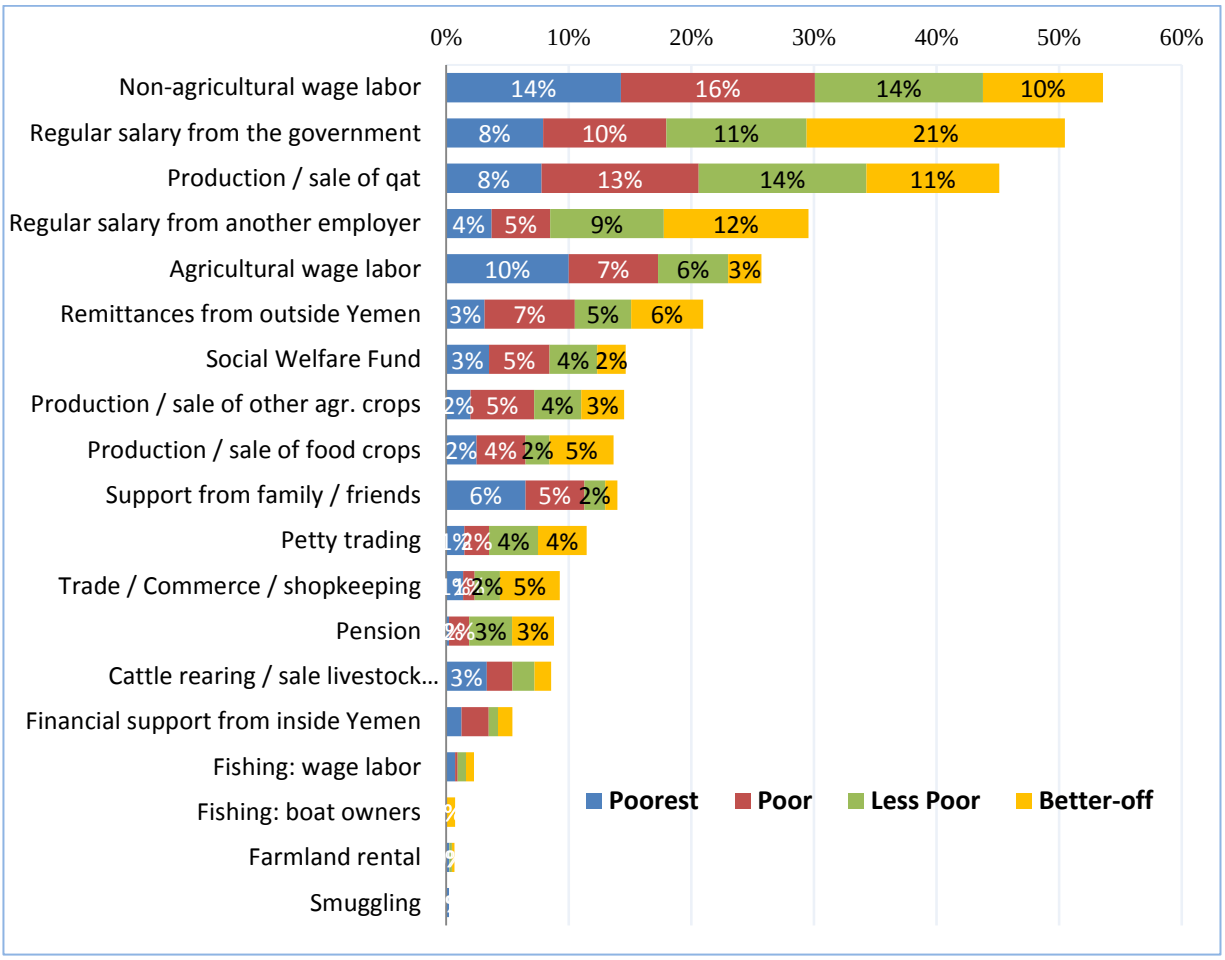
The Better-off
Households in this wealth quartile have regular salary from the government as their main income source 21 percent followed by regular salary from another employee 12 percent; production/sale of *qat* 11 percent; and non-regular agricultural labor 10 percent among others. Only 2 percent of the households in this wealth quartile receives support from SWF compared to 12 percent in the lower wealth groups. This is gratifying and shows that the SWF has good targeting, but not good enough to capture all the poorest and the poor.

The Less Poor
Households in this wealth quartile are working in the production/sale of *qat* 14 percent; non-agricultural labor 14 percent; regular salary from the government 11 percent; regular salary from another employee 11 percent; and remittance from outside Yemen.

The Poor
The main source of income for **the poor** is non-agricultural wage labor 16 percent, regular salary from the government 10 percent followed by production/sale of *qat* 13 percent; agricultural wage labor 7 percent; and remittance from outside Yemen 7 percent.

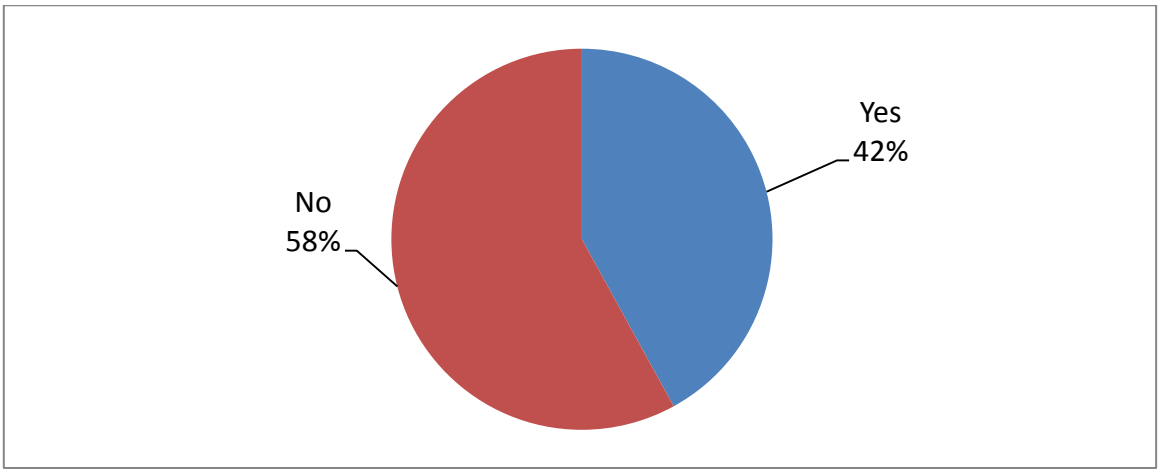
The Poorest
The main source of income for households in **the poorest** quartile is non-agricultural wage labor 14 percent; agricultural wage labor 10 percent; regular salary from the government 8 percent followed by production/sale of *qat* 8 percent; support from family and friends 6 percent; and remittance from outside Yemen 7 percent.

Figure 73: Distribution of households based on the main income source by wealth quartile



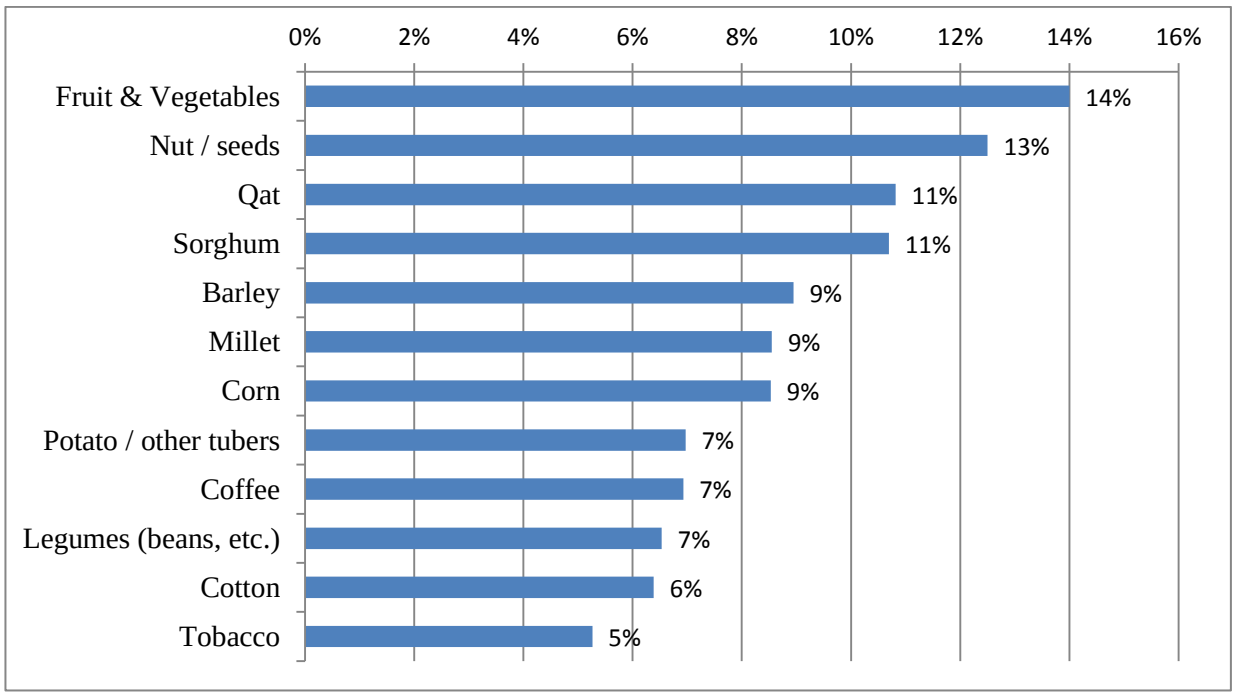
Over half (58 percent) of the famers did not cultivate all their farmland in 2012, and only 42% who did.

Figure 74: Was land cultivated in 2012?



Farmers were asked of the types of crops cultivated in 2012, and the most common were vegetables and fruits reported by 14 percent of the households, 13 percent nuts/seeds, 11 percent reported equally for sorghums and *qat*, 9 percent reported equally for barely, millet and corn, 7 percent reported equally for potatoes, coffee and legumes, 6 percent cotton, and 5 percent tobacco.

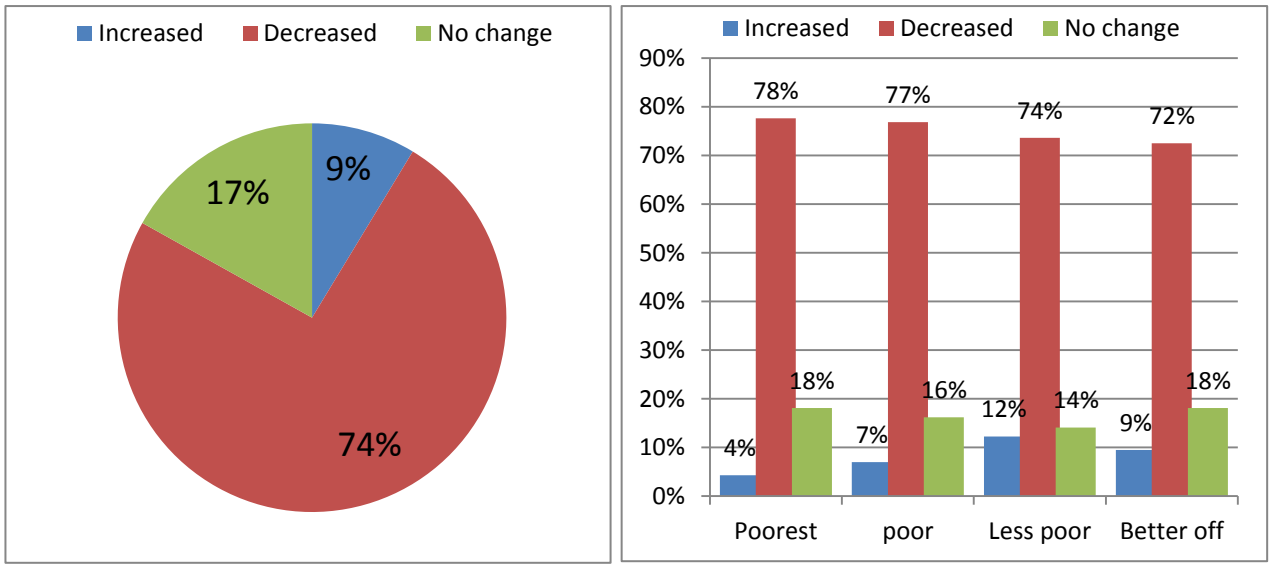
Figure 75: Crops Cultivated in 2012



Most (74 percent) of those who reported cultivating their land in 2012 reported that crop production decreased compared to 2011, and only 9 percent reported an increase in crop production, while for 17 percent there was no change. The decrease in crop production is evident in all of the four quartiles, albeit to a varying degree. Those who reported an increase constitute 12 percent of the households among the better-off, 9 percent of the less poor

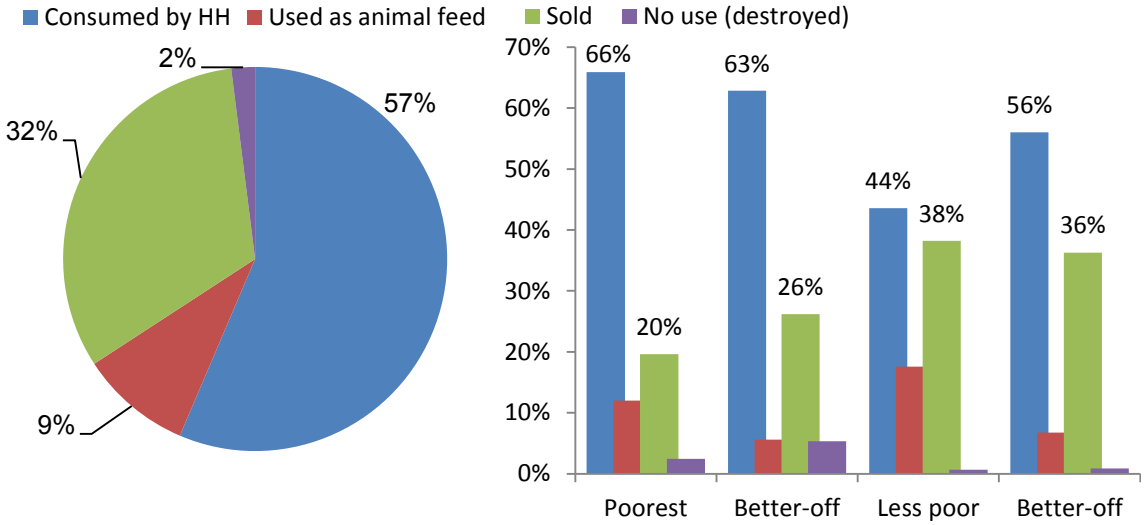
compared with 7 percent of the poor and 4 percent of the poorest. In other words, those who experienced a shock and "bounced back better" constitute more of the better off and the less poor while those who "bounced back, but worse" constitute more of poor and the poorest.

Figure 76: Percentage of households with a change or no change in crop production



Slightly over half (57 percent) of the households who cultivated their land in 2012 mainly use the crops for their own food consumption, while for 32 percent it is mostly sold, 9 percent mostly used as animal feed, and for 2 percent was of no use, because it was destroyed. The use of crops produce varies by wealth quartiles: the sale of food produced seems to increase with the increase in wealth quartile while (38 percent among the better-off compared with 20 percent among the poor). Most of the households in the poorest and the poor quartiles use their cop production for own consumption as reported by 66 and 63 percent respectively. On the other hand, households who produce crops mostly to sell are relatively fewer among the lowest quartiles and increase as we go up the quartiles.

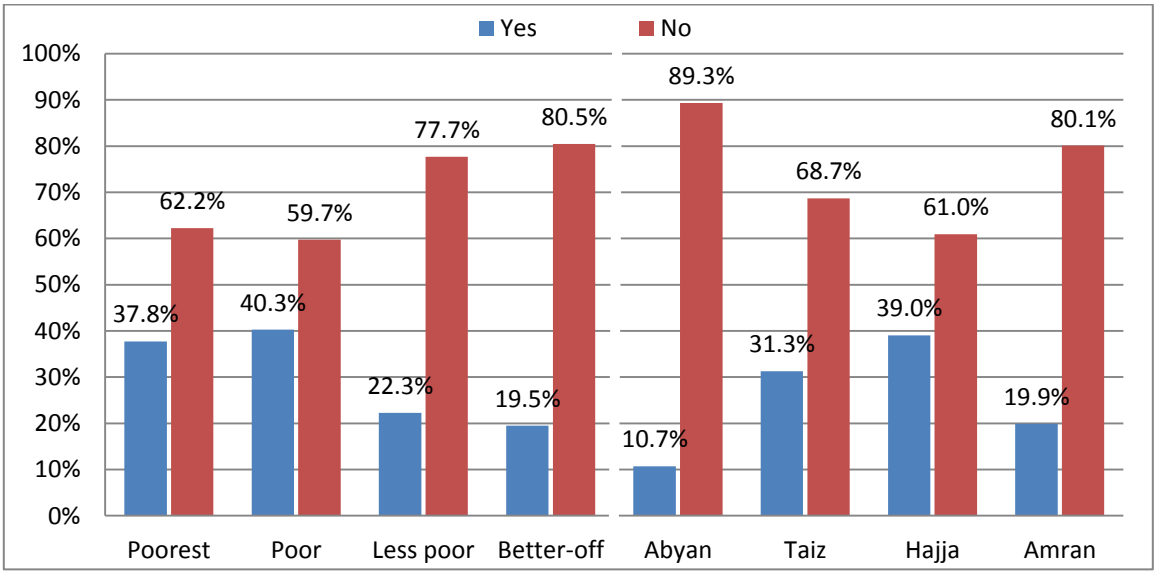
Figure 77: Distribution of households based on the use of crop production



2.2.1.1 Constraints in Access to Market

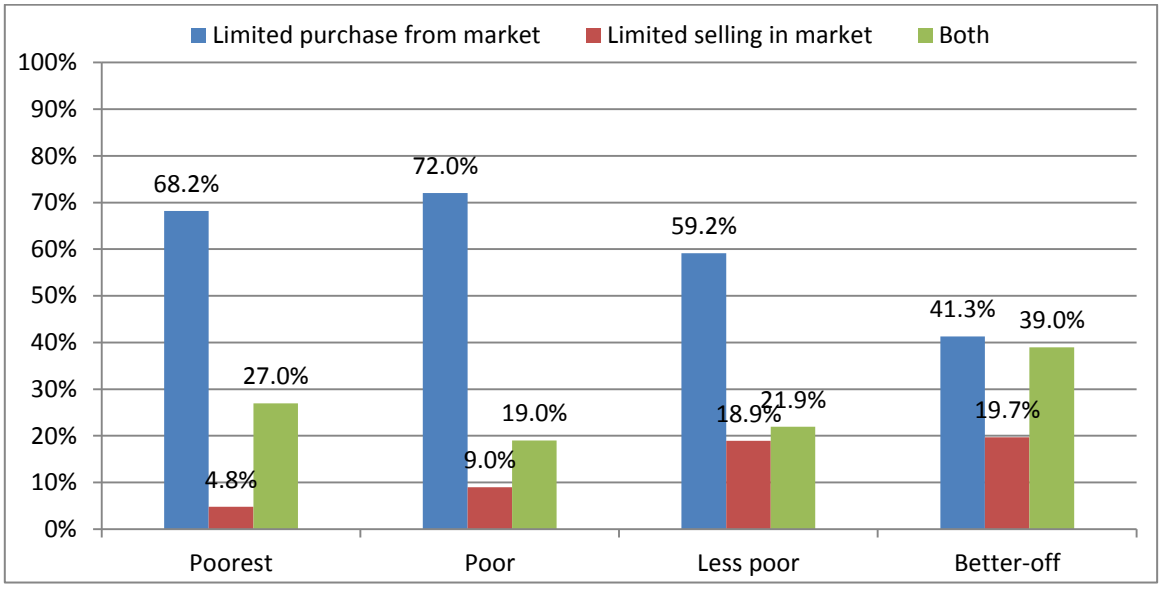
On whether there are any income constraints in access to markets today compared with 2011/2012 , only 30.1 percent said yes. Disaggregation of the data by wealth quartile shows that the highest proportion of those who said 'yes' are from the lowest quartile (37.8 percent) compared to only 19.5 percent of the highest quartile.

Figure 78: Are there any constraints in access to markets today compared with 2011/2012?



The major constraint was the 'limited purchase from the market' mostly reported by 68.2 percent of the poorest and 72 percent of the poor.

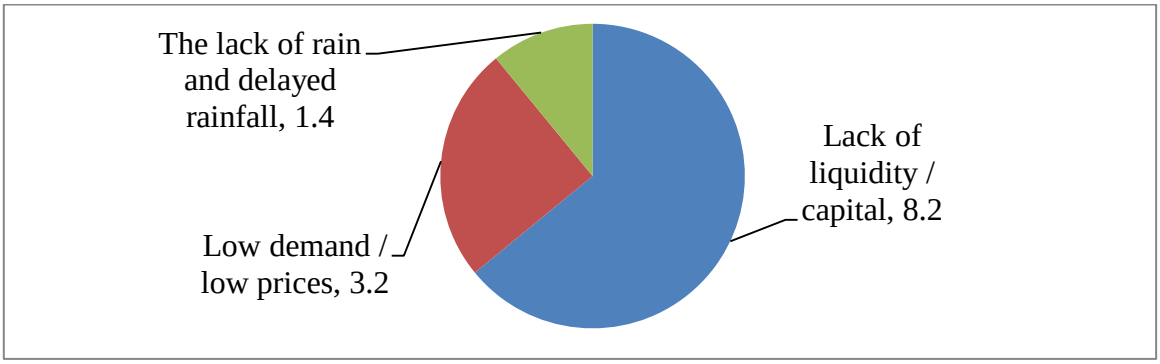
Figure 79: Distribution of households by types of constraints in access to markets



2.2.1.2 Constraints related to cash

The three main constraints farming households experienced this year (2013) relates to 'lack of liquidity and capital' reported by 29.4 percent, followed by 25 percent 'low demand and low prices'; and 17.7 percent 'lack of rain'.

Figure 80: The three main constraints farming households experienced this year (2013)



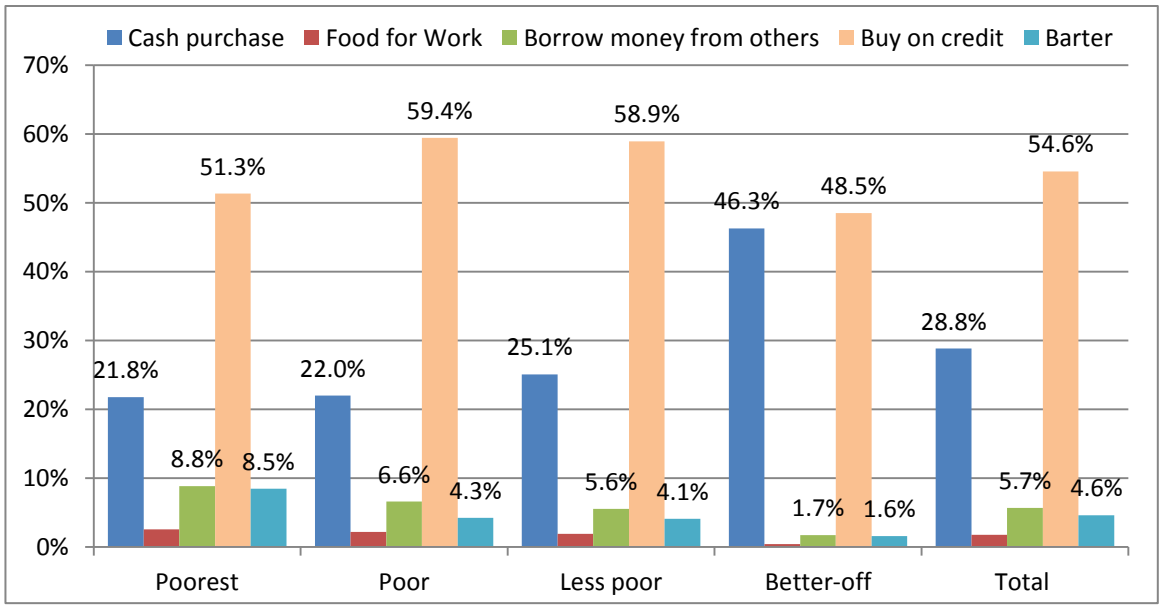
2.2.2 Food Sources

The survey analyzed the main sources of food by means of procurement, which are commonly used by households and that which was used in the last week preceding the survey.

2.2.2.1 Common Means of Payment for Food

In terms of the common means of payment for food, 'buying on credit' seems to be the most common means of paying for food as reported by 54.6 percent of the households followed by 'cash purchase' reported by 28.8 percent. 'Borrow money from others' and bartering was reported by 5.7 and 4.6 percent respectively. By wealth quartile, 'buying on credit' seems to be the most common means across all wealth groups. However, 'cash purchase' seems to be positively associated with increased wealth.

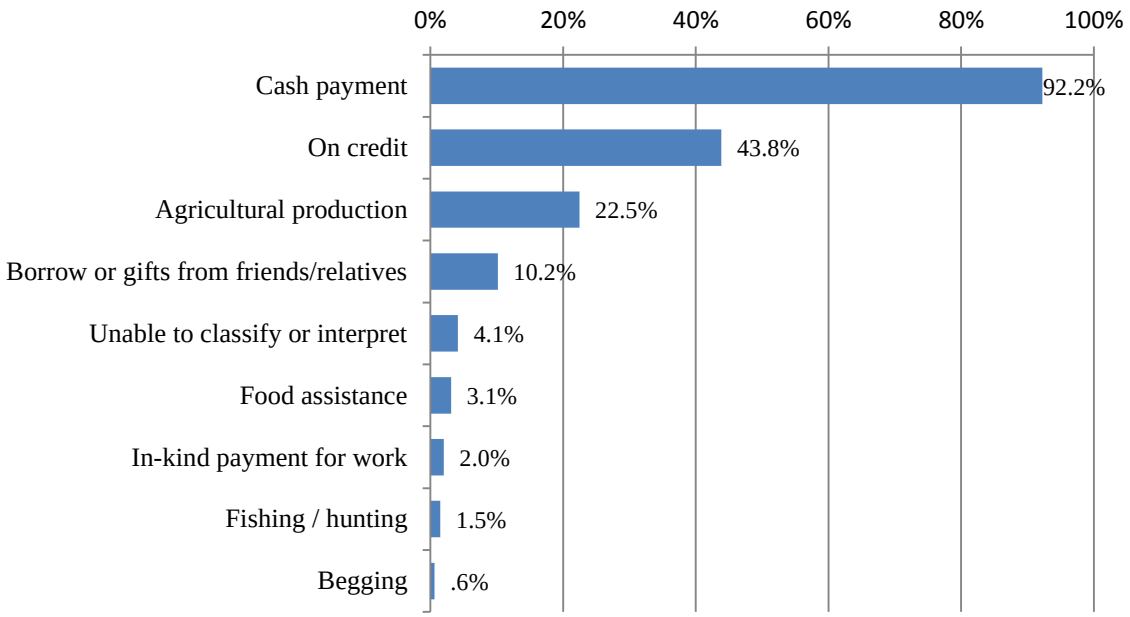
Figure 81: Distribution of households by means of payment for food



2.2.2.2 Means of Payment for Food in the last week preceding the survey

In terms of the method of payment for food in the last week preceding the survey, 'buying in cash' was reported by most households (92.2 percent), while 43% of the households also reported 'buying food on credit' while 22.5 percent rely on their own farm production, 10.2 percent borrow food or money to get food or get from friends or relatives, 3.1 percent through food assistance, 2 percent from in-kind payment for work, 1.5 percent from fishing and hunting, and less than one percent begging (multiple responses were allowed). The discrepancies between 'the most common means of payment for food' reported in the previous sub-section and 'the means of payment for food in the last week' reported in this sub-section is because in the latter the questionnaire allowed for multiple responses.

Figure 82: Distribution of HHs based on the main food source in the last week preceding the survey

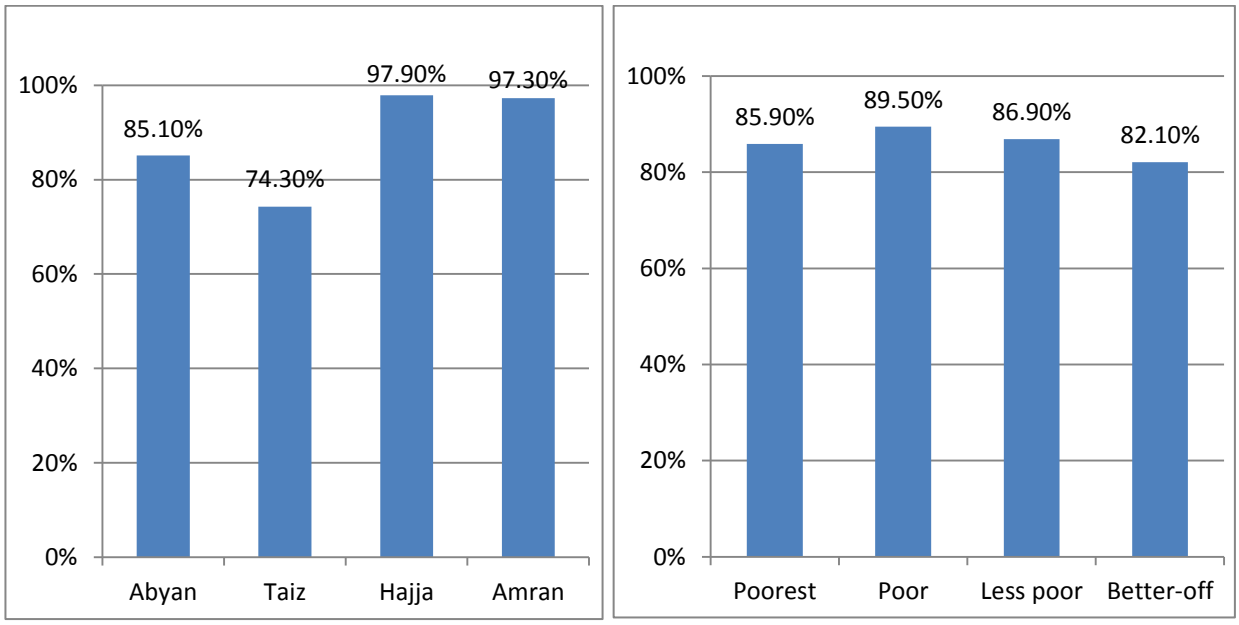


2.3 Effects of Conflicts and Vulnerability to Shocks

The household survey focused on the effects of conflicts, while the qualitative assessment sought to explore natural disasters and seasonality as well as shocks and stresses besides complementing the quantitative data from the household survey and providing insights to some of the issues raised.

The results of the household survey revealed that most households reported to have been affected by conflicts in one way or another. Even households in the better-off quartile were not at all immune to the effects of shocks and stresses.

Figure 83: Distribution of HHs affected by conflicts by location (left) and wealth quartile (right)



Those whose livelihoods were said to be affected by conflicts were prompted to recall the onset of the conflict, and 67 percent referred to the 2011 political conflict while 28.8 percent referred to the year 2010.

Table 84: Distribution of households based on the reported date of conflict by governorate

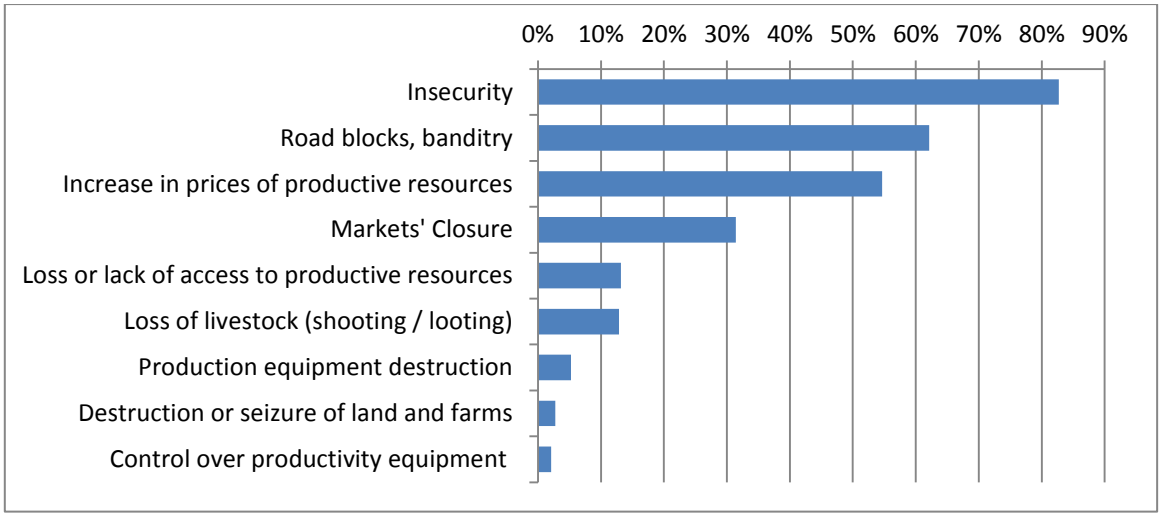
Year	Governorate				Total
	Abyan	Taiz	Hajja	Amran	
2011	65.9%$_a$	78.5%$_b$	59.5%$_c$	59.7%$_c$	67.4%
2010	31.3%$_a$	14.8%$_b$	38.8%$_c$	37.7%$_d$	28.8%
2009	0.9%$_a$	0.6%$_b$	0.4%$_c$	1.9%$_d$	0.8%
2008		1.1%$_b$	1.0%$_b$	0.4%$_c$	0.8%
2007	1.9%$_a$	5.0%$_b$	0.2%$_c$	0.4%$_d$	2.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

The reasons for being affected are mainly due to insecurity, roadblocks and banditry, increase in price of productive resources, markets' closure, loss or lack of access to productive resources, and loss of livestock (shooting / looting). The qualitative assessment has provided insights on these effects. For instance, in Mastaba (Hajja governorate), male and female participants in FGDs expressed a sense of bitterness due to the closure of *souk* A'hem (A'hem market), which was once their weekly market. Th closure resulted in loss of livelihoods for

many people in Mastaba and the surrounding areas. Houthis who closed the souk use it as military barracks. The following quote illustrates the tragedy.

> *'Souk A'hem is closed, it was one of the biggest markets in Yemen. Now it is full of landmines. A'hem souk is closed it was the second popular souk after Al-Tal'h souk. They used to come to A'hem from Taiz and from all over the country, and even from Saudi. It used to have everything from a small thing as the needle to a tank'. Many of us lost livelihoods as a result of the closure of the souk . During the destruction of the Souk, a shop in the souk was set on fire and was completely burnt. The loss was estimated at 50 million Yemeni Riyals*[2]*. The shopkeeper went into a coma for 4 days as the shop was his only livelihood, and his family fell into poverty as a result of this* (male FGD participants in Mastaba, Hajja governorate).

Figure 85: Distribution of households by the reasons for being affected



The loss of livestock was cited in the qualitative assessment, which was reported during the FGDs in three of the four governorates (Hajja, Taiz and Abyan). In **Mastaba (Hajja governorate)** Houthis are claimed to be shooting or impounding cattle on account of trespassing fields that are designated 'forbidden to approach' taking this as an excuse to feed themselves. Shooting and/or impounding of cattle was also reported in **Shara'b (Taiz governorates**) as a result of a local act agreed among sheikhs and local figures following frequent disputes between farmers and animal herders due to trespassing. Also in **Shar'ab Taiz governorate)**, beekeepers reported a loss of their beehives as a result of the excessive use of pesticides by *qat* farmers. The excessive use of pesticides has potential risk for human health notably cancer, which is cited in numerous research. In **Khanfar (Abyan governorate)**, the internal displacement as a result of the war against Al-Qaeda has left no other choice for livestock holders, but to forcibly sell their livestock at very low costs and flee the war torn areas. The return from the sale of livestock was not invested, but rather used in the evacuation and for food consumption as the last resort during their displacement. The displacement has been devastation for their livelihoods causing some to go into poverty. In **Lawder (Abyan governorate)**, livestock holders experienced a shock and continued stresses due to the drastic decline of the value of their cattle as a result of the war.

> '*We sold thirty sheep for ten thousand Yemeni Riyals to pay for evacuation to Aden*' (male participant in FGD, Lawder district, Abyan Governorate).

[2] One USD = 215 Yemeni Riyals

'We lost all our sheep, they were all killed on landmines' (male participant in FGD, Khanfar district, Abyan Governorate).

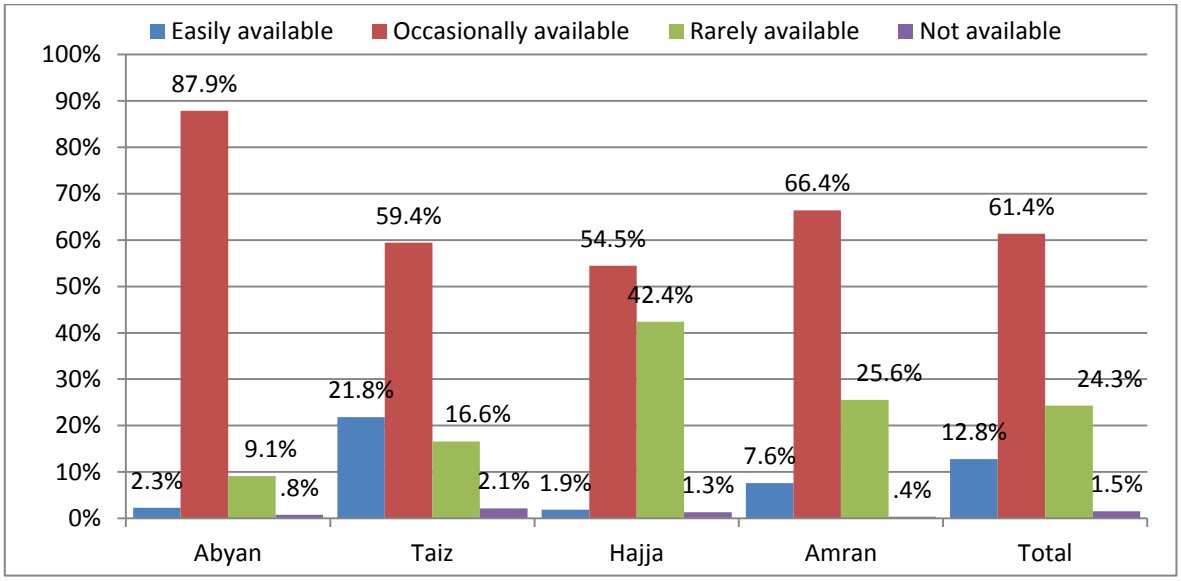
'We still have a problem, animal herding was the responsibility of women, but when the military camps were setup here with soldiers everywhere, women could not go out herding, and not to mention landmines in the grazing areas as the main problem that remains' (male participant in FGD, Khanfar district, Abyan Governorate).

2.3.1 Limitation in Access to and Decline in Availability of Food

2.3.1.1 Limitation in Access to Food

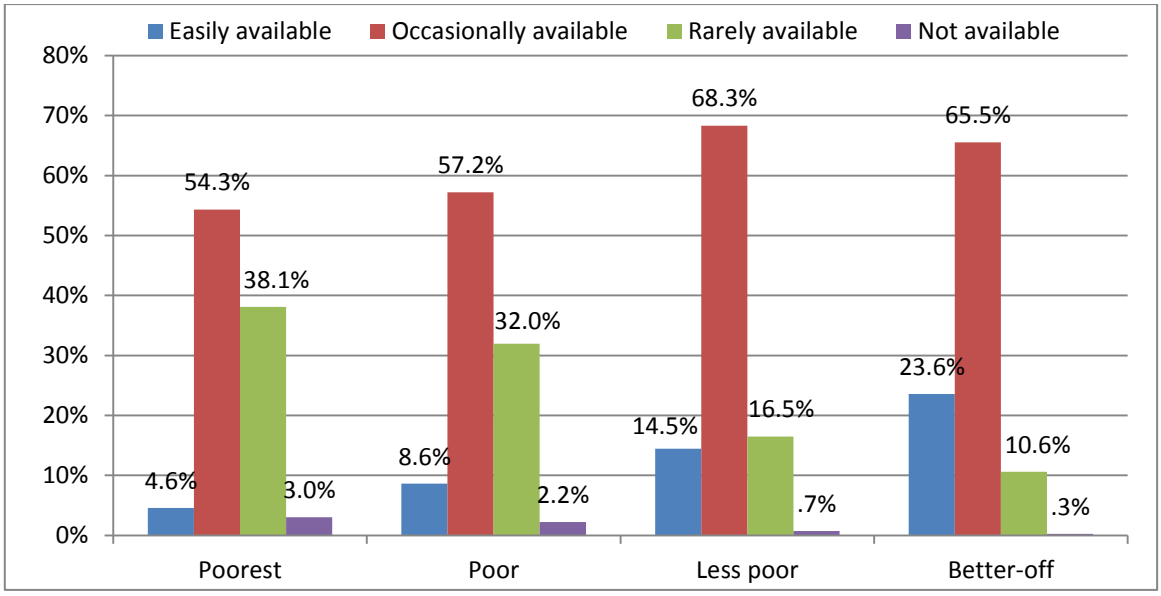
On the extent to which the main food items are available for households (procured or from own production), only 6.7 percent said it was 'easily available' while the majority (66.4 percent) said it was 'occasionally available', and for 25.6 percent it was 'rarely available'.

Figure 86: Distribution of households according to Access to main food items by location



Those who said food is 'easily available' constitute 23.6 percent of the households in the top quartile, and the proportion decreases as we go down the lower quartiles to reach 4.6 percent among the poorest quartile.

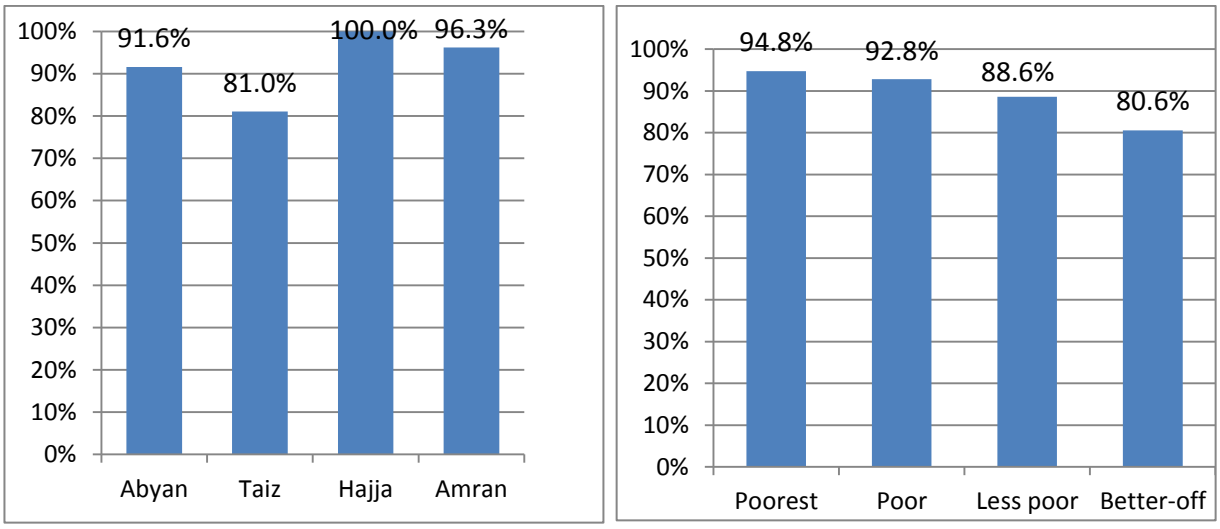
Figure 87: Distribution of households according to access to main food items by quartile



2.3.1.2 Decline in Food Availability

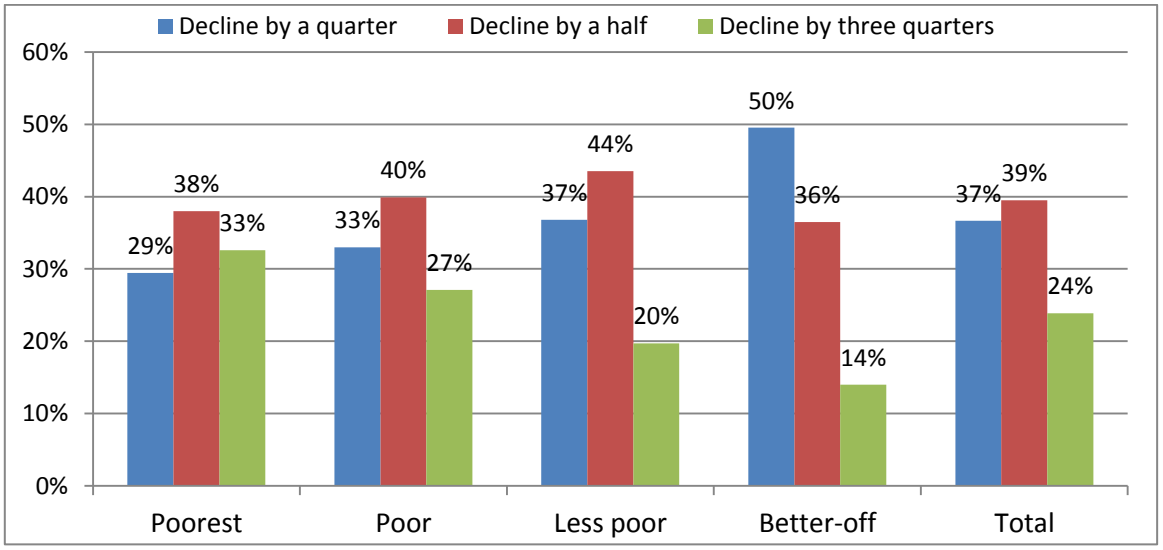
On whether food availability declined in the last two to three years, 89.2 percent said yes ranging between 100 percent in Hajja and 81 percent in Taiz (chart at the bottom right). The proportion of households who reported a decline in food availability is the highest among households in the lowest quartile (94.8 percent), and the proportion gradually gets less as we go up to higher wealth quartiles to reach 80.6 percent. In short, the higher the quartile the less the number of households facing food decline.

Figure 88: Distribution of households who experienced shortage in food availability



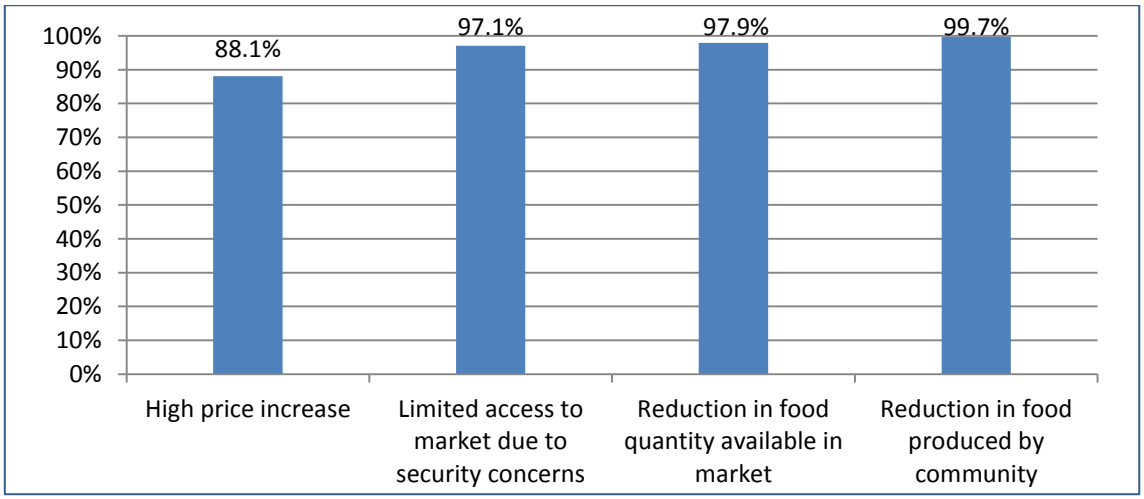
Of those who reported a decline in food availability, 24 percent estimated the decline to have reached as much as three quarters, 39 percent felt food availability declined by a half, and for 37 percent of them it was a quarter. By wealth quartile, the size of the reduced availability of food seems to decrease with the increase in wealth. Thus, the largest quantity of decline was correlated with the poorest and seems to decrease with the increase in wealth quartile. Those who experienced a low decline in food availability 'decline by a quarter' mostly belong to the highest quartile, and seem to be associated with increased wealth.

Figure 89: Distribution of households by the size of decline in food availability



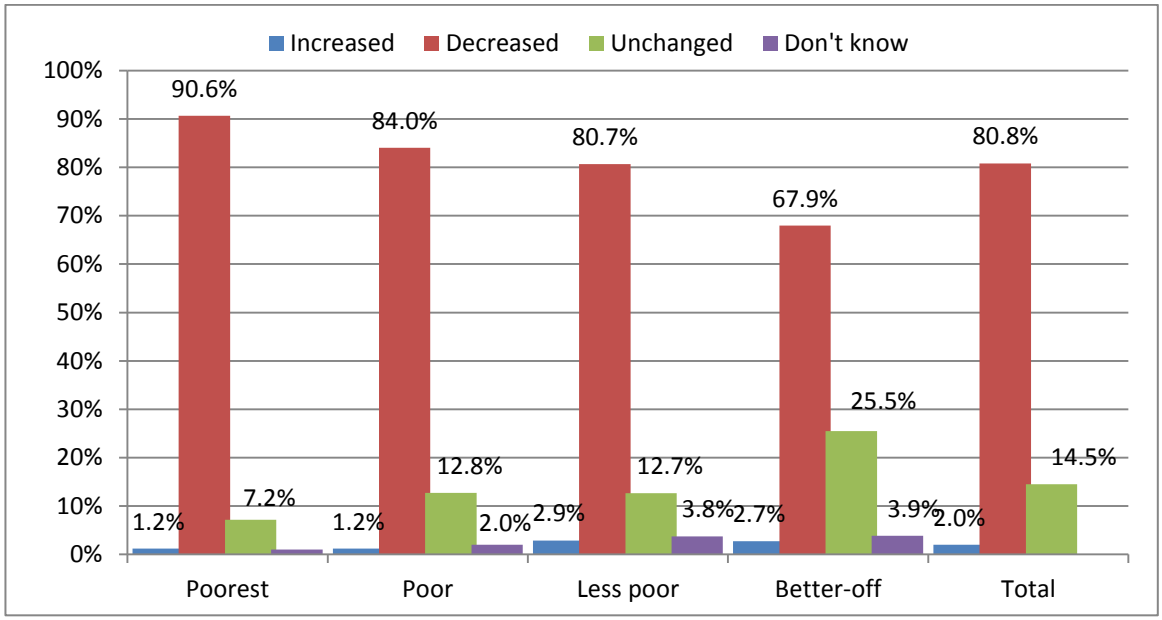
The reasons for the decline in 'food availability' include 'the reduction in the quantity of food available in the market', 'the limited access to market due to security problems', 'high price increase', and 'the reduction in food produced at community level'. The latter (reduction in food produced at community level) was largely caused by the escalation in the price of fuel, which in 2011 forces some farmers to abandon their farms or part of it when they were no longer able to afford the costs. Other causes that hampered food production at community level include price increase of water, armed conflicts in the farms or within close proximity including lack of access to farms due to armed conflict. These causes have come up in all the four governorates and across all wealth quartiles, but those who were badly affected are the poorest and the poor that had to abandon their farms due to the escalation of the price of fuel.

Figure 90: Distribution of households by the reasons for decline in food availability



Those who claimed that 'food availability' declined were asked whether on average the quantity of food eaten was reduced since the conflict started, and overall the results that only 14.5 percent claimed that their food intake remained the same, while 80 percent have experienced a reduction in food intake as a result of the conflict, albeit to a varying degree. At the level of each quartile, the number of households who reported a decrease in food intake is highest (90.6 percent) among households in the poorest quartile, and gradually declines as we go up the quartile to reach 67.9 percent of the households in the top quartile (the better-off).

Figure 91: Distribution of households by the size of food intake by quartile



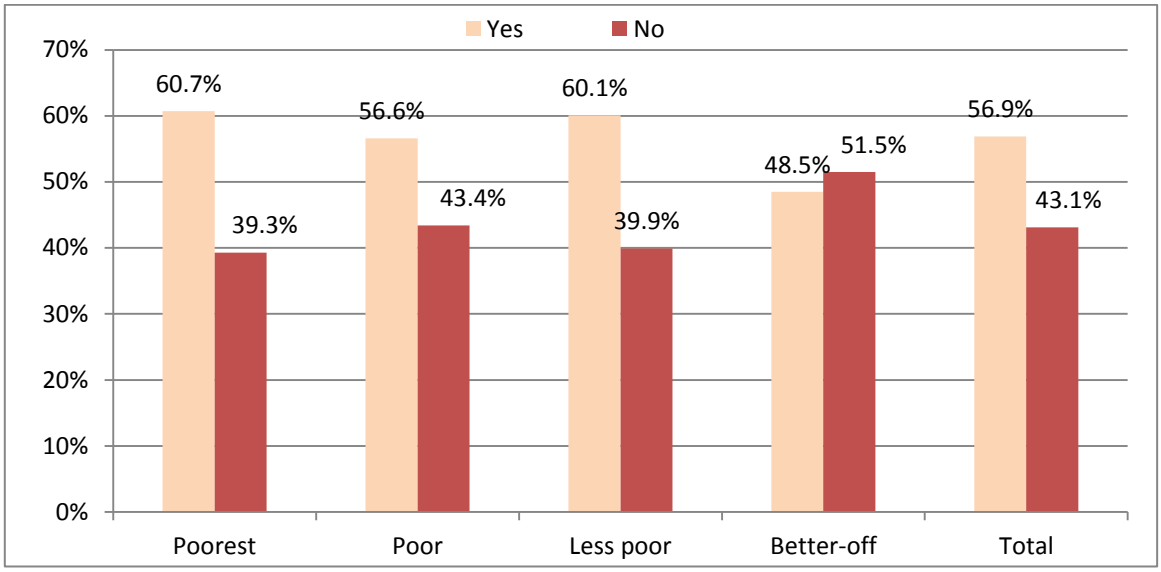
2.3.2 Coping Strategies

The survey sought to explore whether households have adapted any strategies to cope in particular to food decline and to shocks in general. The following sub-section starts with coping strategies related to secure and the next sub-section will cover coping strategies to shocks.

2.3.2.1 Coping Strategies to respond to food shortage

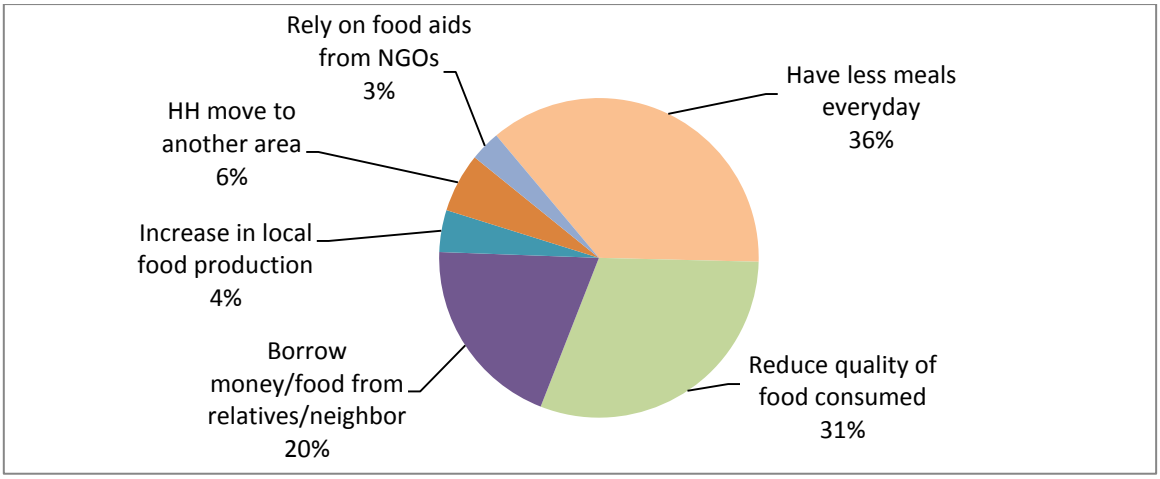
Slightly over half (56.9 percent) of the households reported adopting coping strategies to respond to food decline while 43.1 percent did not adopt any strategy. By quartile, 60.7 percent of poor have adopted coping strategies compared with only 48.5 percent of the better-off.

Figure 92: Did HHs employed in coping strategies to respond to food shortage?



Of the 56.9 percent who pursued coping strategies to secure food, most of them seemed to employ limited coping strategies that are considered absorptive and might be considered negative if they jeopardize the health, and nutrition of household members (having less meals every day reported by 36 percent and reduce the type or quality of food reported by 31 percent) although the latter (the quality of food consumed) should not have any harm if it is just a matter of preference. Few households have pursued adaptive or positive coping strategies that include: borrowing money/food from relatives/ neighbors (20 percent); increase in local food production (4 percent); household moves to another area (6 percent); and relying on food aids from NGOs (3 percent), although the latter could also turn negative if it reinforces dependency and undermines self-reliance in the long run.

Figure 93: Distribution of households by coping strategies to secure food



The coping strategies by wealth quartile are described below:

The absorptive (negative) coping strategies include:

- **Having less meals everyday**: This was reported by 64.4 percent of the households in the poorest quartile, 53.2 percent of the second quartile, 48.7 percent of the third quartile and 30.7 percent of household in the better-off quartile. The poorest and the poor tend to employ this strategy more than the less poor and the better off.

- **Reduce quality of food consumed**: This was reported by 46.4 percent of the poorest quartile, 41.5 percent of the poor, 42.6 percent of the households within the less poor quartile and 36.4 percent of the better-off. The poorest and the poor tend to employ this strategy more than the better off.

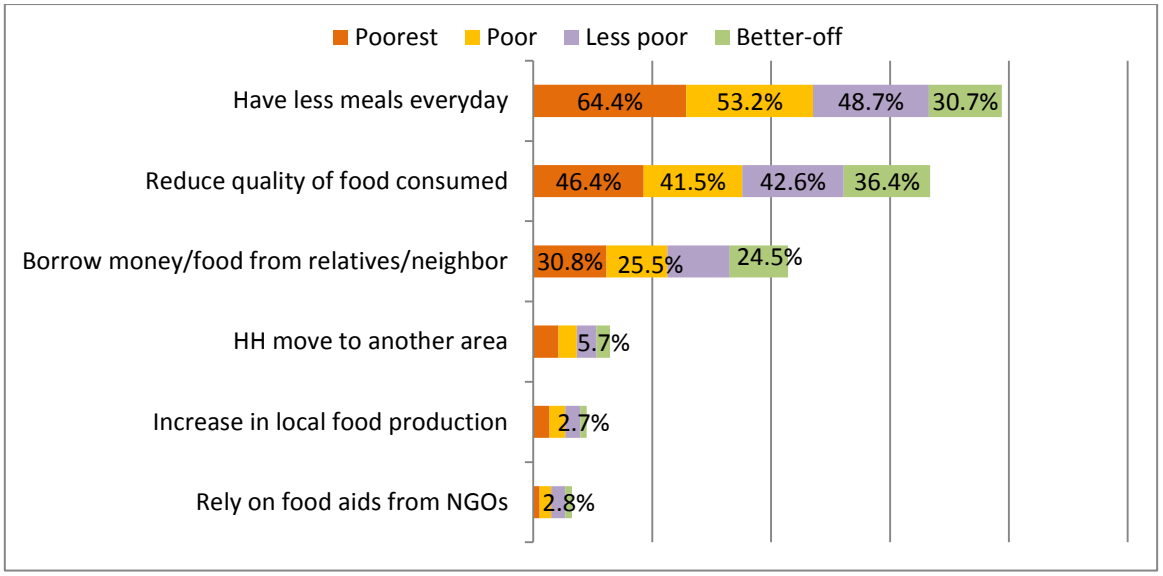
- **Rely on food aids from NGOs**: This coping strategy may be positive in the short term, but could undermine self-reliance if no exit strategy is introduced, thus becoming negative. It was reported by 2.6 percent of the households in the poorest quartile, 4.9 percent of the poor, 6 percent of the less-poor and 2.8 percent of the better off.

The adaptive (positive) coping strategies include:

- **Increase in local food production**: This coping strategy was reported by 6.9 percent of the households within the poorest, 6.8 percent of the poor, 6.5 percent of the less poor and 2.7 percent of the better-off.
- **Moving to another area(s):** This was reported by 10.5 percent of the poorest quartile, 8.0 percent of the poor, 8.3 percent of the less poor and 5.7 percent of the better-off.

- **Borrowing money/food from relatives/neighbors**: This coping strategy was reported by 30.8 percent of the households in the poorest quartile, 25.5 percent of the poor, 26.3 percent of the less poor and 24.5 percent of the better-off group.

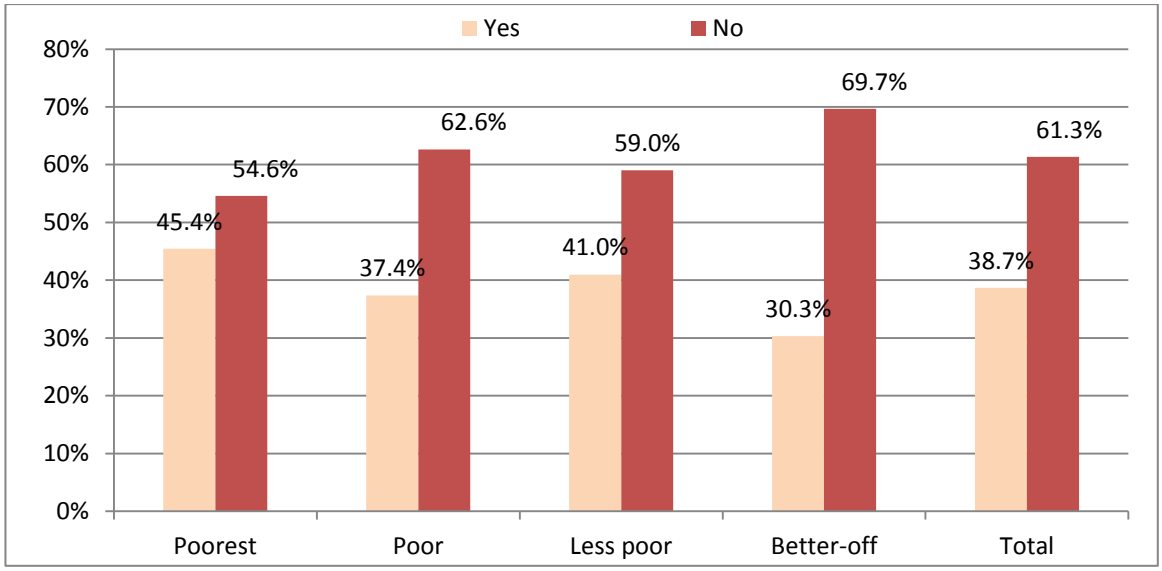
Figure 94: Distribution of households by coping strategies to secure food by wealth quartile



2.3.2.2 Coping Strategies to respond to shocks in general

The survey sought to explore whether households have adopted any strategies to cope with shocks, 61.3 percent said 'yes' while 38.7 percent said 'no'. By quartile, the poorer the households the more likely they would adopt a coping strategy, and the better-off the households the less likely they would adopt a coping strategy.

Figure 95: Did HHs employed in coping strategies to respond to shocks?



For those who said they pursued coping strategies to respond to shocks, the most common coping strategy pursued is **borrowing money** which was mentioned by 36.3 percent of the households followed by 'reducing food quantity and quality' reported by 28.4 percent, 'selling assets' (16.6 percent);'adult migrate to seek work' (7.6 percent); 'household migrate to urban centre' (4.9 percent); child labor (2 percent); smuggling (1 percent); and renting part of the house' (0.8 percent).

Figure 96: Distribution of households by coping strategies

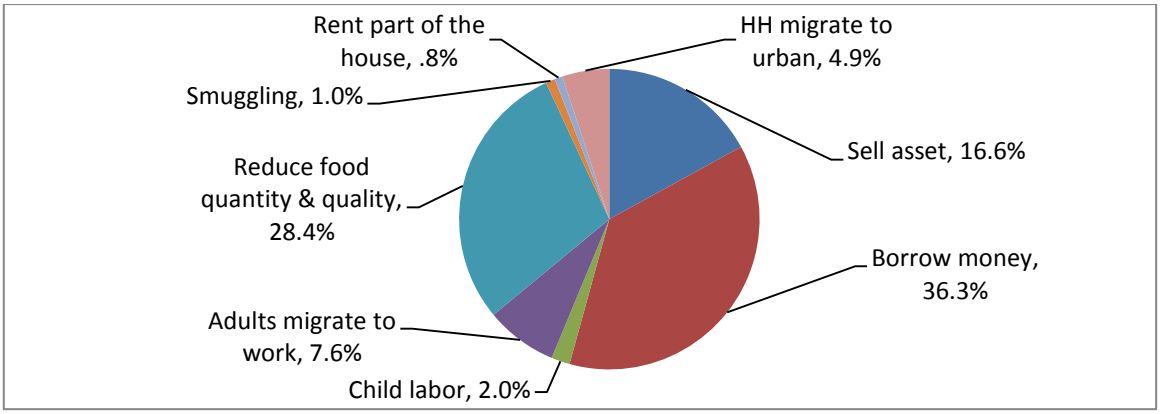
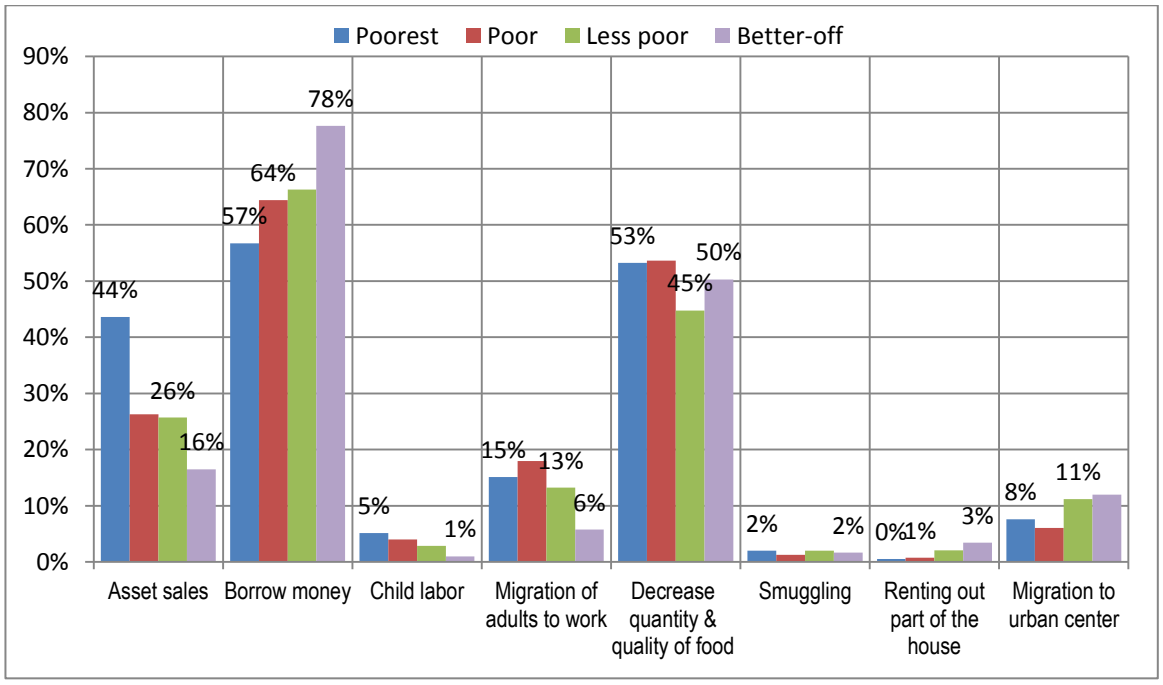


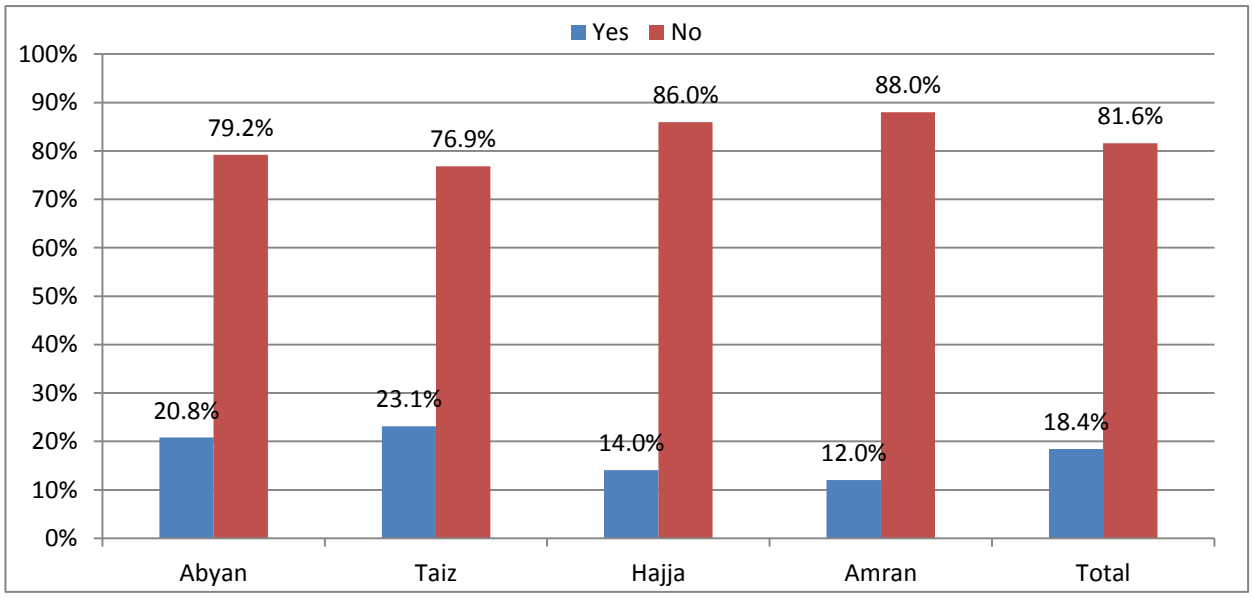
Figure (97) shows the distribution of households according to their coping strategies by wealth quartile with 'borrowing money' being the most common copying strategy across all wealth quartiles, but seems to increase with wealth. Reducing food quantity and quality was also used among all wealth groups although for the better-off it might just be a matter of giving up some of their relatively expensive preferred meals. The proportion of households selling assets is prevailing more in the lowest wealth group, and seems to be less common among households in higher wealth quartiles.

Figure 97: Frequencies of households' coping strategies by wealth quartile



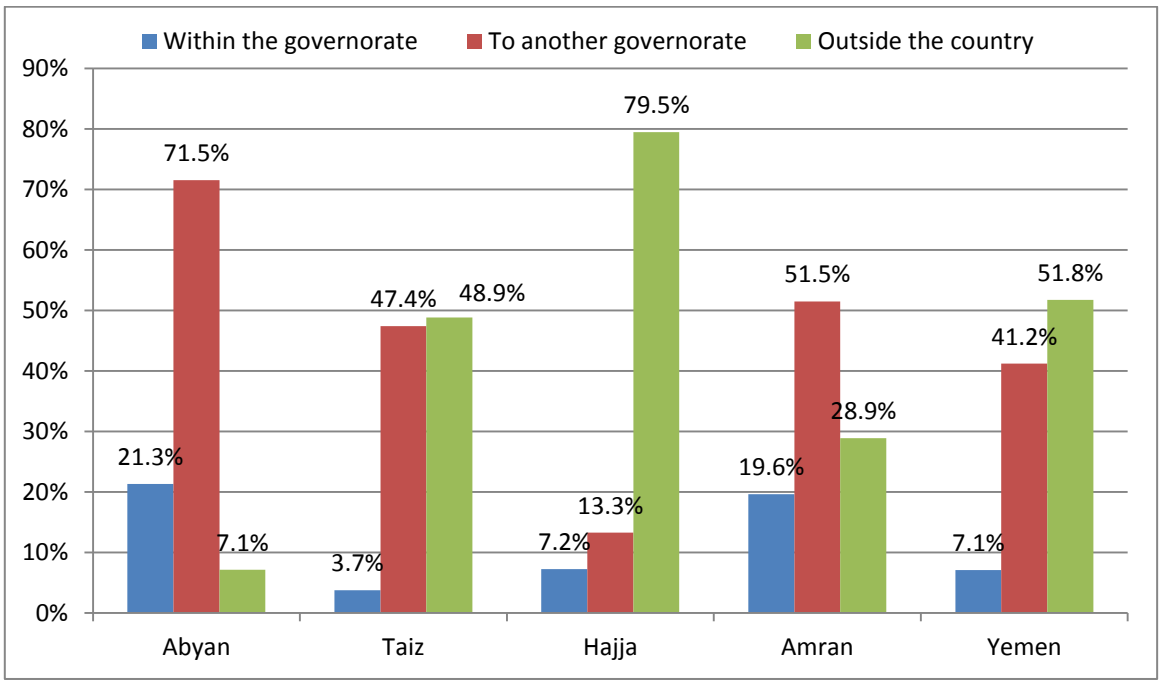
Households were also asked whether one of their adult members have migrated or left to another area to secure income, 18.4 percent said 'yes' while 81.6 percent said 'no'. Ranging between 12 percent in Amran and 23.1 percent in Taiz.

Figure 98: Has any of your adult members migrated to another area to secure income?



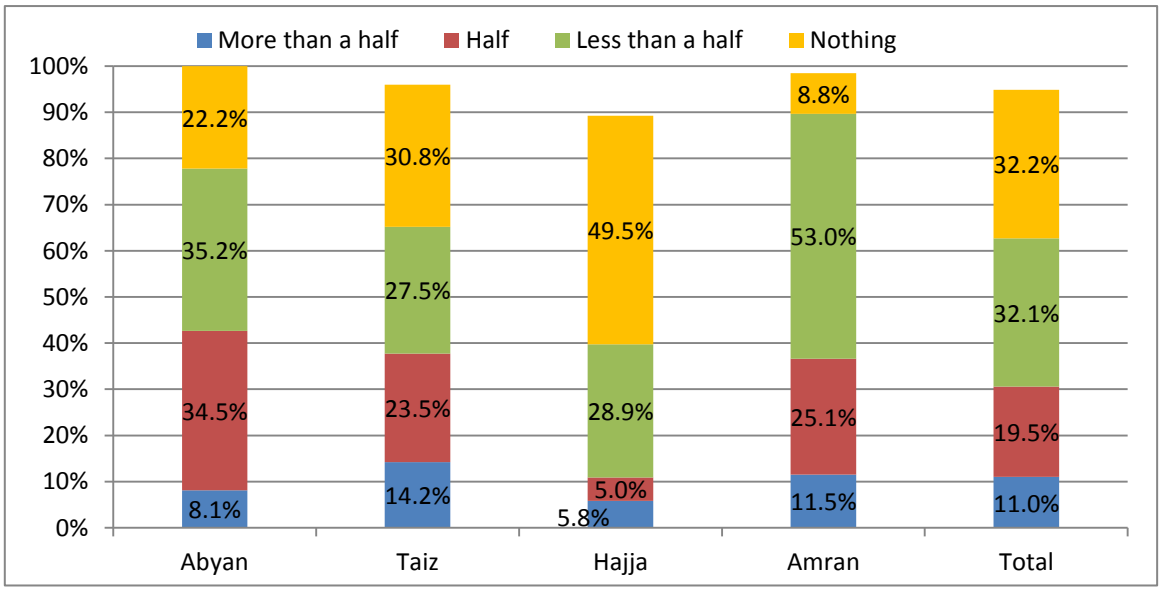
Slightly over half (51.8 percent) of the households who reported migration of an adult member said the destination was to another country, and this figure was mostly influenced by Hajja who reported that 79.5 percent of those who left the area travelled outside the country. Most probably to the neighboring country 'Saudi Arabia'. The majority (71.5 percent) of migrants from Abyan left to another governorate, probably to Aden.

Figure 99: Distribution of households by destination of their migrated member(s)?



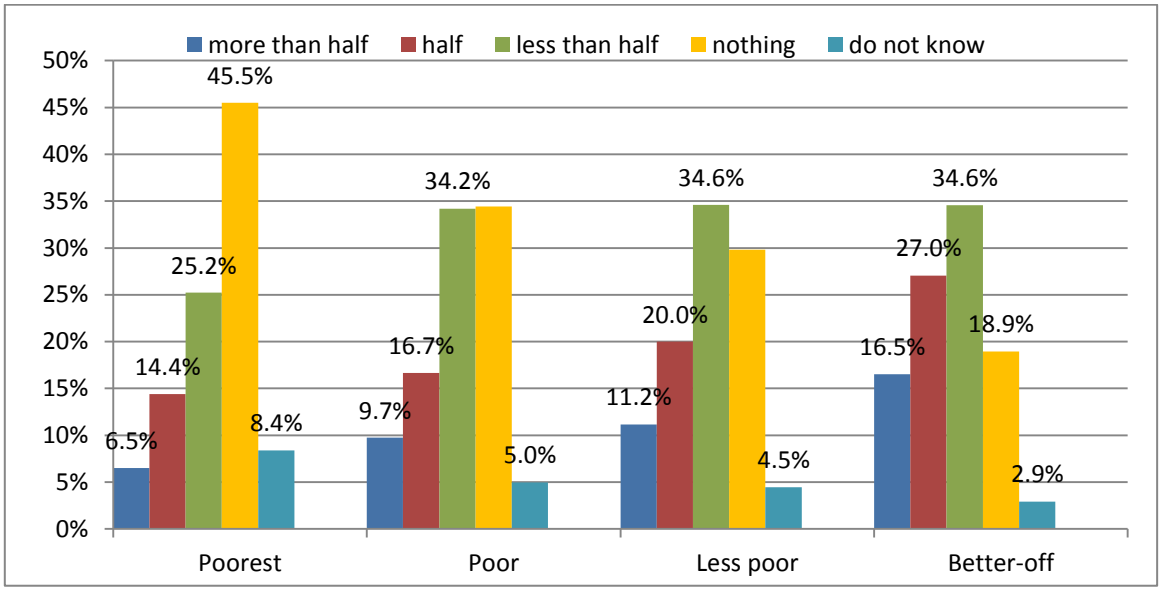
Overall, 32.2 percent of the households reported to have nothing as food stock reserve, while 32.1 percent claimed having less than half, 19.5 percent has half, and only 11 percent has more than half. By geographical location, food stock reserves vary as indicted in Figure (100) .

Figure 100: Distribution of households based on food stock reserved by location



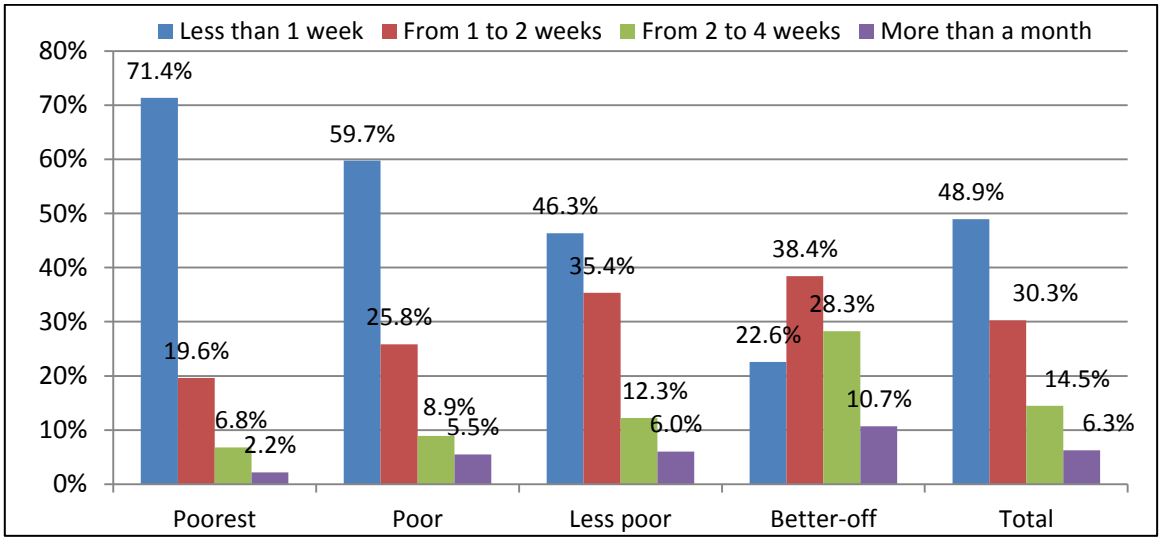
By wealth quartiles, the quantity of food reserves is positively correlated with wealth quartiles (the higher the wealth quartile, the likelihoods that a household has 'more than half' food reserves) with 16.5 percent in the top quartile having 'more than half' compared with only 6.5 percent in the lowest quartile. The proportion of households that have no reserves constitute 45.5 percent of the lowest quartile compared 18.9 percent of the top quartile.

Figure 101: Distribution of households based on food stock reserved by wealth quartile



Overall, only 6.3 percent of the households reported that their food stock reserve will last more than one month, 14.5 percent from two to four weeks while 48.9 percent it will finish in less than a week, 30.3 percent within one to two weeks. Food stock reserve seems to diminish faster for households within the lower quartiles.

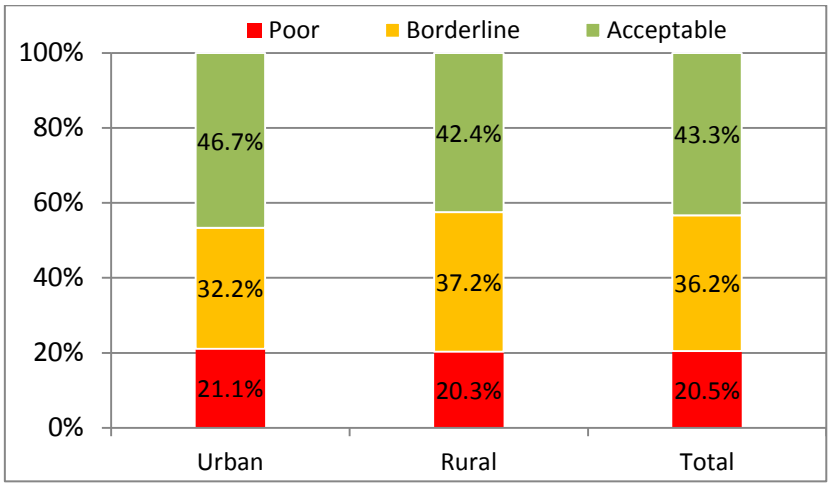
Figure 102: Distribution of households based on 'the period the reserved will last' by quartile



Household Food Consumption Score (FCS)

Based on the food consumption score and the two thresholds (21 and 35), 43.3 percent of the households in the four governorates exhibit acceptable food consumption, 36.2 percent seem to be on borderline, while 20.5 percent are already in a state of poor food consumption. Urban areas have a slightly higher proportion of households who maintain acceptable food consumption compared to rural areas, and also relatively fortunate with fewer households on the borderline compared to rural areas. However the proportion of households who are already in a state of poor food consumption is slightly higher in urban areas (21.1 percent) compared with 20.3 percent in rural areas).

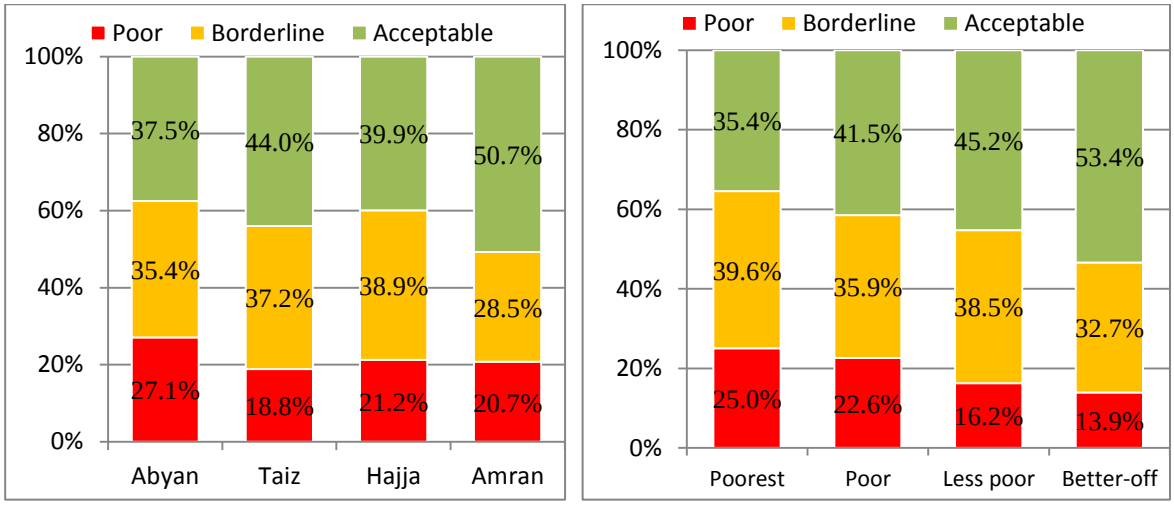
Figure 103: HHs distribution based on FCS by region



At the level of each governorate (bottom left chart), households with acceptable food consumption are highest in Amran governorate (50.7 percent) while Abyan has the lowest (37.5 percent). Households on the borderline are the lowest in Amran and the highest in Hajja. The prevalence of poor food consumption is relatively wide spread in Abyan while Taiz seems to have the lowest prevalence. Distribution of households based on the FCS by wealth ranking revealed a positive association between households' food consumption and wealth ranking

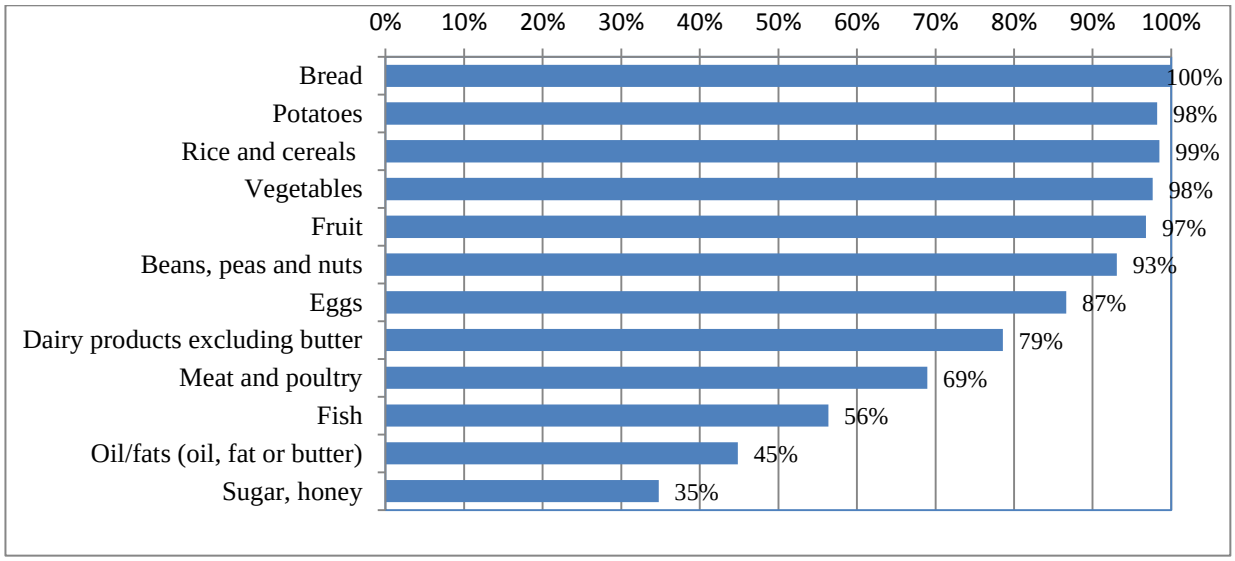
(food consumption increases with higher wealth), a strong association besides being statistically significant (Pearson's r = 0.153, p < 0.001).

Figure 104: Distribution HHs based on FCS by governorate (left) and by quartile (right)



The percentage of households consuming each food category is depicted in Figure (105). While all households seem to be consuming cereal tubers and root crops (bread, potato, rice and cereals), fewer households consume protein (meat, fish, and eggs).

Figure 105: Percentage of households consuming food items at least once per week



Disaggregation of the data on coping strategies to respond to shocks by the level of food consumption revealed that 27.7 percent of the households who did not adapt any coping strategies are actually from the acceptable food consumption category, which means that they have adopted their coping strategies, and thus remained food secured.

Table 106: Distribution of HHs by FCS and their adopted coping strategies to cope with shocks?

Food Consumption	YES		NO	
Categories	Count	Table N %	Count	Table N %
Poor	53,139	8.5%	68,968	11.0%
Borderline	88,366	14.1%	142,056	22.6%
Acceptable	100,996	16.1%	17,4189	27.7%

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