

**shire**

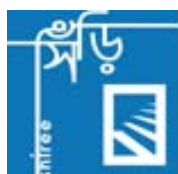
*CMS-3: Socio-Economic  
Survey Report*

**SURVEYS 1-7**

August 2012







**shiree**

STIMULATING HOUSEHOLD IMPROVEMENTS RESULTING IN ECONOMIC EMPOWERMENT

## Change Monitoring System (CMS3)

**Monitoring the changes in Socio-Economic & Nutritional status of extreme poor households between March 2010 and March 2012; results from the seven panel surveys**

**August 2012**



## Executive Summary

1. Background: The six Scale Fund Round One, Phase One projects are working with a total of 82,850 extreme poor households. In March 2010, 64 households from each of the six Scale Funds were randomly selected for regular follow-up. This report provides information on changes in socio-economic and nutritional status of the same households studied seven times between March 2010 and March 2012.
2. Attrition: 303 households took part in all seven surveys conducted in March, July and October 2010, March, July and November 2011 and March 2012. There was greater attrition in the urban sample (45%) than in the rural areas (16%). Information was collected on 1111 individuals of whom 634 were adults, 315 children aged between 5 and 15 years and 162 children under 5 years of age.
3. Male and female headed households and family size: In the total sample 40.3% of households were female headed and mean family size increased significantly from 3.35 in survey 1 to 3.67 in survey 7. Female headed households were smaller by, on average, 1.3 family members.
4. Schooling: Only 25.0% of heads of households had attended school significantly more so in male (35.3%) than female headed households (12.1%). Between surveys 1 and 4 school attendance increased significantly from about 76% to 86% and rose to 89% in survey 7.
5. Chronic illness: Chronic illness fell significantly between surveys 1 (15.6%) and 4 (4.2%) but there was no change between surveys 4 and 7 (4.8%).
6. Morbidity status: The health status of family members was determined on the day of the survey and over the previous 7 and 30 days. For all adults, fever, cough, eye and skin infections fell between surveys 1, 4 and 7 while passing of worms fell between surveys 1 and 4 only. In children 5 to 15 years of age the prevalence of fever and cough both fell between surveys 1 and 4 but not between surveys 4 and 7. In under 5 year old children there were reductions in fever and cough and passing of worms.
7. Employment: Petty trading increased in male headed households while unemployment and those employed as domestic maid fell in female headed households. Begging still remained an important source of income in female headed households (9.6% in survey 7). The number of days worked fell significantly between surveys 4 and 7 while advanced sale of labour generally fell. Between surveys 4 and 7 self employment increased by 10% and self employed worked, on average, significantly more days.
8. Land ownership: Households owning land increased significantly from 15.2% in survey 1 to 31.4% in survey 7, but the increase in ownership occurred between surveys 1 and 4 in male headed households while in female headed households ownership increased across all surveys.
9. Household ownership, size and structure: The percentage of households owning their own house increased significantly from 72.6% to 80.2% between surveys 1 and 4 and fell slightly to 78.5% in survey 7. The mean reported size of houses increased from 14.0 square metres in survey 1 to 15.5 square metres in survey 4 and to 16.2 square metres in survey 7, but the increase was only significant in male headed households. The smallest dwellings were in the urban slums (mean 10 square metres). There was no significant change in materials used in house construction over this time period; walls were primarily made of grass etc, mud or tin sheet, roofs of tin sheet and floors of mud.
10. Electricity, water supply and defecation practices: There was no significant change in electricity or water supply between surveys. In rural areas about 95% of households had no electricity supply whereas 85% of urban dwellers had access to electricity. Nearly all urban households obtained their water from a piped supply or tubewell while over 80% of rural households obtained their water from a tubewell. There was a highly significant reduction in open defecation in rural areas down from 36.9% in survey 1, to 19.8% in survey 4 and 15.3% in survey 7 and concomitant

increase in use of ring/slab/sanitary latrine up from 49.6% in survey 1 to 78.4% in survey 7.

11. Loans and cash savings: There was no consistent pattern to either the number or amount of loans over the seven surveys. In survey 1, 36% of households had some cash savings increasing to 84% in survey 4 and falling to 81% in survey 7. The mean amount increased significantly from 489 Taka in survey 1 to 4095 Taka in survey 6 and then fell to 3665 Taka in survey 7.
12. Number of assets: There was a highly significant increase in animal ownership between surveys 1 and 4 (up from 28.4% to 63.9%) followed by a very slight fall in survey 7 (63.4%). Ownership of working equipment increased from 56.1% in survey 1 to 74.6% in survey 4 and 84.5% in survey 7. Increases occurred in both male and female headed households and in all three surveys male headed households owned more working equipment (over 90% of male headed households owned working equipment in survey 7 compared with 76% of female headed households). Ownership of household belongings also increased significantly, more so in male headed households, and overall the number of household goods owned increased from 3.2 (maximum 13) in survey 1 to 4.6 in survey 7.
13. Value of assets: The value of animals and total assets increased significantly between surveys 1, 4 and 7 while working equipment and household equipment only increased significantly between surveys 1 and 4. Overall the value of assets rose by, on average, 7000 Taka between surveys 1 and 4, and by 3000 Taka between surveys 4 and 7. Male headed households had significantly higher value of assets in surveys 1 and 7 and the gap was widening.
14. Income: Over the seven surveys the mean per capita income in the urban area was significantly higher than the rural areas and male headed households per capita income (27.4 Taka pppd) was significantly higher than female headed households (21.4 Taka pppd) and the difference was apparent in all seven surveys. In the rural areas alone there was significant difference in per capita income between the five NGOs (mean range 17.4-26.9 Taka pppd).
15. Expenditure: Total per capita expenditure increased significantly over the seven surveys from a low in survey 2 of 19.5 Taka pppd to the highest in survey 7 of 26.3 Taka pppd. There were no significant differences between male and female headed households. Overall the urban areas had greatest expenditure. The rural analyses indicated no significant differences in overall means, by head of household or between NGOs over the seven surveys.
16. Difference between income and expenditure: The difference between household income and expenditure (credit/debit balance) was calculated for each household and the pattern of credit/debit over the seven surveys revealed that, on average, households went from a debit in surveys 1 to 3 (-437, -33, -52 Taka/month respectively) to increasing credit in surveys 4 to 7 (+565, +891, +989 and +1076 Taka/month, respectively). Male headed households were significantly more in credit than female headed households over the 7 surveys by, on average, 400 Taka/month. When the average of the seven surveys was calculated all NGOs were in credit ranging from 3 Taka/month to 778 Taka/month.
17. Household food intake and security: Overall food diversity rose from 4.3 in survey 1 to 5.3 in surveys 5 and 6 before falling slightly to 5.2 in survey 7. There was no significant difference between male and female headed household means. The households were asked about the coping strategies they used as a result of financial hardship in the seven days prior to the survey. There were significant improvements in all 10 strategies between surveys 1 and 7.
18. Social empowerment: Overall the responses were quite consistent. More women in survey 7 felt there were people who could be relied upon to help and less women in surveys 4 and 7 felt frightened of moving alone outside their village.
19. Adult nutritional status: The mean weights increased significantly over the three surveys in both male and female adults and the average weight gain between surveys 1 and 7 was 0.7kg. Mean BMI also increased significantly across the three surveys by 0.4 kgm<sup>-2</sup> and there were concomitant reduction in CED percentages.

Mean haemoglobin did not show any significant change over the surveys but the percentage who were anaemic fell in males but increased slightly in females.

20. Child nutritional status: There was no significant change in mean height-for-age and weight-for-age across the three surveys, but there was a highly significant improvement in haemoglobin concentration with an increase in mean of over 8 g/l. The percentage of children who were stunted fell significantly between surveys 1 and 7 while the percentage of children who were underweight increased; the prevalence of wasting reduced between surveys 1 and 4 but increased back to baseline level in survey 7. The prevalence of childhood anaemia fell significantly over the surveys.

# List of Contents

<b>Executive Summary</b> .....	<b>i</b>
<b>List of Contents</b> .....	<b>iv</b>
<b>List of Tables</b> .....	<b>v</b>
<b>List of Figures</b> .....	<b>vi</b>
<b>1. Background</b> .....	<b>1</b>
<b>2. Aims of the annual surveys</b> .....	<b>2</b>
<b>3. Study design</b> .....	<b>2</b>
<b>4. Field work</b> .....	<b>4</b>
<b>5. Results</b> .....	<b>4</b>
5.1 Basic socio-demographic characteristics of the sample .....	4
5.2 Schooling .....	5
5.3 Chronic illness within the household .....	5
5.4 Morbidity status .....	8
5.5 Employment .....	11
5.6 Household land ownership .....	14
5.7 Housing, water access, sanitation and electricity .....	15
5.7.1 Home ownership .....	15
5.7.2 Size of house .....	15
5.7.3 House construction .....	17
5.7.4 Source of drinking water .....	17
5.7.5 Electricity supply .....	17
5.7.6 Defecation practices .....	17
5.8 Cash loans and savings .....	17
5.8.1 Cash loans .....	17
5.8.2 Cash savings .....	20
5.9 Household assets .....	23
5.9.1 Animals .....	23
5.9.2 Working equipment .....	23
5.9.3 Household belongings .....	23
5.9.4 Total household asset .....	23
5.10 Household income .....	33
5.11 Expenditure .....	40
5.12 Difference between household income and expenditure .....	50
5.13 Household food intake .....	52
5.14 Household food security .....	56
5.15 Social empowerment .....	59
5.16 Nutritional status .....	60
5.16.1 Head of household .....	60
5.16.2 Under 5 year old children .....	62

## List of Tables

Table 1	Location of the 6 Scale Fund Round One, Phase One NGOs and number of households .....	2
Table 2	Attrition (%) between surveys 1 and 7 by NGO and Female headed households (%) by NGO in survey 7 .....	4
Table 3	Prevalence of chronic illness in surveys 1, 4 and 7 .....	8
Table 4	Morbidity status (%) of head of household in surveys 1, 4 and 7 .....	9
Table 5	Morbidity status (%) of all family members on the day of the study in surveys 1, 4 and 7 .....	9
Table 6	Morbidity status (%) of all family members in the previous 7 days of the study in surveys 1, 4 and 7 .....	9
Table 7	Morbidity status (%) of all family members in the previous 30 days of the study in surveys 1, 4 and 7 .....	10
Table 8	Morbidity status (%) of all family members together on the day, previous 7 and 30 days in surveys 1, 4 and 7 .....	10
Table 9	Main occupation (%) of head of households in surveys 1, 4 and 7 .....	12
Table 10	Self-employed heads of households (%) by NGO over surveys 4 and 7 .....	12
Table 11	Mean number of days and hours worked by head of household, urban-rural and type of employment in surveys 4 and 7 .....	13
Table 12	Advanced sale of labour (%) in surveys 4 and 7 .....	13
Table 13	Land ownership by head of household in surveys 1, 4 and 7 .....	14
Table 14	Home ownership in surveys 1, 4 and 7 .....	15
Table 15	House construction .....	17
Table 16	Source of drinking water .....	17
Table 17	Defecation practices by urban/rural in surveys 1, 4 and 7 .....	18
Table 18	Number of loans, average amount of loan over the 7 surveys .....	19
Table 19	Cash savings by NGO over the 7 surveys .....	22
Table 20	Ownership (%) of specific animals in surveys 1, 4 and 7 by head of household .....	24
Table 21	Ownership (%) of any animal by NGO and head of household in surveys 1, 4 and 7 .....	24
Table 22	Ownership (%) of specific working equipment in surveys 1, 4 and 7 .....	26
Table 23	Ownership (%) of any working equipment by NGO and head of household in surveys 1, 4 and 7 .....	26
Table 24	Ownership (%) of specific household belongings (%) by head of household in surveys 1, 4 and 7 .....	28
Table 25	Average amount (Taka) spent on assets by head of household in surveys 1, 4 and 7 .....	32
Table 26	Average amount (Taka) spent on assets by NGO and head of household in surveys 1, 4 and 7 .....	32
Table 27	Mean income (Taka per month) by head of household for each survey (using HIES criteria which do not include in-kind income) .....	34
Table 28	Mean income per capita (Taka per person per day) by head of household for each survey (using HIES criteria which do not include in-kind income) .....	34
Table 29	In-kind income as a percentage of total income by NGO over the four surveys .....	35
Table 30	Monthly mean expenditure (HIES, Taka per month) by urban/rural and head of household for each survey .....	41
Table 31	Mean expenditure per capita (HIES Taka per person per day) by head of household for each survey .....	41
Table 32	Number of days (%) in the last week that household members consumed foodstuffs over the seven surveys .....	53
Table 33	Food coping strategies over the seven surveys .....	57
Table 34	Social empowerment (Male replies) over surveys 1, 4 and 7 .....	59
Table 35	Social empowerment (Female replies) over the three surveys .....	59
Table 36	Nutritional status by head of household over the three surveys .....	60
Table 37	Relationship between CED and anaemia categories (%) over surveys 1, 4 & 7..	62
Table 38	Change in nutritional status over surveys 1, 4 and 7 .....	62



# List of Figures

Figure 1	Study design .....	3
Figure 2	Mean family size by head of household over the seven surveys .....	5
Figure 3	Mean household size by head of household in surveys 1, 4 and 7 .....	16
Figure 4	Mean household size by NGO in surveys 1, 4 and 7 .....	16
Figure 5	Mean cash savings by head of household over the seven surveys .....	21
Figure 6	Mean cash savings by NGO over the seven surveys .....	21
Figure 7	Mean value of animals by head of household in surveys 1, 4 and 7.....	25
Figure 8	Mean value of animals by NGO in surveys 1, 4 and 7 .....	25
Figure 9	Mean value of equipment by head of household in surveys 1, 4 and 7 .....	27
Figure 10	Mean value of animals by NGO in surveys 1, 4 and 7 .....	27
Figure 11	Mean number of household goods owned by head of household over surveys 1, 4 and 7 .....	29
Figure 12	Mean number of household goods owned by NGO over surveys 1, 4 and 7 .....	29
Figure 13	Mean value of household goods by head of household in surveys 1, 4 and 7 .....	30
Figure 14	Mean value of household goods by NGO in surveys 1, 4 and 7 .....	30
Figure 15	Mean value of total assets by head of household in surveys 1, 4 and 7 .....	31
Figure 16	Mean value of total assets by NGO in surveys 1, 4 and 7 .....	31
Figure 17	Mean income by head of household over the seven surveys .....	36
Figure 18	Mean income by NGO over the seven surveys .....	36
Figure 19	Mean income pppd by head of household over the seven surveys .....	37
Figure 20	Mean income pppd by NGO over the seven surveys .....	37
Figure 21	Mean in-kind income by head of household over the seven surveys .....	38
Figure 22	Mean in-kind income by NGO over the seven surveys .....	38
Figure 23	Mean in-kind income as a percentage of total income by head of household .....	39
Figure 24	Mean in-kind income as percentage of total income by NGO .....	39
Figure 25	Mean food expenditure by head of household the seven surveys .....	42
Figure 26	Mean food expenditure by NGO over the seven over the seven surveys .....	42
Figure 27	Mean food expenditure pppd by head of household over the seven surveys .....	43
Figure 28	Mean food expenditure pppd by NGO over the seven surveys .....	43
Figure 29	Mean monthly household expenditure by head of household over the seven surveys .....	44
Figure 30	Mean monthly household expenditure NGO over the seven surveys .....	44
Figure 31	Mean household expenditure pppd by head of household over the seven surveys .....	45
Figure 32	Mean household expenditure pppd by NGO over the seven surveys .....	45
Figure 33	Mean monthly work-related expenditure by head of household over the seven surveys .....	46
Figure 34	Mean monthly work-related expenditure by NGO over the seven surveys .....	46
Figure 35	Mean work-related expenditure pppd by head of household over the seven surveys .....	47
Figure 36	Mean work-related expenditure pppd by NGO over the seven surveys .....	47
Figure 37	Mean monthly total expenditure by head of household over the seven surveys .....	48
Figure 38	Mean monthly total expenditure by NGO over the seven surveys .....	48
Figure 39	Mean total expenditure pppd by head of household over the seven surveys .....	49
Figure 40	Mean total expenditure pppd by NGO over the seven surveys .....	49
Figure 41	Mean monthly net income by head of household over the seven surveys .....	51
Figure 42	Mean monthly net income by NGOs over the seven surveys .....	51
Figure 43	Mean number of food types consumed by head of household over the seven surveys .....	54
Figure 44	Mean number of food types consumed by NGO over the seven surveys .....	54
Figure 45	Mean food diversity by head of household over the seven surveys .....	55
Figure 46	Mean food diversity by NGO over the seven surveys .....	55
Figure 47	Mean food coping strategy by head of household over the seven surveys .....	58
Figure 48	Mean food coping strategy by NGO over the seven surveys .....	58
Figure 49	Mean weight by head of household over surveys 1, 4 and 7 .....	61
Figure 50	Mean BMI by head of household over surveys 1, 4 and 7 .....	61



# 1. BACKGROUND

EEP/shiree ([www.shiree.org](http://www.shiree.org)) is a challenge fund supported by UKAid from the Department for International Development (DFID) in partnership with the Government of Bangladesh (GoB) to lift 1 million people out of extreme poverty by 2015. Harewelle International Ltd and PMTC Bangladesh Ltd manage the fund in consultation with EEP/shiree consortium partners including the Centre for Development Studies (CDS) at Bath University, the British Council and Unnayan Shamannay. The Division of Biological Anthropology, University of Cambridge helped design the panel surveys and has been responsible for the data analyses and report writing on CMS3. EEP/shiree is one in DFID's portfolio of projects designed to reduce extreme poverty and vulnerability in Bangladesh.

The EEP/shiree Challenge Fund is worth £65 million (around USD\$130M) and is being disbursed over a period of 8 years (2008-2015). It is also referred to as shiree (the Bengali word for steps and an acronym for "Stimulating Household Improvements Resulting in Economic Empowerment") reflecting the aim of providing households ways out of extreme poverty.

EEP/SHIREE also supports high-quality research and disseminates lessons learned and key findings from the programme's experience with the aim of transforming the way in which extreme poverty is approached by government, donors, NGOs and the public. It seeks to increase the knowledge base on the distinct experiences of extreme poverty in Bangladesh, and to raise awareness of extreme poverty in an international context.

Shiree has developed, and will continue to develop and enhance, the Change Monitoring System (CMS). A brief summary of the five CMS tools currently being used are :-

## CMS 1: The Household Profile

PURPOSE: to provide a detailed assessment of the status of all shiree households before significant project interventions have taken place. To provide the baseline from which to monitor change over time.

## CMS 2: Monthly Snapshot

PURPOSE: to enable an assessment of trends: what has changed at the household level? And what has happened (both project and non project events) that may have contributed to changes?

## CMS 3: Socio-economic and Anthropometric Surveys

PURPOSE: to provide in depth socio-economic and nutritional data allowing an assessment of longer term change and the impact of project interventions.

## CMS 4: Participatory review and project analysis

PURPOSE: to provide a forum for beneficiaries to explain changes in their lives and the reasons for these changes, as well as creating a platform for Innovation Fund NGOs to adapt and improve their innovations according to the needs of beneficiaries.

## CMS 5: Tracking studies

PURPOSE: to provide quality longitudinal tracking studies documenting the dynamics of extreme poverty as it is experienced and changes in beneficiaries' lives as a result of project interventions.

CMS3 for the Scale Fund NGOs commenced in October 2009. On an annual basis the survey is enhanced to include anthropometric data (Body Mass Index, Haemoglobin level). The panel survey is administered with a statistically significant sub sample of beneficiary households.

This report provides information on the changes in socio-demographic and economic characteristics of households (including household assets, income and expenditure and social empowerment) and the nutritional status of parents and their < 5 year old children between March 2010 and March 2012 for Round One Phase One NGOs only<sup>1</sup>.

Under Round One Phase One shiree has been working with 6 NGOs. Of which 2 NGOs (CARE and PAB) are working in the far north-west of Bangladesh, NETZ in the north-west, DSK in two urban slums in Dhaka and SCF and UTTARAN in the south-west (Table 1). The total number of households that the 6 NGOs are working with is 82,850.

**Table 1 Location of the 6 Scale Fund Round One, Phase One NGOs and number of households**

NGO	Location	Number of Households
CARE	Gaibandha, Nilphamari, Rangpur, Lalmonirhat	20,000
DSK	Dhaka slums	10,000
NETZ	Naogaon	9,000
PAB	Gaibandha, Nilphamari, Rangpur, Lalmonirhat	16,850
SCF (UK)	Khulna, Bagerhat	15,000
UTTARAN	Satkira, Khulna	12,000

## 2. AIMS OF THE ANNUAL SURVEYS

Through the annual surveys the project aims to determine:-

- (a) household annual change in socio-economic and empowerment status as a result of the shiree programme
- (b) intra-individual (primarily mother and <5 year old children) annual change in nutritional status
- (c) differences in nutritional, socio-economic status and empowerment between new and old recruits within the same NGO, and in the longer term
- (d) differences in nutrition, socio-economic status and empowerment between participants from different NGOs
- (e) differences between rural and urban cohorts

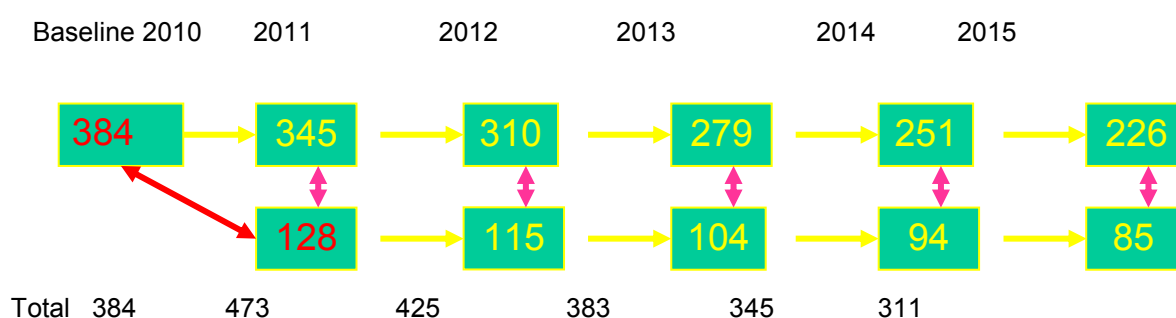
## 3. STUDY DESIGN

A longitudinal (panel) study design is being used (Figure 1) in which 384 households, 64 households from each NGO, were randomly recruited in March 2010 and a further 128 households were recruited in March 2011 (64 urban households and 64 rural households from NETZ).

The longitudinal design will examine (a) within subject changes (the yellow lines) (b) between cohort comparison of old and new cohort (purple lines) (c) recruitment homogeneity (red line) and (d) by year 3 for differences between NGOs.

<sup>1</sup> Three additional Round 2 Scale Fund NGOs (Concern, Oxfam, Caritas) commenced work in 2012. Rd 2 beneficiary household numbers are planned to reach 43,000. A baseline sample from this cohort was included in the March 2012 CMS3 survey and will be analysed in future reports.

Figure 1 Study design



In March 2010, 64 representative households were selected from each of the 6 NGOs on the basis of the variables provided by the NGOs, usually the reported monthly income, educational level of the head of household, presence of under five year old in the household, age of the household head, household size and sex of household head. A representative back-up list was also generated in case households were absent on the day of the survey. A similar exercise was undertaken in the selection of the additional 128 households in March 2011.

#### 4. FIELD WORK

The field work covered:-

- 1) CMS3 survey for Scale Fund Round I (6 NGOs)
- 2) Additional CMS3 survey as a baseline for Scale Fund Round II (3 NGOs - Oxfam, Concern, Caritas)
- 3) Innovation Fund Rounds I and II endline survey (including 12 NGOs).

This report only describes the results for the 6 NGOs in Scale Fund Round I studied up to seven times between March 2010 and March 2012.

The survey was completed in 50 days commencing on 26 February 2012 and finishing on 16 April 2012 including 12 days for training. A total of 45 people were involved in conducting the survey comprising 1 Researcher from Cambridge University, 6 shiree staff (1 Internal Consultant in Decision Support Unit (DSU) with support of DSU Manager, 2 Data Managers in MIS Unit and 1 ex-Young Professional), 9 Research Assistants, 20 Enumerators and 8 Measurers.

A flexible survey team structure was used mainly involving 2 sub-teams. Each team organised 2 groups, comprising 7 members (5 enumerators who were responsible for the questionnaire and 2 measurers who were responsible for taking anthropometric measurements and haemoglobin levels) with supervisors (Researcher, shiree staff, Research Assistants) to supervise the questionnaire and nutrition data collection. During the time the 5 enumerators were completing the questionnaires, the 2 measurers took the nutrition data in each household. In one day 16 households were visited by each team (32 households in total), hence it took 2 days usually to survey each NGO, except NETZ (3 days) and DSK (4 days) so as to complete an additional 32 households. The timetable allowed for some slippage as well as movement from 1 NGO to the next.

A trained Bengali enumerator asked a series of pre-tested questions to the head of household (or if the male head was absent, his spouse). The structured questionnaire covered 9 key areas:-

- a. socio-demographic characteristics
  - b. disability, chronic illness and health status of all household members
  - c. household land ownership
  - d. housing size and structure, water, sanitation and electricity
  - e. cash loans
  - f. household assets
  - g. household income and expenditure
  - h. household food intake and food security
  - i. gender and empowerment issues
- The interview usually lasted about 1 hour.

At the same time the interviews were being carried out, the height, weight and haemoglobin levels of the mother and father (if available), and all children < 5 years of age were measured (some of follow-up children became more than 5 years of age). Height data were carefully checked with previous data in March 2011 by supervisors.

## 5. RESULTS

### 5.1 BASIC SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE

In total 303 household participated in the seven surveys (March 2010, July 2010, October 2010 and March 2011, July 2011, November 2011 and March 2012 called surveys 1 to 7, respectively) from the initial sample of 384 households, an attrition rate of 21% between surveys 1 and 7. There was significant differential attrition across NGOs (Table 2,  $p=0.001$ ) with greatest loss in DSK (45%) and least in PAB, (11%) but there was no significant difference in attrition rate between the five rural NGOs (average attrition 16%). Information was collected on 1111 individuals, 634 adults, 315 children five to fifteen years old and 162 children under 5 years of age.

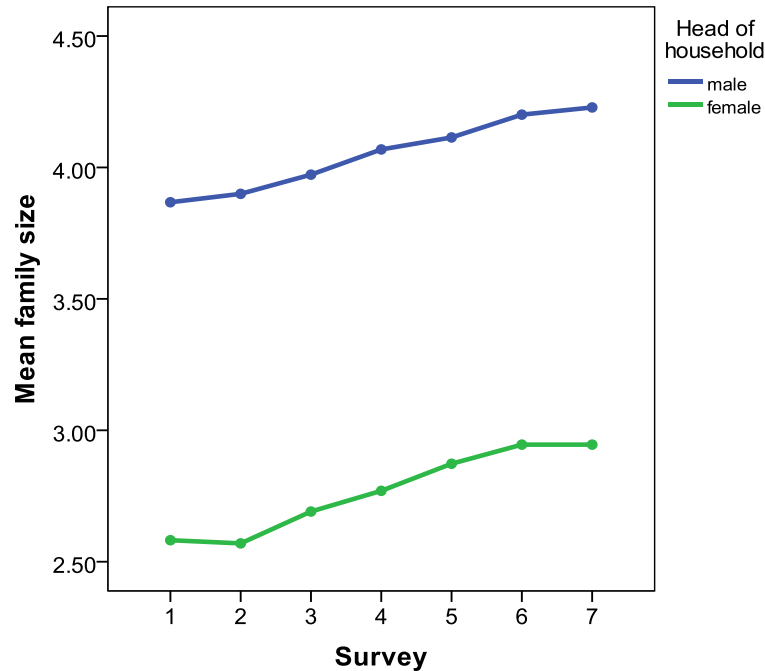
Just over 40% of households had a female head (40.3%) compared with 10.2% nationally but there was highly significant variation between NGOs ( $p<0.001$ , Table 2) with most female headed households in DSK and NETZ and least in CARE. Female heads were primarily widowed (62.3%) or divorced/abandoned (23.0%) and only 13.9% were married while nearly all male heads were married (96.7%).

Table 2 Attrition (%) between surveys 1 and 7 by NGO and Female headed households (%) by NGO in survey 7

NGO	Attrition (%)	Female headed households (%)
CARE	25.0	16.7
DSK	45.3	62.9
NETZ	14.1	58.2
PAB	10.9	28.1
SCF	17.2	45.3
UTTARAN	14.1	36.4
Total Rural	16.3	37.3
Total	21.1	40.3

There was a small but highly significant increase in family size over the seven surveys (Figure 2) from surveys 1 to 7 (mean family size, 3.35 in survey 1 and 3.67 in survey 7 ( $p<0.001$ ) with male headed households having, on average 1.3 more family members (4.2 versus 2.9,  $p<0.001$ ) than female headed households.

**Figure 2 Mean family size by head of household over the seven surveys**



## 5.2 SCHOOLING

Only 25.0% of heads of households had attended school compared with 49% nationally and male heads were more likely to have attended school than female heads (35.3% and 12.1%, respectively,  $p=0.001$ ). In survey 7, of all adults about 30% had attended school and the difference between male and female headed households was not significant (34% and 30%, respectively,  $p=ns$ ).

There was a significant increase in school attendance between surveys 1 to 4 in children 5 to 15 years of age and a small increase thereafter. In survey 1 about 76% of children attended school increasing to 86% in survey 4 ( $p<0.001$ ) and to 89% in survey 7.

## 5.3 CHRONIC ILLNESS WITHIN THE HOUSEHOLD

The prevalence of reported chronic illness among household heads decreased significantly between baseline and survey 4 from 27.0% to 7.6% ( $p<0.001$ ) and then increased slightly to 8.6% in survey 7 ( $p=ns$ ). Among all adults chronic illness fell from 23.2% to 8.0% ( $p<0.001$ ) between surveys 1 and 7. There were also reductions in children and overall in all household members chronic illness fell from 15.6% to 4.8% ( $p<0.001$ ) between surveys 1 and 7.



Anthropometric survey







Indigenous people participating in the anthropometric survey.



A surveyor is seen discussing with a project beneficiary about her socio-economic condition.

**Table 3 Prevalence of chronic illness in surveys 1, 4 and 7**

Household member	Chronic Illness					
	Survey			p	p	p
	1	4	7	(1&4)	(1&7)	(4&7)
Head	27.7	7.6	8.6	<0.001	<0.001	ns
All adults	23.2	7.3	8.0	<0.001	<0.001	ns
Children 5-15	5.1	1.0	1.0	0.004	0.003	ns
<5 children	3.3	0.8	0	ns	0.035	ns
Total	15.6	4.2	4.8	<0.001	<0.001	ns

## 5.4 MORBIDITY STATUS

The reported prevalence of morbidity was obtained at each survey. For household heads the main findings were no significant changes in diarrhoea over the three surveys (Table 4) but eye infection and passing of worms both fell sharply between surveys 1 and 4, and did not change significantly by survey 7. For all adults cough, eye infection and passing of worms all fell between surveys 1 and 4 and then did not change significantly by survey 7. Skin infection increased between surveys 1 and 4 and then fell by survey 7. In children 5 to 15 years of age the prevalence of fever and cough both fell between surveys 1 and 4 but did not change significantly by survey 7. The significant changes in under 5 year old children was the significant reduction in fever and cough between surveys 1 and 7 and the reduction in passing of worms between surveys 1 and 4 (Tables 5 to 7). For all family members together (Table 8) there were significant reductions in cough, fever and passing of worms on the day of the study, past 7 and 30 days between surveys 1, 4 and 7.

**Table 4 Morbidity status (%) of head of household in surveys 1, 4 and 7**

Condition	Day of survey						Previous 7 days						Previous 30 days					
	Survey			p (1&4)	p (1&7)	p (4&7)	Survey			p (1&4)	p (1&7)	p (4&7)	Survey			p (1&4)	p (1&7)	p (4&7)
	1	4	7				1	4	7				1	4	7			
Diarrhoea	0.7	2.0	1.3	ns	ns	ns	8.6	12.9	8.9	ns	ns	ns	20.1	21.8	14.9	ns	ns	0.027
Fever	7.3	7.9	5.0	ns	ns	ns	22.1	15.8	16.5	0.049	ns	ns	42.9	37.3	28.1	ns	<0.001	0.015
Cough	22.4	13.5	8.9	0.004	<0.001	ns	27.7	13.5	15.5	<0.001	<0.001	ns	38.6	30.0	21.1	0.026	<0.001	0.012
Skin infection	8.9	13.5	4.3	ns	0.022	<0.001	9.2	13.5	5.0	ns	0.040	<0.001	9.6	1.0	5.9	<0.001	ns	0.001
Eye infection	20.8	4.6	2.6	<0.001	<0.001	ns	22.4	4.6	3.0	<0.001	<0.001	ns	23.1	6.6	3.0	<0.001	<0.001	0.036
Passed worms	14.9	0.3	0.3	<0.001	<0.001	ns	17.5	0.3	0.7	<0.001	<0.001	ns	21.1	4.3	1.3	<0.001	<0.001	0.027

**Table 5 Morbidity status (%) of all family members on the day of the study in surveys 1, 4 and 7**

Condition	All adults						5-15 year old children						< 5 year old children					
	Survey			p (1&4)	p (1&7)	p (4&7)	Survey			p (1&4)	p (1&7)	p (4&7)	Survey			p (1&4)	p (1&7)	p (4&7)
	1	4	7				1	4	7				1	4	7			
Diarrhoea	1.3	2.0	0.9	ns	ns	ns	0.3	1.0	0.3	ns	ns	ns	2.5	3.1	1.3	ns	ns	ns
Fever	7.4	7.7	3.5	ns	0.001	0.001	8.4	4.1	2.3	0.030	0.001	ns	6.1	13.8	3.8	ns	0.023	0.002
Cough	15.9	11.7	4.9	0.036	<0.001	<0.001	9.4	4.1	2.3	0.010	<0.001	ns	9.0	13.1	5.7	ns	0.006	0.031
Skin infection	7.0	9.7	2.3	ns	<0.001	<0.001	3.7	5.4	2.3	ns	ns	0.044	3.3	5.4	3.8	ns	ns	ns
Eye infection	16.4	3.8	1.4	<0.001	<0.001	0.004	0.3	0.7	0	ns	ns	ns	0.9	1.5	1.9	ns	ns	ns
Passed worms	14.5	0.3	0.3	<0.001	<0.001	ns	20.5	0.3	0.3	<0.001	<0.001	ns	10.8	1.5	1.3	<0.001	<0.001	ns

**Table 6 Morbidity status (%) of all family members in the previous 7 days of the study in surveys 1, 4 and 7**

Condition	All adults						5-15 year old children						< 5 year old children					
	Survey			p (1&4)	p (1&7)	p (4&7)	Survey			p (1&4)	p (1&7)	p (4&7)	Survey			p (1&4)	p (1&7)	p (4&7)
	1	4	7				1	4	7				1	4	7			
Diarrhoea	7.5	2.0	5.3	ns	ns	ns	3.0	1.0	1.0	ns	ns	ns	7.4	3.1	7.6	ns	ns	ns
Fever	18.9	7.7	11.4	ns	<0.001	0.037	17.5	4.1	9.5	ns	0.004	ns	25.6	13.8	16.6	ns	0.046	0.033
Cough	20.1	11.7	8.2	0.028	<0.001	<0.001	13.1	4.1	6.5	0.024	0.006	ns	24.0	13.1	11.5	ns	0.006	0.021
Skin infection	7.2	9.7	2.6	ns	<0.001	<0.001	3.7	5.4	2.3	ns	ns	0.044	5.0	5.4	3.8	ns	ns	ns
Eye infection	17.7	3.8	1.7	<0.001	<0.001	0.005	0.7	0.7	0	ns	ns	ns	2.5	1.5	2.5	ns	ns	ns
Passed worms	17.6	0.3	0.6	<0.001	<0.001	ns	11.1	0.3	1.0	<0.001	<0.001	ns	19.8	1.5	4.5	0.001	<0.001	ns

**Table 7 Morbidity status (%) of all family members in the previous 30 days of the study in surveys 1, 4 and 7**

Condition	All adults						5-15 year old children						< 5 year old children					
	Survey			p (1&4)	p (1&7)	p (4&7)	Survey			p (1&4)	p (1&7)	p (4&7)	Survey			p (1&4)	p (1&7)	p (4&7)
	1	4	7				1	4	7				1	4	7			
Diarrhoea	15.6	18.1	8.5	ns	<0.001	<0.001	9.1	9.5	2.6	ns	ns	<0.001	21.5	16.2	10.8	ns	0.005	ns
Fever	37.3	32.6	18.2	ns	<0.001	<0.001	32.7	21.8	17.0	0.003	<0.001	ns	44.6	41.5	28.7	ns	0.006	0.022
Cough	28.8	26.4	10.9	ns	<0.001	<0.001	19.5	15.0	8.8	ns	<0.001	0.020	36.4	31.5	15.9	ns	<0.001	0.002
Skin infection	7.4	3.3	3.0	0.002	<0.001	ns	3.7	5.4	2.3	ns	ns	0.044	5.8	6.2	3.8	ns	ns	ns
Eye infection	18.1	5.4	1.7	<0.001	<0.001	<0.001	1.3	1.7	0.3	ns	ns	ns	6.6	0.7	2.5	0.016	ns	ns
Passed worms	20.2	3.7	0.9	<0.001	<0.001	<0.001	23.2	4.4	1.3	<0.001	<0.001	0.022	23.1	11.5	5.7	0.015	<0.001	ns

**Table 8 Morbidity status (%) of all family members together on the day, previous 7 and 30 days in surveys 1, 4 and 7**

Condition	Day of survey						Previous 7 days						Previous 30 days					
	Survey			p (1&4)	p (1&7)	p (4&7)	Survey			p (1&4)	p (1&7)	p (4&7)	Survey			p (1&4)	p (1&7)	p (4&7)
	1	4	7				1	4	7				1	4	7			
Diarrhoea	1.2	1.9	0.8	ns	ns	0.027	6.2	6.2	4.5	ns	ns	ns	14.4	1.7	7.2	ns	<0.001	<0.001
Fever	8.1	7.4	3.2	ns	<0.001	<0.001	19.3	15.9	11.6	0.041	<0.001	0.003	36.8	30.6	18.9	0.003	<0.001	<0.001
Cough	14.0	9.7	4.4	0.003	<0.001	<0.001	18.5	13.8	8.2	0.004	<0.001	<0.001	27.0	23.8	10.8	ns	<0.001	<0.001
Skin infection	5.9	7.9	2.5	ns	<0.001	<0.001	5.9	8.0	2.7	ns	<0.001	<0.001	6.1	4.3	2.9	ns	<0.001	ns
Eye infection	9.9	2.6	1.1	<0.001	<0.001	0.008	10.9	2.8	1.4	<0.001	<0.001	0.014	11.8	3.7	1.4	<0.001	<0.001	<0.001
Passed worms	16.8	0.5	0.4	<0.001	<0.001	ns	15.9	1.7	1.2	<0.001	<0.001	ns	21.5	4.9	1.6	<0.001	<0.001	<0.001

## 5.5 EMPLOYMENT

There were changes in the main occupation of both male and female headed households between surveys 1, 4 and 7 (Table 9) with an increase in petty trading in male headed households and a decrease in unemployment and those employed as domestic maids in female headed households. Begging still remained an important source of income in female headed households (9.6% in survey 7). Self employment increased by about 10% overall between surveys 4 and 7 although there was variation between NGOs (Table 10).

Information on the number of days worked in the last 7, 14 and 30 days and hours worked in the last 7 days was only collected in surveys 4 and 7. There was a highly significant increase in the number of days worked in the last 14 and 30 days while hours worked per day fell significantly (Table 11). The self employed worked more days in both surveys 4 and 7. Questions on advanced sale of labour were asked in surveys 4 and 7 (Table 12). The analyses showed that the percentage paid in advance generally fell between the two surveys.

**Table 9 Main occupation (%) of head of households in surveys 1, 4 and 7**

	Male						Female					
	Survey			p (1&4)	p (1&7)	p (4&7)	Survey			p (1&4)	p (1&7)	p (4&7)
	1	4	7				1	4	7			
Unemployment	5.9	4.6	4.2	Ns	ns	ns	6.1	2.8	0.9	ns	<0.001	0.034
Agricultural day labourer	36.0	31.8	31.5				16.5	17.4	15.7			
Other day labourer	18.8	9.2	13.7				9.6	11.9	4.3			
Domestic maid	0.5	2.9	1.8				31.3	21.1	14.8			
Rickshaw	16.5	20.2	18.5				0	0	0			
Skilled labour	3.8	4.6	2.4				0.9	1.8	2.6			
Fishing/aquaculture	4.8	6.4	7.1				2.6	2.8	2.6			
Livestock	0	0	1.8				0	2.8	6.1			
Cottage/garment	1.1	0.6	1.2				0.9	1.8	2.6			
Petty trade	8.6	16.2	15.5				10.4	18.3	11.3			
Begging/scavenging	3.8	3.5	1.2				16.5	11.0	9.6			
Housework	0	0	1.2				5.2	8.3	25.2			

**Table 10 Self-employed heads of households (%) by NGO over surveys 4 and 7**

Survey	Male		Female		Total		p
	4	7	4	7	4	7	
CARE	50.0	62.5	42.9	71.4	48.9	63.8	ns
DSK	53.8	76.9	60.0	60.0	57.3	66.7	ns
NETZ	23.1	30.8	41.4	55.3	32.7	30.9	<0.001
PAB	30.8	46.2	26.7	53.3	29.6	48.1	<0.001
SCF	60.0	68.0	63.6	81.8	61.7	74.5	0.005
UTTARAN	67.6	64.7	31.6	57.9	54.7	62.3	0.002
Total	46.9	52.5	45.5	62.5	46.4	56.4	<0.001

**Table 11 Mean number of days and hours worked by head of household, urban-rural and type of employment in surveys 4 and 7**

Number of days worked	Overall			Male			Urban			Self*			
	Survey		p	Survey		p	Survey		p	Survey		Survey	
	4	7		4	7		4	7		4	p	7	p
In the last 7 days	4.43	4.32	<0.001	4.42	4.05	<0.001	4.97	4.31	ns	4.99	<0.001	4.90	<0.001
In the last 14 days	8.84	8.89	0.005	8.83	8.58	0.014	10.00	8.66	ns	9.80	<0.001	10.05	<0.001
In the last 30 days	18.59	18.78	<0.001	18.55	18.20	<0.001	20.77	18.37	ns	20.77	<0.001	21.55	<0.001
Hours worked in the last 7 days	6.36	5.84	<0.001	6.95	6.49	0.001	6.00	6.17	ns	6.20	ns	5.58	ns

\*Independent sample t-test was performed to compare mean working day (or hours) between self vs non-self employment.

**Table 12 Advanced sale of labour (%) in surveys 4 and 7**

Advanced sale of labour	Last 7 days			Last 14 days			Last 30 days			Last 3 months		
	Survey		p	Survey		p	Survey		p	Survey		p
	4	7		4	7		4	7		4	7	
%	0.6	0.3	ns	1.0	0.3	ns	0.9	0.7	ns	0.6	1.0	ns
Range (days)	0-7	0-7		0-14	0-2		1-19	0-2		0-18	0-2	

## 5.6 HOUSEHOLD LAND OWNERSHIP

The percentage of households owning land increased very significantly from 15.2% in survey 1 to 28.4% in survey 4 ( $p<0.001$ ) and by a further 3% to 31.4% in survey 7 ( $p<0.001$ ) in the total sample. The increase in land ownership in male headed households was entirely between surveys 1 and 4 (from 18.2% to 35.4%,  $p<0.001$ ) and there was a very slight fall in land ownership in survey 7 (34.8%). However in female headed households there was an increase in land ownership across all three surveys from 9.8% in survey 1 to 18.0% in survey 4 and then to 26.2% in survey 7 (Table 13). In male headed households owning 2.50 ha of land or more increased from 11.1% in survey 1 to 20.5% in survey 7 while the equivalent percentages for female headed households were from 5.7% to 22.1%. There were significant differences in land ownership between male and female headed households in survey 4 ( $p=0.010$ ) and survey 7 ( $p=0.011$ ). In male headed households use of cultivated land increased significantly between surveys 4 and 7 ( $p<0.05$ ) as did share cropping ( $p<0.025$ ) whereas free use of land increased significantly between surveys 1 and 4 ( $p<0.05$ ) but the increase between surveys 4 and 7 was not significant. No female headed households used cultivated land, share cropped or made use of free land in survey 1 but by survey 7 the percentages were 4.1%, 4.1% and 6.6%, respectively.

**Table 13 Land ownership by head of household in surveys 1, 4 and 7**

Land	Male			Female		
	Survey			Survey		
	1	4	7	1	4	7
Land owned						
0	81.2	64.6	65.2	90.2	82.0	73.8
0.1-2.49	7.7	15.5	14.4	4.1	8.2	4.1
2.50-4.99	5.0	8.8	7.2	4.1	5.7	12.3
5.0+	6.1	11.0	13.3	1.6	4.1	9.8
Cultivated – yes	2.2	2.2	7.2	0	0.8	4.1
Share cropped – yes	4.4	9.3	18.2	0	3.3	4.1
Free use – yes	4.4	10.0	16.0	0	4.1	6.6



## 5.7 HOUSING, WATER ACCESS, SANITATION AND ELECTRICITY

### 5.7.1 Home Ownership

The percentage of households owning their own house increased significantly from 72.6% to 80.2% ( $p < 0.05$ , Table 14) between surveys 1 and 4 and fell slightly to 78.5% in survey 7.

**Table 14 Home ownership in surveys 1, 4 and 7**

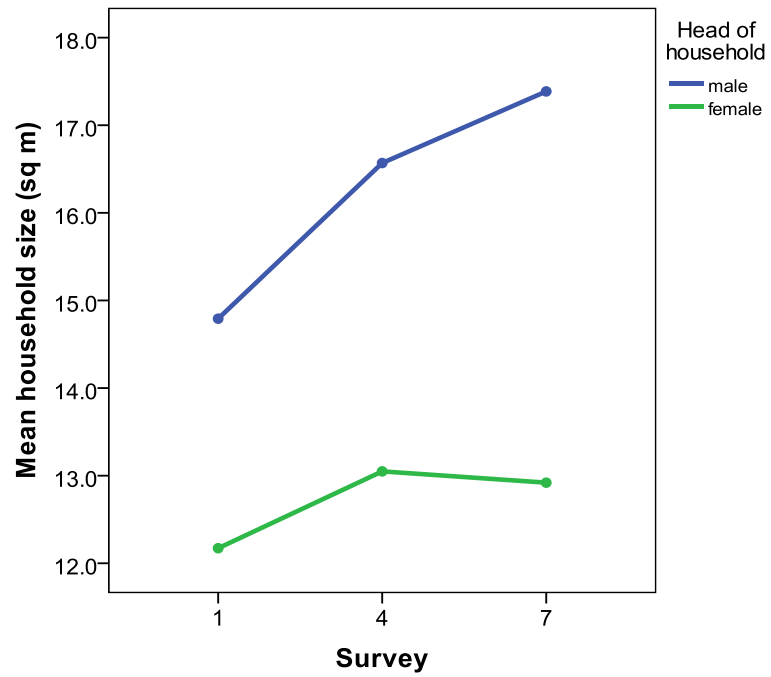
Home ownership	Survey		
	1	4	7
Own	26.7	25.1	26.4
Rent	12.7	11.9	12.2
Live with parent	2.7	1.0	1.7
Live with parent-in-law	1.0	0.7	0.3
Rent free with family	6.0	4.3	5.6
Rent free non-family	5.0	2.0	1.7
Own house on khas land or someone else's land	46.0	55.1	52.1

### 5.7.2 Size of house

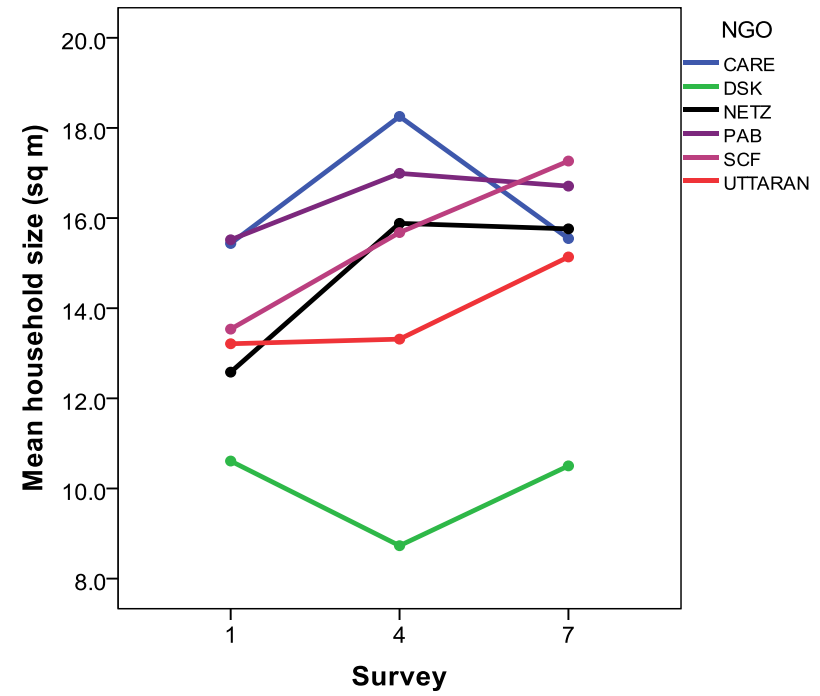
Each household specified the length and width of their house in hath (0.46m) and from this the total area of the house was determined in square metres (sq m). The mean reported size of houses increased significantly from 14.0sq m in survey 1 to 15.5sq m in survey 4 and 16.2sq m in survey 7 ( $p = 0.007$ ), but this increase was mainly apparent in male headed households (Figure 3).

The smallest dwellings continued to be, on average, in the urban slums (10.0sq m) and largest, on average, CARE households (16.4sq m). Figure 4 shows that there was significant ( $p = 0.029$ ) variation in household size by NGO across the three surveys with consistent increases only in SCF and UTTARAN.

**Figure 3 Mean household size by head of household in surveys 1, 4 and 7**



**Figure 4 Mean household size by NGO in surveys 1, 4 and 7**



### 5.7.3. House construction

There were no significant changes in the materials used in house construction between surveys 1, 4 and 7 (Table 15) although there was an increase in roofs and walls constructed of tin sheet; walls were primarily made of grass etc., mud or tin sheet, roofs of tin sheet and floors of mud.

**Table 15 Materials used in house construction in surveys 1, 4 and 7**

Material	Wall			Roof			Floor		
	Survey			Survey			Survey		
	1	4	7	1	4	7	1	4	7
None	-	-	-	0.3	-	-	-	-	-
Grass etc.	28.3	28.7	28.9	23.0	21.1	16.8	0.7	4.3	3.0
Bamboo	18.3	11.5	11.0	0.7	-	-	4.7	-	-
Mud	27.3	30.2	26.5	1.0	-	-	88.7	88.8	86.8
Tiles	0.3	-	-	3.0	5.0	3.6	-	-	-
Tin sheet	24.7	27.9	30.6	71.3	73.6	78.9	-	0.3	0.7
Cement/brick	1.0	1.9	3.1	0.7	1.3	0.7	6.0	5.6	9.6

### 5.7.4 Source of drinking water

There were no significant changes in the source of drinking water between surveys 1, 4 and 7 (Table 16). Nearly all urban households obtained their water from a piped supply or a tubewell, while over 80% of rural households obtained their water from a tubewell; between 1 in 6 and 1 in 9 households obtained their water from a pond or river.

**Table 16 Source of drinking water**

Water source	Survey		
	1	4	7
Pipe	7.9	8.4	9.6
Tubewell	75.6	81.1	78.6
Open well	0.7	1.0	0.3
Pond/river	15.5	9.4	10.3
Rain water	-	-	0.3
Purchased	0.3	-	0.7

### 5.7.5 Electricity supply

There was little change in electricity supply between surveys 1, 4 and 7 and nearly all rural households (over 95%) had no electricity supply (nationally 68% of rural households do not have electricity) whereas about 85% of urban dwellers had an electrical supply which is very close to the national urban average of 88%.

### 5.7.6 Defecation practices

There were highly significant improvements in defecation practices in the rural sample as well as total sample (Table 17) with the main reduction in the use of open spaces (down from 36.9% in survey 1 to 15.3% in survey 7) and increased usage of ring/slab latrines (up from 48.5% in survey 1 to 75.0% in survey 7).

**Table 17 Defecation practices by urban/rural in surveys 1, 4 and 7**

Defecation practice	Urban			Rural			Total		
	Survey			Survey			Survey		
	1	4	7	1	4	7	1	4	7
Open	2.9	0	0	36.9	19.8	15.3	33.0	17.5	13.5
Hanging	11.4	5.7	8.6	2.2	0.4	1.9	3.3	1.0	2.6
Pit	14.3	2.9	8.6	11.2	9.0	4.5	11.6	8.3	5.0
Ring/slab	31.4	42.9	40.0	48.5	69.0	75.0	46.5	65.7	70.9
Sanitary	40.0	48.6	42.9	1.1	1.9	3.4	5.6	7.3	7.9

## 5.8 CASH LOANS AND SAVINGS

### 5.8.1 Cash Loans

Five sources of cash loan were identified (i) free informal (ii) informal loans with interest (iii) interest loans from samity (iv) interest loans from microfinance institutions and (v) interest loans from a bank or the Government of Bangladesh. As some households had more than one loan Table 18 presents both the number of loans and the mean of each loan as well as the number of households with a loan and the household mean loan. For example, in survey 1, the number of free informal loans was 87 and the mean loan was 1652 Taka. These loans were from a total of 55 households and the mean household loan was 2613 Taka. The number of loans and loans per household were highest in survey 3 and lowest in survey 7 (Table 18). The mean total loan and the mean total loan per household were both highest in survey 6 and lowest in survey 2.

**Table 18 Number of loans, average amount of loan over the 7 surveys**

Loan	Survey													
	1		2		3		4		5		6		7	
	N	Household	N	Household	N	Household	N	Household	N	Household	N	Household	N	Household
Free informal	87	55	96	71	128	85	86	61	103	70	68	56	53	43
Interest informal	92	47	33	31	75	51	78	54	43	30	56	37	40	24
Samity	7	7	8	8	9	9	8	6	1	1	9	9	6	6
Microfinance	16	14	28	25	21	21	34	30	30	29	21	20	25	24
Bank	8	7	1	1	1	1	1	1	3	3	2	2	1	1
Total	210	130	166	136	234	167	207	152	180	133	156	124	125	98
	Mean loan	Mean loan household	Mean loan	Mean loan household	Mean loan	Mean loan household	Mean loan	Mean loan household	Mean loan	Mean loan household	Mean loan	Mean loan household	Mean loan	Mean loan household
Free informal	1652	2613	1550	2096	1184	1783	1970	2777	1448	2131	2109	2561	2624	3234
Interest informal	2437	4770	2770	2949	2551	3751	4045	5843	3601	5162	1763	2141	3236	3988
Samity	3351	3351	2975	2975	3364	3364	2259	3012	7000	7000	10655	10655	12305	12305
Microfinance	3864	4416	3929	4401	3715	3715	4483	5078	5131	5308	4681	4915	5483	5711
Bank	5667	6476	7770	7770	8350	8350	12000	12000	5874	5874	4295	4295	7000	7000
Total	2374	3835	2300	2807	2000	2802	3224	4390	2681	3628	2510	3157	3735	4765

### 5.8.2 Cash Savings

The respondents were asked about the extent of their cash savings. Table 19 shows the percentage of households with cash savings, the mean worth of cash savings for those households with savings and the mean of all households. For example, in survey 1 36% of households has some cash savings worth, on average, 489 Taka; based on all households the mean savings falls to 175 Taka per household. As Table 19 shows for the total sample, the percentage of households with savings increased from 36% in survey 1 to 84% in survey 5 and then fell slightly to 81% by survey 7. The amount of savings increased from survey 1 to survey 6 and then fell slightly in survey 7. Up until survey 5 there was little difference in mean cash savings between male and female headed households, but in surveys 6 and 7 large differences appeared and over the 7 surveys male headed households had, on average, over 550 Taka extra savings than female headed households (Figure 5, 1794 versus 1240, respectively,  $p=0.027$ ). There were significant differences in NGO mean savings in all surveys but particularly marked from survey 2 onwards due to the much higher savings in DSK initially and from survey 5 onwards by UTTARAN. The increase in savings was not consistent across NGOs as can be seen in Figure 6. When analyses were restricted to the rural NGOs there were significant difference in means mainly due to the much higher mean savings in UTTARAN.

Figure 5 Mean cash savings by head of household over the seven surveys

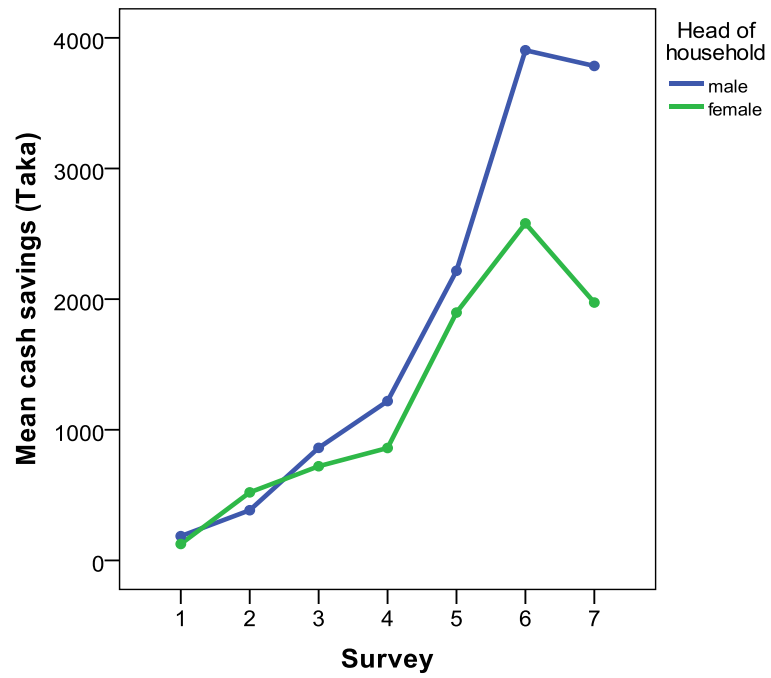
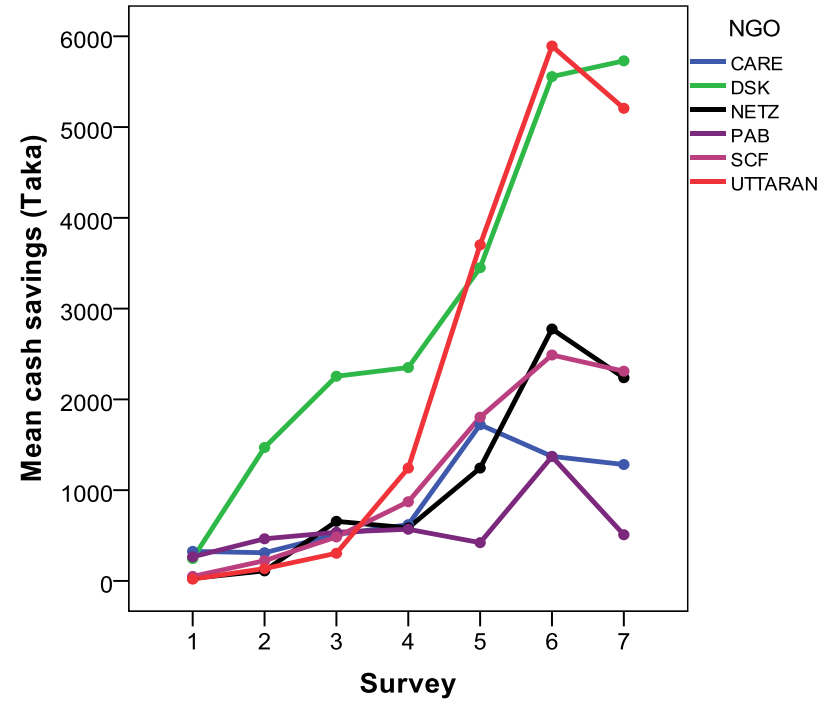


Figure 6 Mean cash savings by NGO over the seven surveys



**Table 19 Cash savings by NGO over the 7 surveys**

NGO	Survey																				
	1			2			3			4			5			6			7		
	%	Mean saving only	Mean total	%	Mean saving only	Mean total	%	Mean saving only	Mean total	%	Mean saving only	Mean total	%	Mean saving only	Mean total	%	Mean saving only	Mean total	%	Mean saving only	Mean total
CARE	67	525	350	71	432	306	81	669	555	83	999	833	92	2202	2019	85	1722	1471	83	2331	1943
DSK	80	349	279	91	1829	1672	100	2245	2245	100	2373	2373	97	3602	3499	100	4930	4930	94	5645	5323
NETZ	33	82	27	67	167	113	96	671	647	98	598	587	100	1218	1258	98	2988	2933	100	2383	2383
PAB	39	945	365	37	1690	623	42	1330	560	49	1326	651	49	1130	555	53	3048	1604	37	1964	724
SCF	8	655	49	38	560	216	43	1182	513	55	1629	891	74	2438	1794	62	4048	2520	79	2991	2370
UTTARAN	7	347	26	80	222	181	96	285	275	100	1416	1365	100	3678	3678	100	7017	7017	100	5894	5894
Rural	30	539	161	58	496	291	72	708	509	72	1136	864	82	2240	1848	79	3957	3145	79	3358	2669
Total	36	489	175	62	723	451	75	945	710	76	1317	1039	84	2422	2038	82	4095	3351	81	3665	2976



## 5.9 HOUSEHOLD ASSETS

### 5.9.1 Animals

There were highly significant increases in animal ownership in both male and female headed households, particularly for cattle, goat and poultry (Table 20) between surveys 1 and 4 but no significant change between surveys 4 and 7. Animal ownership in both male and female headed households was very similar in March 2011 and March 2012 at just over 60%. Ownership increased in all rural NGOs (Table 21) between surveys 1 and 4 but not between surveys 4 and 7.

There were highly significant increases in the amount spent on purchasing animals between the three surveys in both male and female headed households. Overall there was an eightfold increase in spending on animals (Table 25). In March 2011 female headed households had spent significantly more on animals than male headed households (8344 Taka versus 5915 Taka, respectively,  $p < 0.030$ ) but by March 2012 there was no significant difference. Figures 7 and 8 present the results of the repeated measures analysis in which all household have been analysed. Figure 7 shows that in survey 7 male headed households had spent slightly more than female headed households after taking into account the variation between NGOs. Figure 8 shows that the mean value of animals in NETZ households was much higher, on average, than the other rural NGOs.

### 5.9.2 Working equipment

There were significant increases in working equipment ownership in both male and female headed households particularly on rickshaws, and in male headed households on nets and agricultural equipment (Table 22) between surveys 1 and 4 but only agricultural equipment showed an improvement between surveys 4 and 7. However when all working equipment was analysed together there was a significant increase in ownership from 56.1% in survey 1, to 74.6% in survey 4 and 84.5% in survey 7. The total amount spent on working equipment increased significantly between surveys 1 and 4 (Table 25) but there was no significant change between surveys 4 and 7 overall or by each NGO (Table 23). Figure 9 shows that the gap in value of working equipment increased between male and female headed households over the three surveys. UTTARAN had the highest percentage ownership (over 90%, Table 23) and the highest mean value of working equipment (Figure 10).

### 5.9.3 Household belongings

There was increased ownership of all household items between the surveys with the exception of blankets/quilts and jewellery and there were large increases in ownership of a mobile phone, wooden box, mattress and chair (Table 24). The number of household belongings increased from a mean of 3.2 (maximum 13) in survey 1 to 4.0 in survey 4 and 4.6 in survey 7. About 15% of households had a permanent or temporary shop in both surveys 4 and 7 (these questions were not asked in survey 1).

Male household belongings were worth significantly more than female headed households in all three surveys and the gap was widening (Table 25 and Figure 13). DSK and UTTARAN had, on average, the highest means (Figure 14). Inclusion of shop assets increased the value of household belongings by over 1000 Taka in March 2011 and 2000 Taka in March 2012 (Table 25).

### 5.9.4 Total household assets

Total assets (excluding shop) increased substantially in both male and female headed households across the three surveys (Table 25) from 2,311 Taka in survey 1 to 9,322 in survey 4 and 12,413 in survey 7. The gap between the value of assets increased between male and female headed households (Table 26 and Figure 15) and NETZ households had, on average, the highest mean (Table 26 and Figure 16). With the inclusion of shop, male headed households mean assets were just over 10,000 Taka about 500 Taka more than female headed households ( $p = ns$ ) in survey 4 but in survey 7 the gap between male and female headed households had increased to about 4,000 Taka (Table 26).

**Table 20 Ownership (%) of specific animals in surveys 1, 4 and 7 by head of household**

Animal ownership	Survey												p 1 vs 4 Total	p 1 vs 7 Total	p 4 vs 7 Total
	1				4				7						
	Head		p	Total	Head		p	Total	Head		p	Total			
	Male	Female			Male	Female			Male	Female					
Cattle	3.3	0.8	ns	2.3	13.3	28.7	0.001	19.5	29.3	30.3	ns	29.7	<0.001	<0.001	<0.001
Calf	0.6	0.8	ns	0.7	3.3	4.1	ns	3.6	12.2	6.6	ns	9.9	0.022	<0.001	<0.001
Goat	7.2	3.3	ns	5.6	24.3	25.4	ns	24.8	28.7	27.9	ns	28.4	<0.001	<0.001	ns
Poultry	27.6	14.8	0.008	22.4	44.8	33.6	ns	40.3	39.8	24.6	0.006	33.7	<0.001	<0.001	0.042
Pig	0.6	0.8	ns	0.7	2.8	2.5	ns	2.6	1.1	2.5	ns	1.7	ns	ns	ns
Total	30.4	18.0	0.003	25.4	62.4	63.9	ns	63.0	65.2	60.7	ns	63.4	<0.001	<0.001	ns

**Table 21 Ownership (%) of any animal by NGO and head of household in surveys 1,4 and 7**

NGO	Survey												p 1 vs 4 Total	p 1 vs 7 Total	p 4 vs 7 Total
	1				4				7						
	Head		p	Total	Head		p	Total	Head		p	Total			
	Male	Female			Male	Female			Male	Female					
CARE	42.5	25.0	Ns	39.6	60.0	25.0	ns	54.2	65.0	37.5	Ns	60.4	ns	0.031	ns
DSK	0	4.5	ns	2.9	7.7	0	0.036	2.9	7.7	9.1	ns	8.6	ns	ns	ns
NETZ	30.4	28.1	ns	29.1	87.0	100.0	ns	94.5	100.0	96.9	ns	98.2	<0.001	<0.001	ns
PAB	31.7	0	0.01	22.8	53.7	62.5	ns	56.1	65.9	62.5	ns	64.9	<0.001	<0.001	ns
SCF	24.1	37.5	ns	30.2	82.8	83.3	ns	83.0	65.5	79.2	ns	71.7	<0.001	<0.001	ns
UTTARAN	54.3	10.0	0.001	38.2	62.9	70.0	ns	65.5	62.9	45.0	ns	56.4	0.006	<0.001	ns
Total	34.8	18.9	0.003	28.4	62.4	63.9	ns	63.0	65.2	60.7	ns	63.4	<0.001	<0.001	ns

Figure 7 Mean value of animals by head of household in surveys 1, 4 and 7

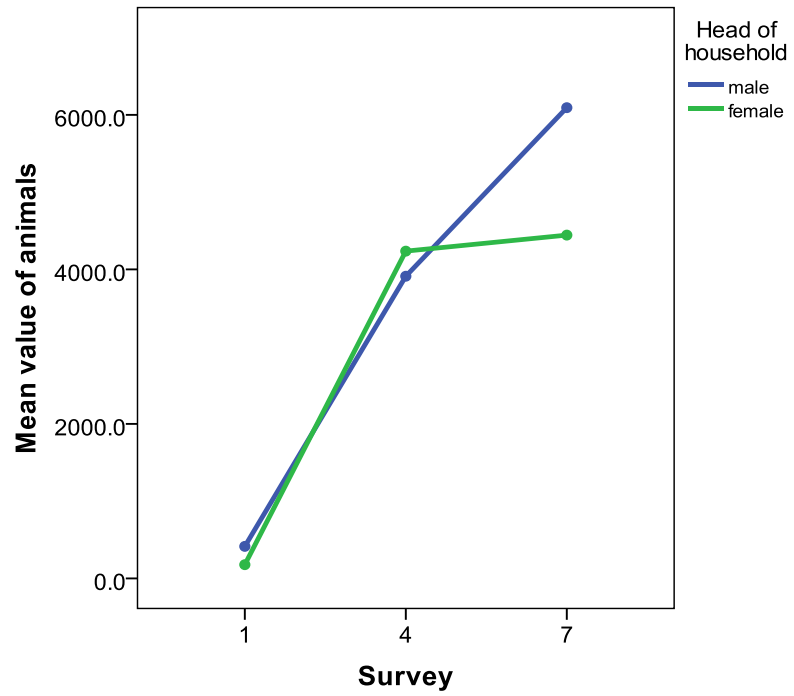
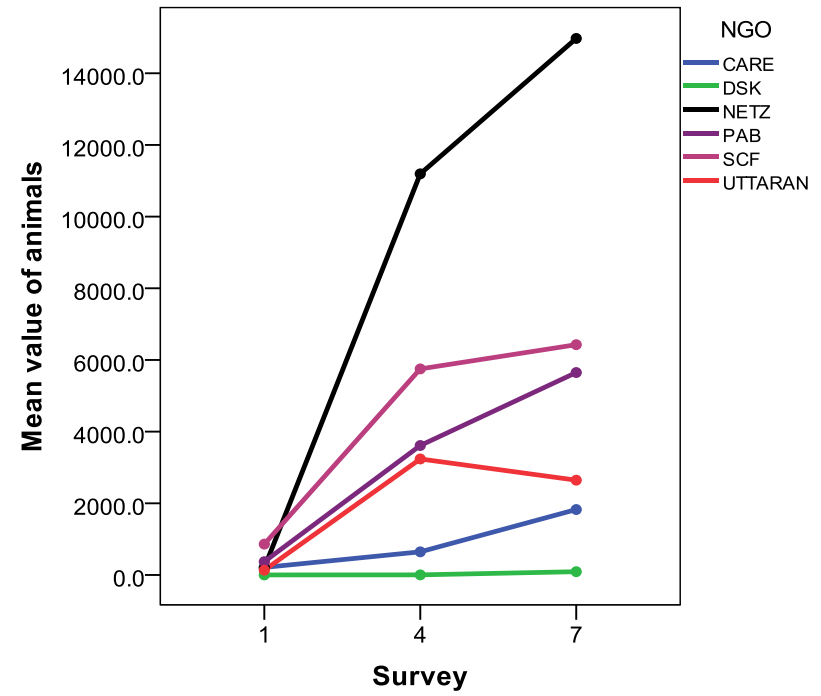


Figure 8 Mean value of animals by NGO in surveys 1, 4 and 7



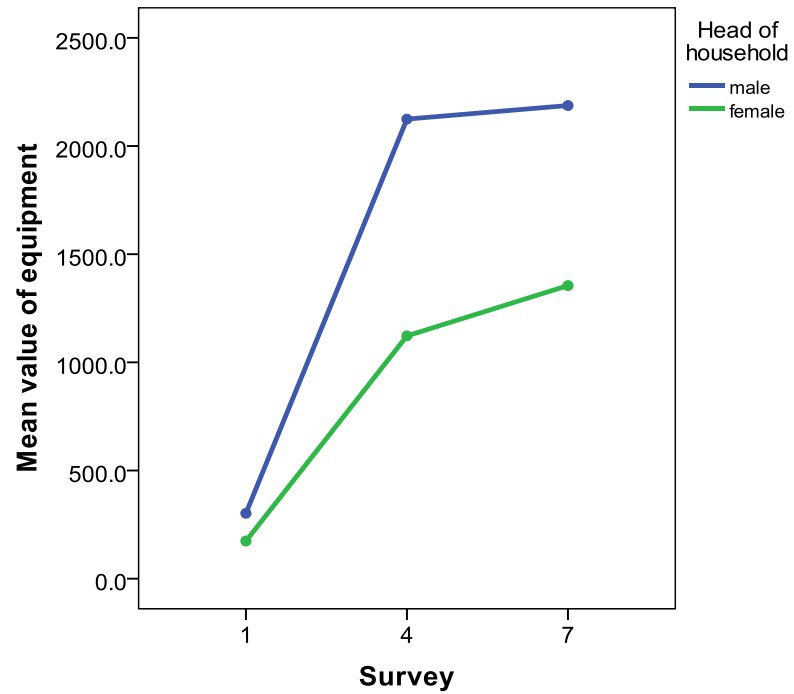
**Table 22 Ownership (%) of specific working equipment in surveys 1, 4 and 7**

Working Equipment Ownership	Survey												p 1 vs 4 Total	p 1 vs 7 Total	p 4 vs 7 Total
	1				4				7						
	Head		p	Total	Head		P	Total	Head		p	Total			
	Male	Female			Male	Female			Male	Female					
Net	13.8	4.1	0.005	9.9	21.5	12.3	0.039	17.8	23.2	11.5	0.010	18.5	<0.001	<0.001	Ns
Rickshaw	5.0	3.3	ns	4.3	19.9	9.8	0.019	15.8	23.2	11.5	0.010	18.5	<0.001	<0.001	Ns
Boat	0.6	1.6	ns	1.0	2.2	1.6	Ns	2.0	3.3	1.6	ns	2.6	ns	ns	Ns
Sewing Machine	-	0.8	ns	0.3	3.9	4.9	Ns	4.3	3.3	6.6	ns	4.6	<0.001	<0.001	Ns
Cottage industry	0.6	-	ns	0.3	1.1	1.6	Ns	1.3	-	-	-	-	ns	-	-
Agri equipment			0.003				<0.001				<0.001		<0.001	<0.001	<0.001
0	45.9	57.4		50.5	21.5	51.6		33.7	14.4	30.3		20.8			
1	11.0	18.9		14.2	10.5	13.1		11.6	11.0	18.0		13.9			
2	19.3	13.9		17.2	21.0	16.4		19.1	14.9	21.3		17.5			
3+	23.8	9.8		18.2	47.0	18.9		35.6	59.7	30.3		47.9			
Total ownership	63.0	45.9	0.003	56.1	85.1	59.0	<0.001	74.6	90.1	76.2	0.001	84.5	<0.001	<0.001	<0.001

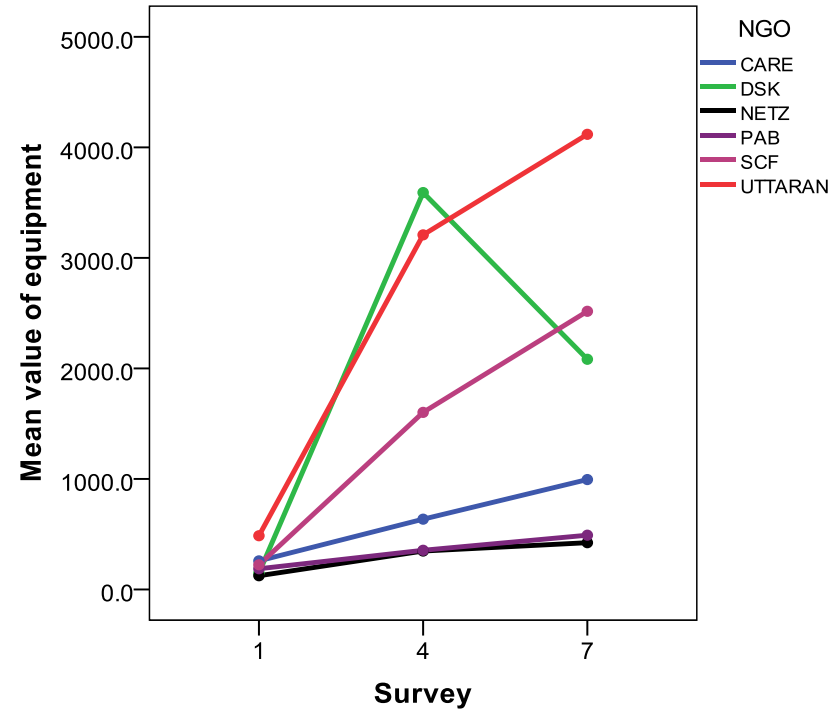
**Table 23 Ownership (%) of any working equipment by NGO and head of household in surveys 1, 4 and 7**

NGO	Survey												p 1 vs 4 Total	p 1 vs 7 Total	p 4 vs 7 Total
	1				4				7						
	Head		p	Total	Head		p	Total	Head		p	Total			
	Male	Female			Male	Female			Male	Female					
CARE	62.5	37.5	ns	58.3	90.0	37.5	0.001	81.3	92.5	62.5	0.019	87.5	0.013	<0.001	ns
DSK	23.1	18.2	ns	20.0	53.8	27.3	ns	37.1	46.2	31.8	ns	37.1	ns	ns	ns
NETZ	95.7	53.1	0.001	70.9	87.0	68.8	ns	76.4	100.0	87.5	ns	92.7	ns	0.002	0.022
PAB	63.4	50.0	ns	59.6	85.4	43.8	0.001	73.6	97.6	81.3	0.030	92.9	ns	<0.001	ns
SCF	55.2	45.8	ns	50.9	75.9	75.0	ns	75.5	82.8	91.7	ns	86.8	0.004	<0.001	ns
UTTARAN	62.9	65.0	ns	63.6	97.1	80.0	0.033	90.9	94.3	90.0	ns	92.7	0.001	<0.001	ns
Total ownership	63.0	45.9	0.003	56.1	85.1	59.0	<0.001	74.6	90.1	76.2	0.001	84.5	<0.001	<0.001	<0.001

**Figure 9 Mean value of equipment by head of household in surveys 1, 4 and 7**



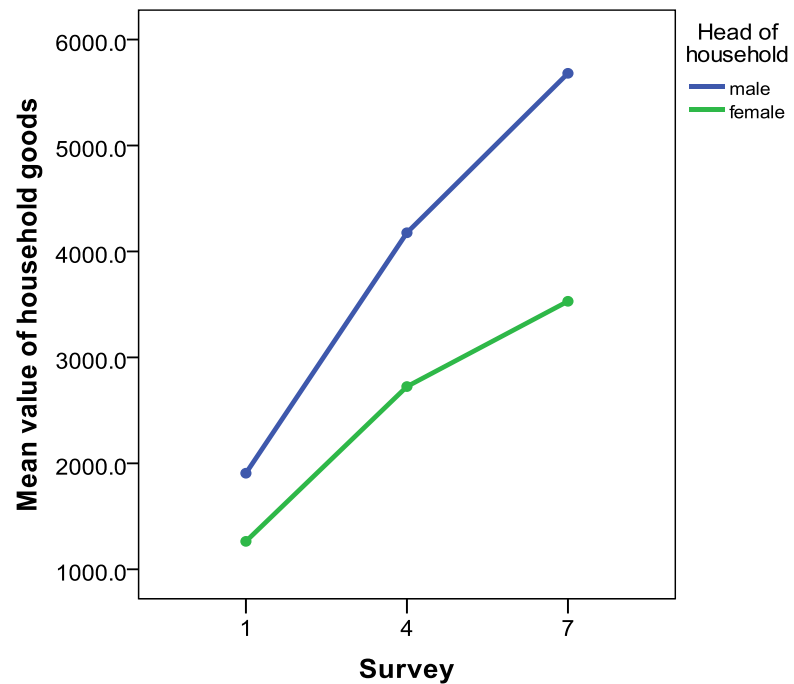
**Figure 10 Mean value of animals by NGO in surveys 1, 4 and 7**



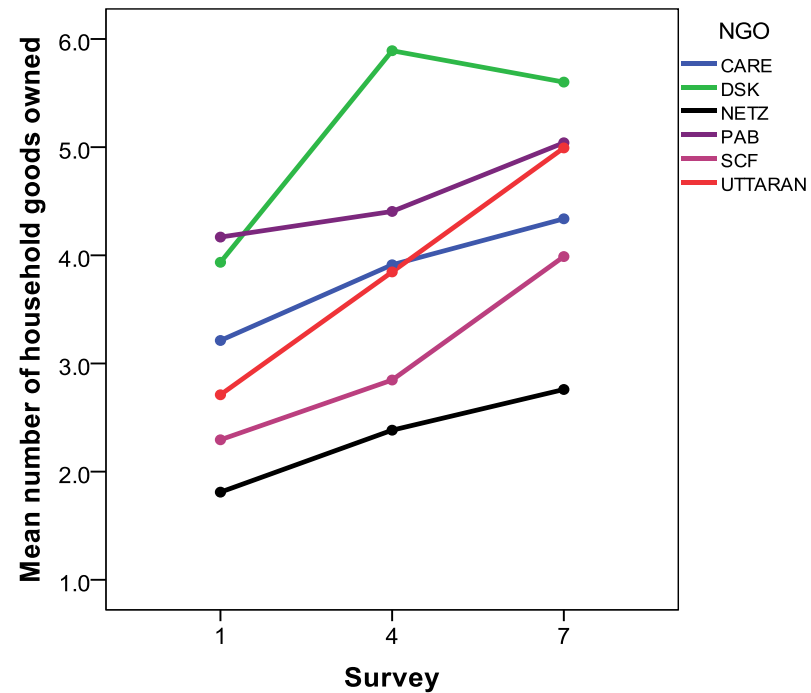
**Table 24 Ownership (%) of specific household belongings (%) by head of household in surveys 1, 4 and 7**

Household belongings	Survey												p 1 vs 4 Total	p 1 vs 7 Total	P 4 vs 7 Total
	1				4				7						
	Head		p	Total	Head		P	Total	Head		p	Total			
	Male	Female			Male	Female			Male	Female					
Television	0.6	1.6	ns	1.0	2.8	7.4	Ns	4.6	9.9	9.0	ns	9.6	0.003	<0.001	0.006
Radio	1.1	-	ns	0.7	4.4	3.3	Ns	4.0	3.3	2.5	ns	3.0	0.013	ns	ns
Mobile phone	5.5	0.8	ns	3.6	22.7	11.5	0.013	18.2	36.5	20.5	0.003	30.0	<0.001	<0.001	<0.001
Bicycle	4.4	0.8	ns	3.0	11.6	3.3	0.010	8.3	17.1	4.1	0.001	11.9	<0.001	<0.001	0.035
Fan	6.1	8.2	ns	6.9	9.4	14.8	Ns	11.6	11.0	15.6	ns	12.9	<0.001	<0.001	ns
Jewellery	59.1	32.8	<0.001	48.5	61.3	32.0	<0.001	49.5	63.0	32.8	<0.001	50.8	ns	ns	ns
Wooden box	39.8	27.0	0.022	34.7	50.3	34.4	0.006	43.9	60.2	43.4	0.004	53.5	0.003	<0.001	<0.001
Blanket	97.2	95.1	ns	96.4	95.0	95.1	Ns	95.0	99.4	95.9	ns	98.0	ns	ns	ns
Table	29.3	11.5	<0.001	22.1	35.9	13.9	<0.001	27.1	41.4	14.8	<0.001	30.7	ns	0.001	ns
Wardrobe	5.5	4.1	ns	5.0	14.9	12.3	Ns	13.9	17.7	6.6	0.005	13.2	<0.001	<0.001	ns
Chair	20.4	7.4	0.002	14.2	37.6	16.4	<0.001	29.0	48.6	18.9	<0.001	36.6	<0.001	<0.001	0/004
Mattress	16.6	8.2	0.035	13.2	21.5	13.9	Ns	18.5	36.5	27.9	ns	33.0	0.023	<0.001	<0.001
Bed	69.6	58.2	0.041	65.0	82.3	63.1	<0.001	74.6	83.4	73.0	0.028	79.2	<0.001	<0.001	0.029
Mean number of belongings	3.6	2.6	<0.001	3.2	4.5	3.2	<0.001	4.0	5.3	3.6	<0.001	4.6	<0.001	<0.001	<0.001

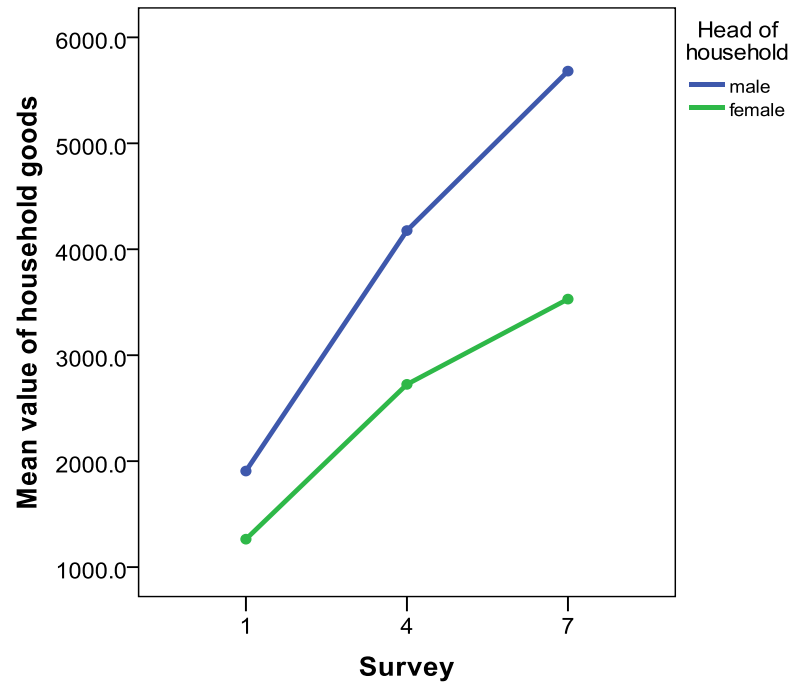
**Figure 11 Mean number of household goods owned by head of household over surveys 1, 4 and 7**



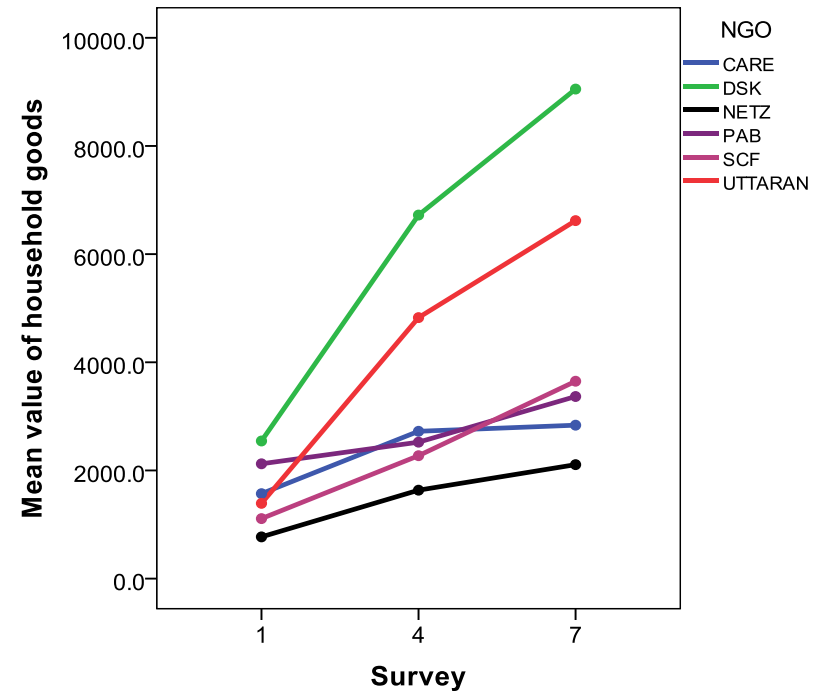
**Figure 12 Mean number of household goods owned by NGO over surveys 1, 4 and 7**



**Figure 13 Mean value of household goods by head of household in surveys 1, 4 and 7**

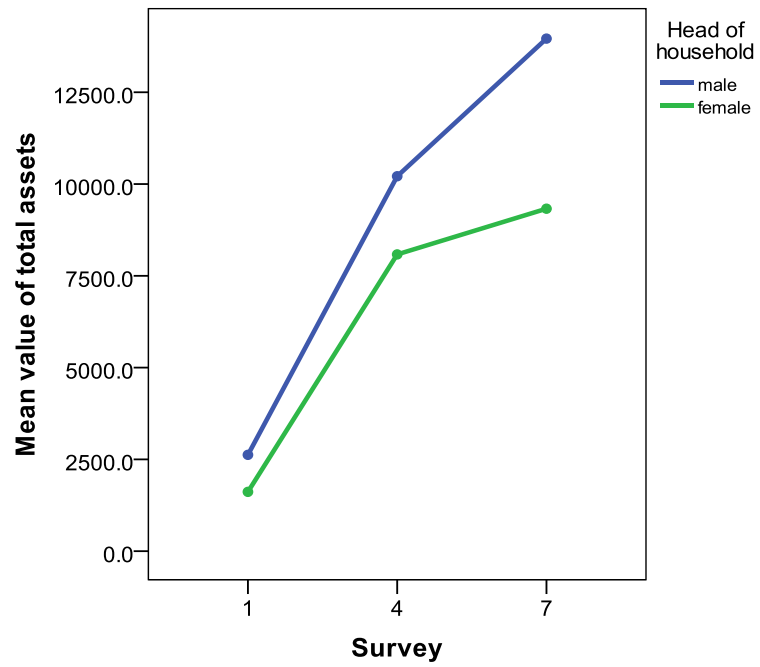


**Figure 14 Mean value of household goods by NGO in surveys 1, 4 and 7**

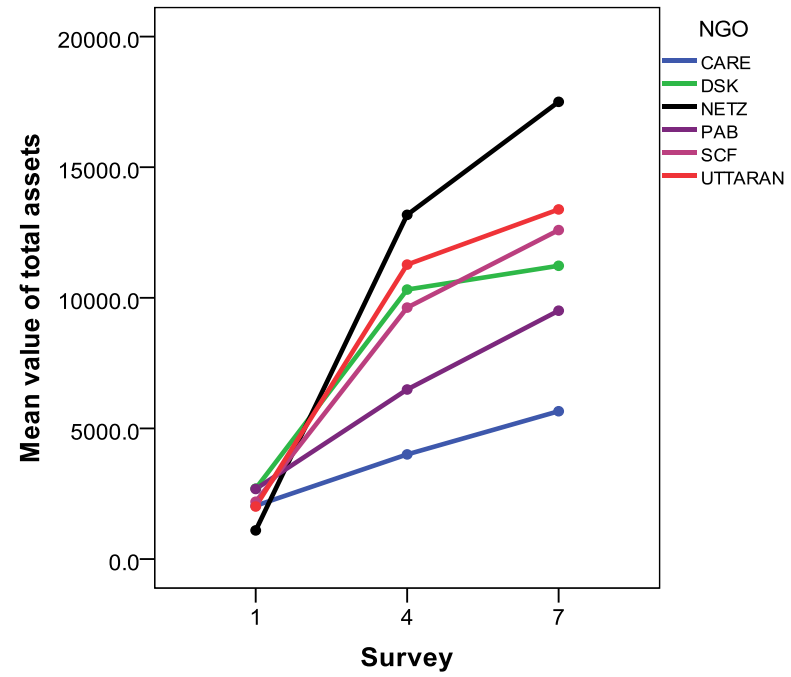




**Figure 15 Mean value of total assets by head of household in surveys 1, 4 and 7**



**Figure 16 Mean value of total assets by NGO in surveys 1, 4, 7**



**Table 25 Average amount (Taka) spent on assets by head of household in surveys 1, 4 and 7**

Assets	Survey												p 1 vs 4 Total	p 1 vs 7 Total	p 4 vs 7 Total
	1				4				7						
	Head		p	Total	Head		p	Total	Head		p	Total			
	Male	Female			Male	Female			Male	Female					
Animals	1351	1131	ns	1293	5915	8344	0.030	6899	9194	9211	ns	9201	<0.001	<0.001	<0.001
Equipment	342	147	0.046	263	2088	1953	ns	2045	2285	1739	ns	2086	<0.001	<0.001	ns
Household belongings	1956	1272	0.001	1681	3929	2814	0.019	3482	5593	3750	0.015	4851	<0.001	<0.001	ns
Household belongings + shop					4900	3475	0.014	4329	7967	5061	0.007	6797			<0.001
Total assets	2769	1633	<0.001	2311	9398	9209	ns	9322	13593	10662	0.011	12413	<0.001	<0.001	<0.001
Total assets + shop					10370	9865	ns	10166	15967	11974	0.003	14360			<0.001

**Table 26 Average amount (Taka) spent on assets by NGO and head of household in surveys 1, 4 and 7**

NGO	Survey												p 1 vs 4 Total	p 1 vs 7 Total	p 4 vs 7 Total
	1				4				7						
	Head		p (NGO)	Total	Head		p (NGO)	Total	Head		p (NGO)	Total			
	Male	Female			Male	Female			Male	Female					
CARE	2892	1189	0.007	2607	5538	2473	<0.001	5028	8890	2426	<0.001	7813	<0.001	<0.001	<0.001
DSK	2687	2703		2697	13101	7531		9600	11443	11010		11171			
NETZ	1163	1029		1085	12794	13559		13239	20013	14991		17091			
PAB	3867	1496		3201	5924	7058		6241	11360	7655		10320			
SCF	2414	1972		2214	10837	8415		9740	15371	9814		12854			
UTTARAN	2720	1303		2204	13080	9463		11765	16692	10074		14285			
Total	2769	1633		2311	9398	9209		9322	13593	10662		12413			
p (sex)	0.002				0.046					<0.001					

## 5.10 HOUSEHOLD INCOME

Table 27 presents the mean income for male and female headed households by survey based on HIES criteria which do not include in-kind income. Repeated measures analysis of variance was used to examine the changes in income (based on HIES criteria) over the seven surveys by both head of household and by NGO. Although the overall mean income increased consistently from 1,776 Taka/month in survey 1 to 3,298 Taka/month in survey 7 there was not consistent improvement within urban and rural areas. As can be seen in Figure 17 there was a higher mean income in male headed households and the gap in income increased between surveys 3 and 4, and was maintained. The urban area had a significantly higher mean income throughout the surveys (Figure 18). The increased income does not take into account inflation between March 2010 and March 2012.

The analyses were repeated for the five rural NGOs and significant changes in mean income were found and the pattern of change among the NGOs was inconsistent ( $p < 0.001$ ) i.e. the lines were not parallel. When the mean income over the seven surveys was averaged there was significant difference in mean income between the five rural NGOs with the highest income in CARE and UTTARAN and least in PAB.

The mean per capita income for the total sample as well as by urban and rural and male and female headed households is presented in Table 28. The mean per capita in the urban area was significantly higher than the rural areas (Figure 20) and male headed households per capita income was significantly higher than female headed households (average of seven surveys 27.4 and 21.4 Taka pppd, respectively,  $p < 0.001$ ) and the difference was apparent in all seven surveys (Figure 19).

In the rural areas alone there was significant difference in per capita income between the five NGOs overall (i.e. average of the seven surveys), and there was highly significant heterogeneity in the pattern of means between NGOs ( $p < 0.001$ , i.e. non-parallel lines). Rural male headed households earned on average 5.4 Taka pppd more than female headed households (23.9 versus 18.5 Taka pppd, respectively). Households from CARE and UTTARAN had the highest mean income pppd (24.2 and 26.9, respectively) and SCF the lowest (17.4 Taka pppd).

Female headed households had significantly greater in-kind income than male headed households for the first three surveys but thereafter male headed households had greater in-kind income (Figure 21). NETZ had the highest in-kind income in surveys 6 and 7 (Figure 22). The percentage that in-kind income contributed to total income in the total sample is presented in Table 29 and it ranged between 18% and 23% in the total sample. In female headed households the percentage tended to fall from survey 1 to survey 7 (Figure 23) and to rise in male headed households. There was no consistent pattern by NGOs (Figure 24).

**Table 27 Mean income (Taka per month) by head of household for each survey (using HIES criteria which do not include in-kind income)**

Survey	Urban				Rural				Total			
	Male	Female	P	Total	Male	Female	p	Total	Male	Female	p	Total
1	3428	2514	Ns	2853	2093	867	<0.001	1635	2189	1164	<0.001	1776
2	4527	3570	Ns	3925	2013	900	<0.001	1603	2193	1390	<0.001	1873
3	6051	3745	Ns	4627	1858	888	<0.001	1494	2160	1383	<0.001	1848
4	6439	4531	Ns	5240	3130	1454	<0.001	2505	3368	2009	<0.001	2821
5	6423	3303	<0.001	4462	3453	1594	<0.001	2760	3667	1902	<0.001	2956
6	5721	2868	0.005	3927	3624	1892	<0.001	2978	3774	2068	<0.001	3087
7	6595	4701	Ns	5405	3698	1888	<0.001	3023	3906	2396	<0.001	3298

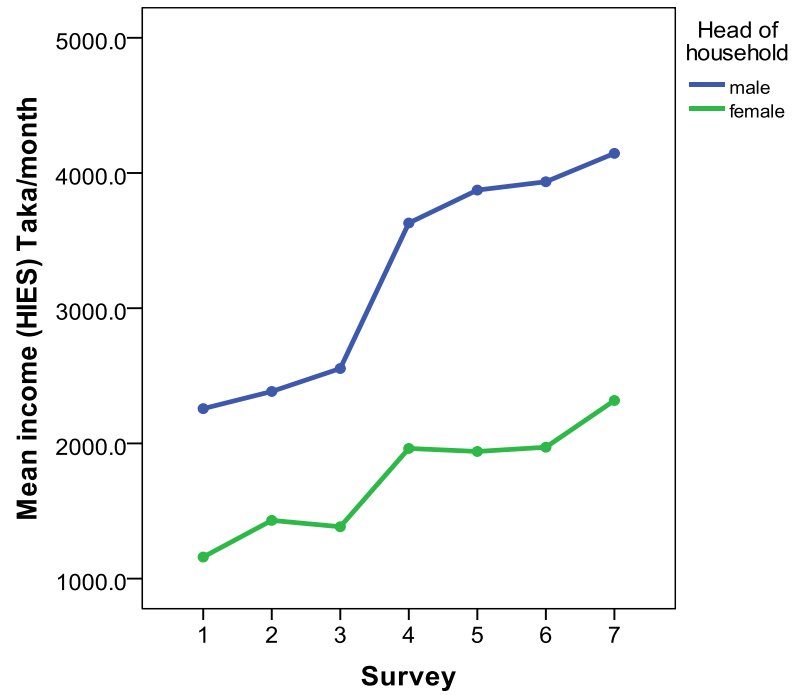
**Table 28 Mean income per capita (Taka per person per day) by head of household for each survey (using HIES criteria which do not include in-kind income)**

Survey	Urban				Rural				Total			
	Male	Female	P	Total	Male	Female	p	Total	Male	Female	p	Total
1	25.3	25.8	Ns	25.6	19.4	12.8	<0.001	17.0	19.9	15.1	0.001	18.0
2	35.9	34.7	Ns	35.1	18.3	12.8	0.001	16.3	19.6	16.8	ns	18.5
3	46.7	37.1	Ns	40.6	16.3	12.9	0.033	15.1	18.5	17.2	ns	18.0
4	52.0	45.4	Ns	47.9	26.2	19.1	0.001	23.6	28.1	23.8	ns	26.4
5	54.2	33.0	0.020	40.9	29.9	19.6	0.001	26.1	31.6	22.0	0.001	27.8
6	46.2	28.0	0.047	34.7	30.1	22.4	0.013	27.2	31.3	23.4	0.007	28.1
7	53.1	45.9	Ns	48.6	29.9	25.2	ns	28.2	31.6	28.9	ns	30.5

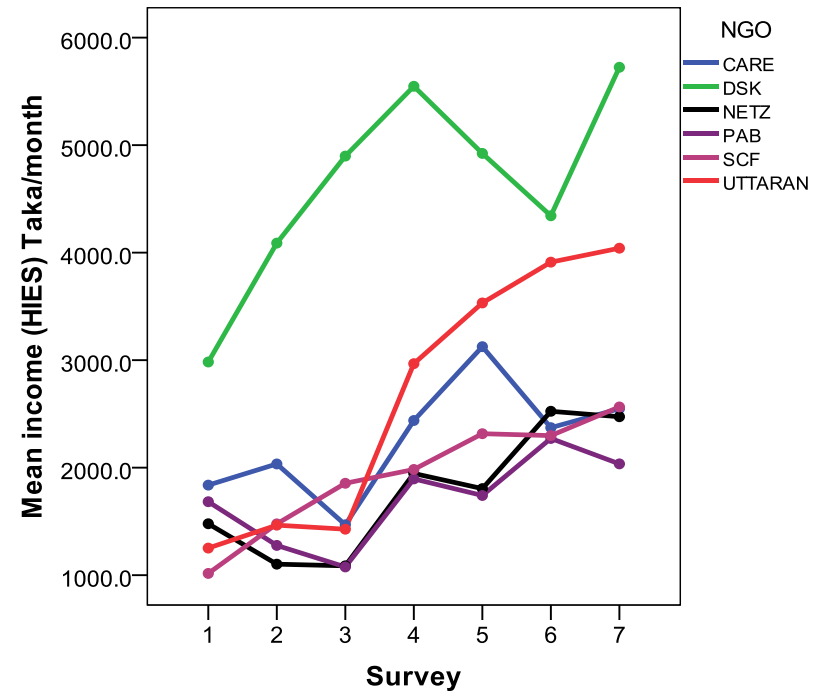
**Table 29 In-kind income as a percentage of total income by NGO over the four surveys**

NGO	Survey						
	1	2	3	4	5	6	7
CARE	17	15	18	13	16	21	14
DSK	8	5	7	9	10	11	10
NETZ	18	32	36	24	32	37	33
PAB	16	23	29	24	18	23	22
SCF	24	11	20	23	17	24	19
UTTARAN	24	22	20	20	13	15	14
Total	18	19	23	19	18	23	19
Rural	20	21	25	21	19	24	21

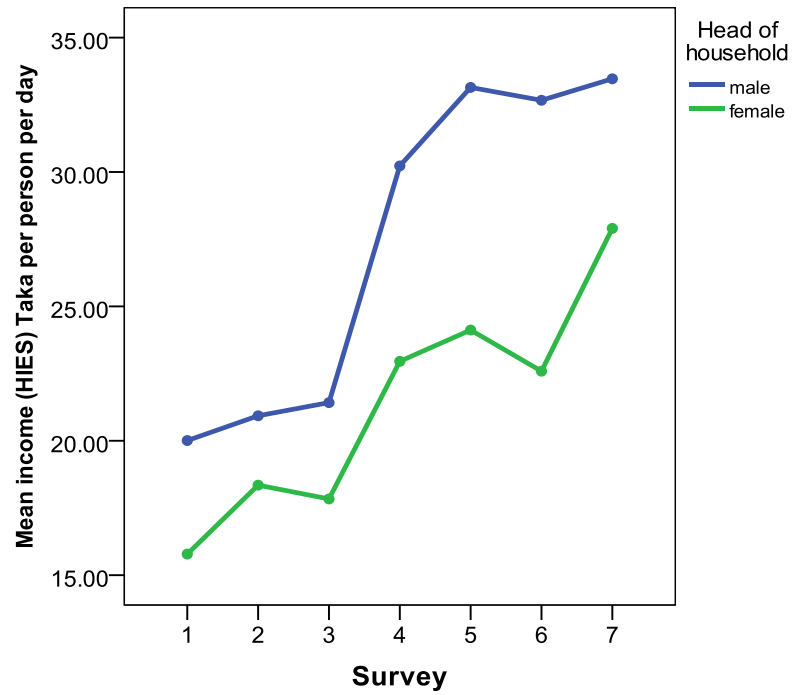
**Figure 17 Mean income by head of household over the seven surveys**



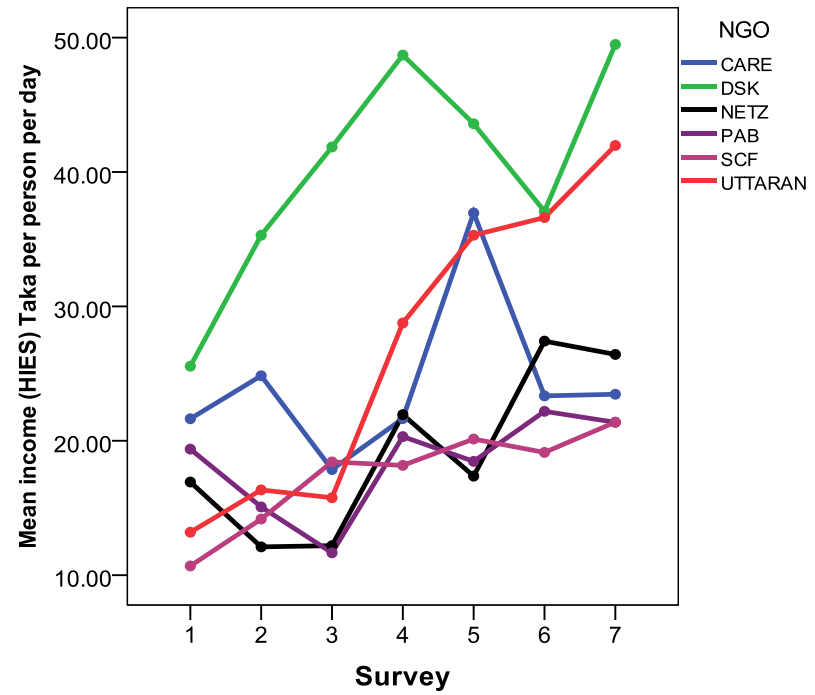
**Figure 18 Mean income by NGO over the seven surveys**



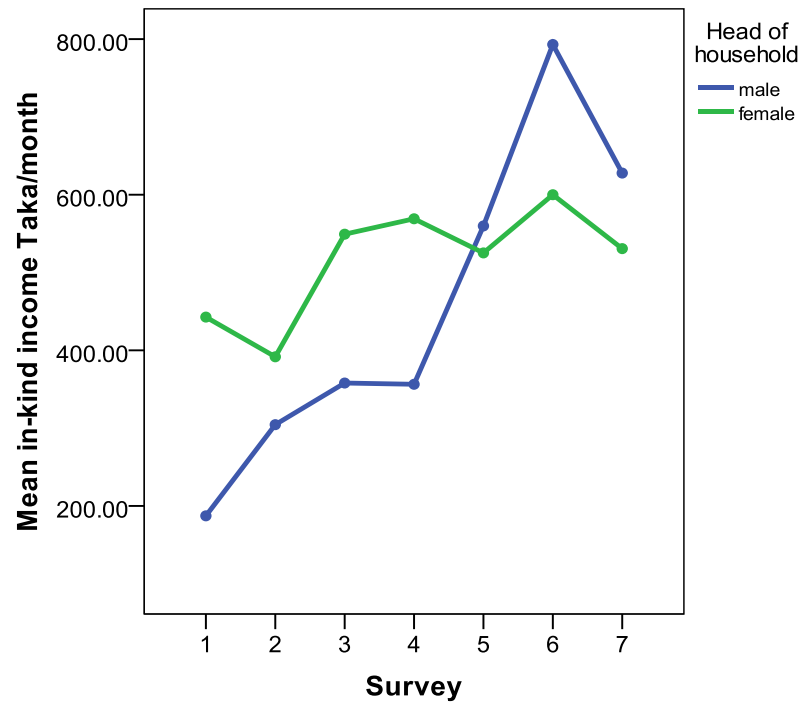
**Figure 19 Mean income pppd by head of household over the seven surveys**



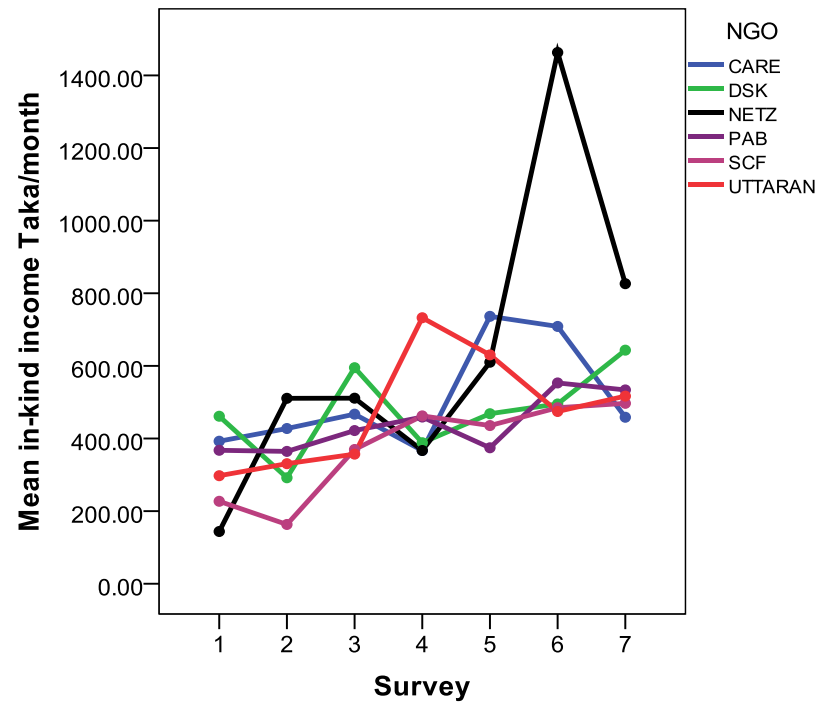
**Figure 20 Mean income pppd by NGO over the seven surveys**



**Figure 21 Mean in-kind income by head of household over the seven surveys**

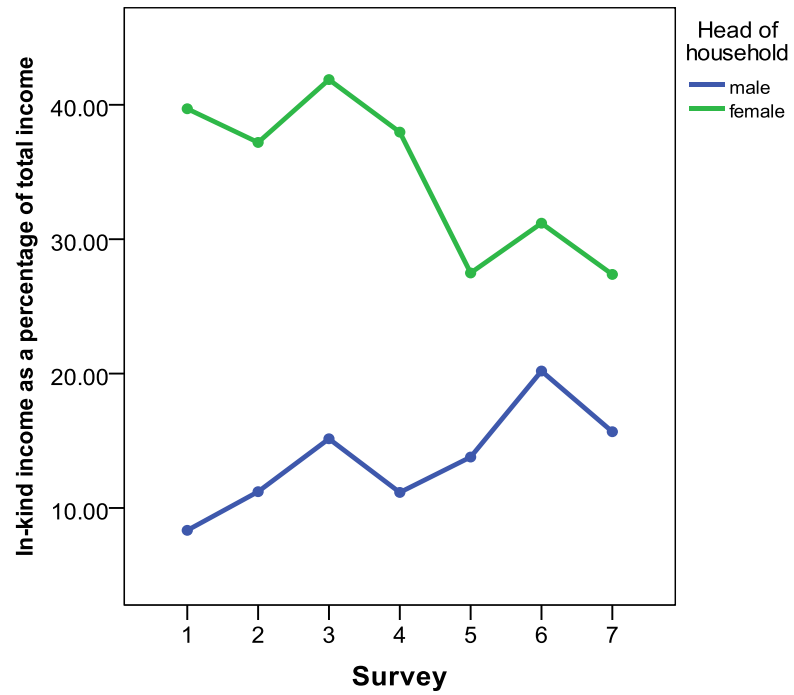


**Figure 22 Mean in-kind income by NGO over the seven surveys**

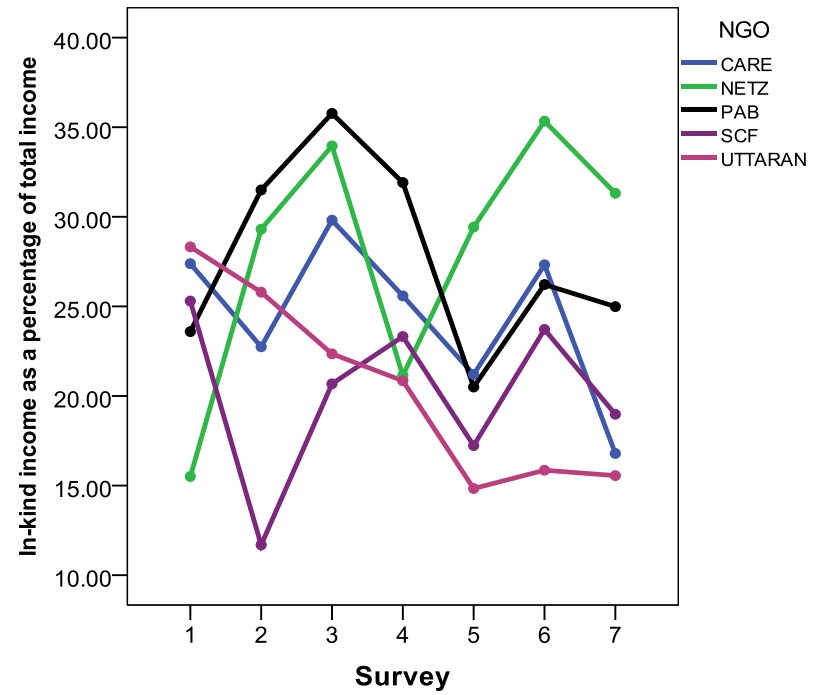




**Figure 23 Mean in-kind income as a percentage of total income by head of household**



**Figure 24 Mean in-kind income by percentage of total income by NGO over the seven surveys**



## 5.11 EXPENDITURE

Total expenditure has been captured under three headings of food, household and work-related.

Male headed food expenditure was significantly higher than female headed expenditure, on average, throughout the surveys (mean of the seven surveys 2066 and 1246 Taka, respectively) but the pattern was not consistent (Figure 25). Food expenditure did not show a consistent pattern over the seven surveys but was highest in survey 6 (Figure 26). There was significant variation between NGOs with the highest spending in DSK across all surveys (mean 2554 Taka/month) and NETZ the least (1180 Taka/month).

Food per capita expenditure did not show a consistent pattern over the four surveys and was highest in survey 4 in male headed households while in females there was an upward trend from survey 2 onwards (Figure 27). The urban area had the highest mean food expenditure (Table 30) and male headed households spent more on food, on average, than female headed households (17.5 and 15.5 Taka pppd, respectively, although the difference between male and female headed households appeared to be decreasing. The pattern of food per capita expenditure varied significantly ( $p < 0.001$ ) by NGO across surveys and UTTARAN moved from having the lowest mean of any rural NGO in survey 1 to having the highest mean food expenditure of the rural NGOs in survey 7 (Figure 28).

Household expenditure over the previous month, on average, fell between surveys 1 and 2 but increased thereafter and by survey 7 was 81% higher than survey 1 (593 Taka and 1072 Taka, surveys 1 and 7, respectively). Male headed households spending was significantly higher (average of the seven surveys, 899 versus 677 Taka in male and female headed households respectively,  $p < 0.001$ , Figure 29). Urban expenditure was far higher, on average, than rural expenditure (Figure 30).

Per capita expenditure was calculated as follows:-

Expenditure over the previous month / (30 x family size)

Household per capita expenditure did not vary significantly over the seven surveys. There was no significant difference between male and female headed means (Figure 31). Significantly higher spending in the urban area was found but there were no significant differences between the overall rural means (Figure 32).

Work related expenditure and per capita did not vary significantly across surveys, by head of household or by NGO (Figures 33 and 34). The amount spent on work-related items increased significantly across the surveys from 20 Taka to 106 Taka between surveys 1 and 7 ( $p = 0.002$ ) and there was considerably more spent in the urban areas, on average, than in the rural areas (mean 193 versus 48 Taka, respectively) although the gap appears to be lessening (Figures 35 and 36). There was no significant difference in work related expenditure between male and female headed households.

Total expenditure showed a fall between surveys 1 and 2 (2276 and 1909 Taka, respectively) and then an increase in all surveys except 5, reaching 2810 Taka/month in survey 7. Male headed household expenditure was significantly greater than female headed by, on average, 857 Taka/month (2846 versus 1979 Taka/month, respectively,  $p < 0.001$ ) and the gap appeared to be increasing (Figure 37). Expenditure in urban areas was more than 2.5 times greater than that in the five rural areas (Figure 38).

Total per capita expenditure increased significantly over the seven surveys from a low in survey 2 of 19.5 Taka pppd and the highest in survey 7 of 26.3 Taka pppd. There were no significant differences in means between male and female headed households (Figure 39). Overall the urban area had the greatest mean expenditure (Figure 40). The rural analyses indicated no significant differences in overall means, by head of household or between NGOs over the seven surveys.

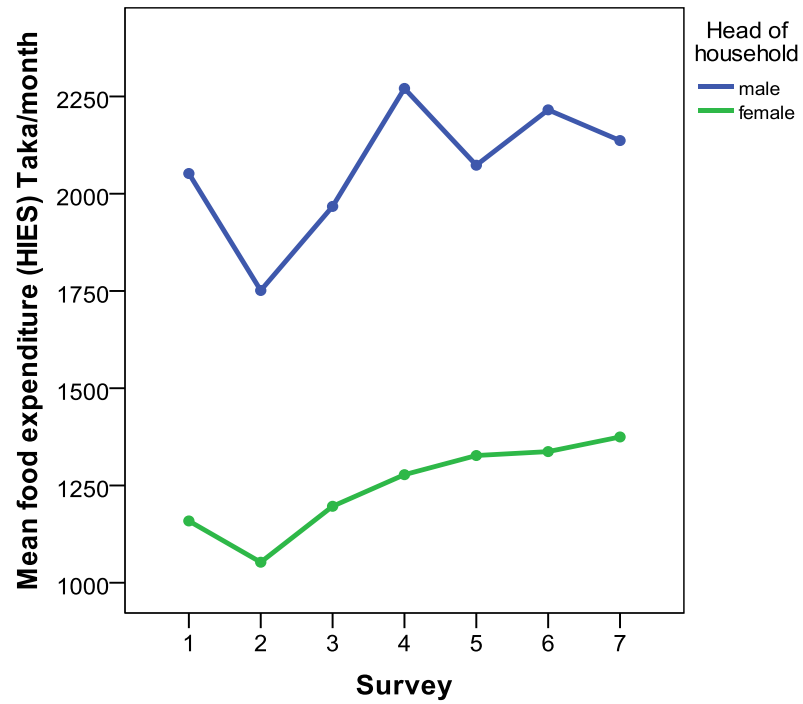
**Table 30 Monthly mean expenditure (HIES, Taka per month) by urban/rural and head of household for each survey**

Survey	Urban				Rural				Total			
	Male	Female	P	Total	Male	Female	p	Total	Male	Female	p	Total
1	4410	4202	ns	4279	2342	1464	<0.001	2014	2491	1957	0.013	2276
2	4136	3277	ns	3592	2037	1179	<0.001	1717	2168	1520	<0.001	1909
3	5985	4772	ns	5281	2406	1250	<0.001	1980	2674	1816	<0.001	2338
4	6391	4401	0.002	5140	2926	1476	<0.001	2385	3175	2004	<0.001	2704
5	5562	4343	ns	4796	1376	1444	<0.001	1503	2943	2098	<0.001	2601
6	6253	3857	0.005	4702	2992	1841	<0.001	2564	3211	2208	<0.001	2806
7	7518	4710	0.007	5753	2853	1707	<0.001	2425	3188	2248	<0.001	2810

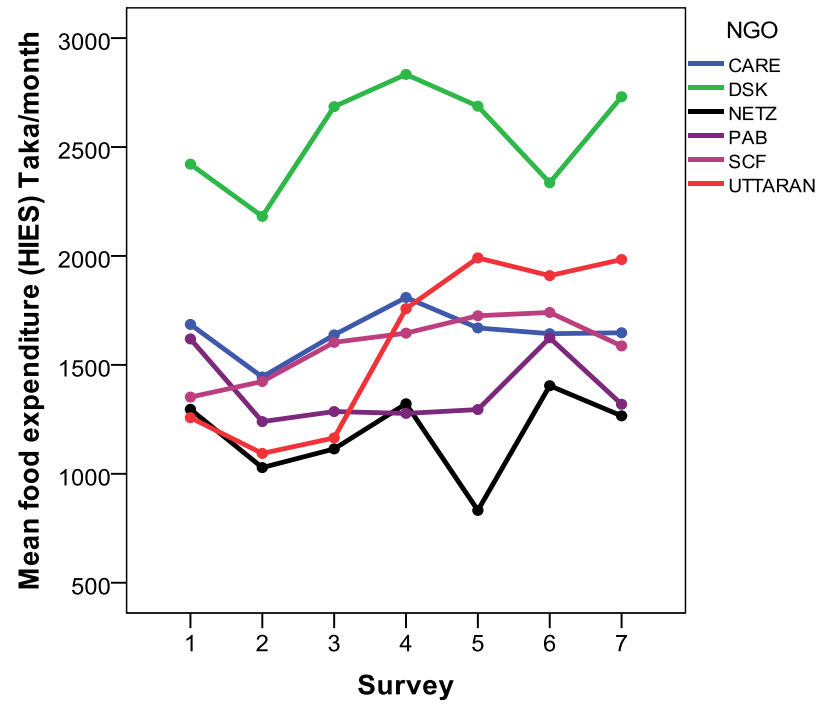
**Table 31 Mean expenditure per capita (HIES Taka per person per day) by head of household for each survey**

Survey	Urban				Rural				Total			
	Male	Female	P	Total	Male	Female	p	Total	Male	Female	p	Total
1	34.2	47.3	ns	42.4	21.6	25.0	ns	22.9	22.5	29.0	ns	25.1
2	31.8	32.0	ns	31.9	18.5	17.3	ns	18.1	19.4	19.6	ns	19.5
3	45.2	46.8	ns	46.1	21.7	18.3	0.023	20.4	23.4	22.9	ns	23.2
4	50.8	46.3	ns	48.0	25.7	19.7	<0.001	23.5	27.5	24.5	ns	26.3
5	45.8	43.9	ns	44.7	23.1	20.6	ns	22.2	24.8	24.8	ns	24.8
6	47.7	38.2	ns	41.5	25.0	22.9	ns	24.2	26.6	25.6	ns	26.2
7	58.3	45.7	ns	50.4	23.4	22.8	ns	23.2	25.9	26.9	ns	26.3

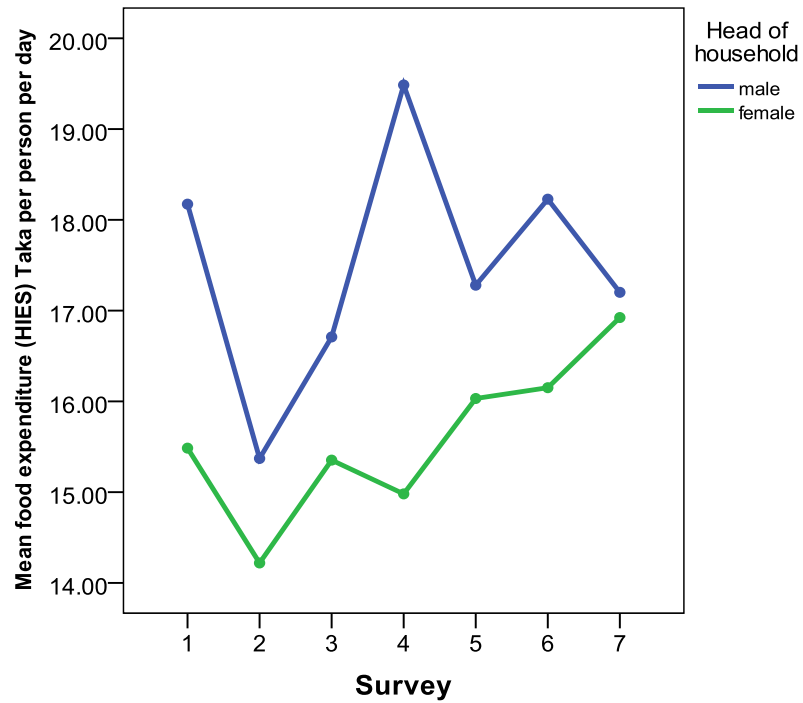
**Figure 25 Mean food expenditure by head of household over the seven surveys**



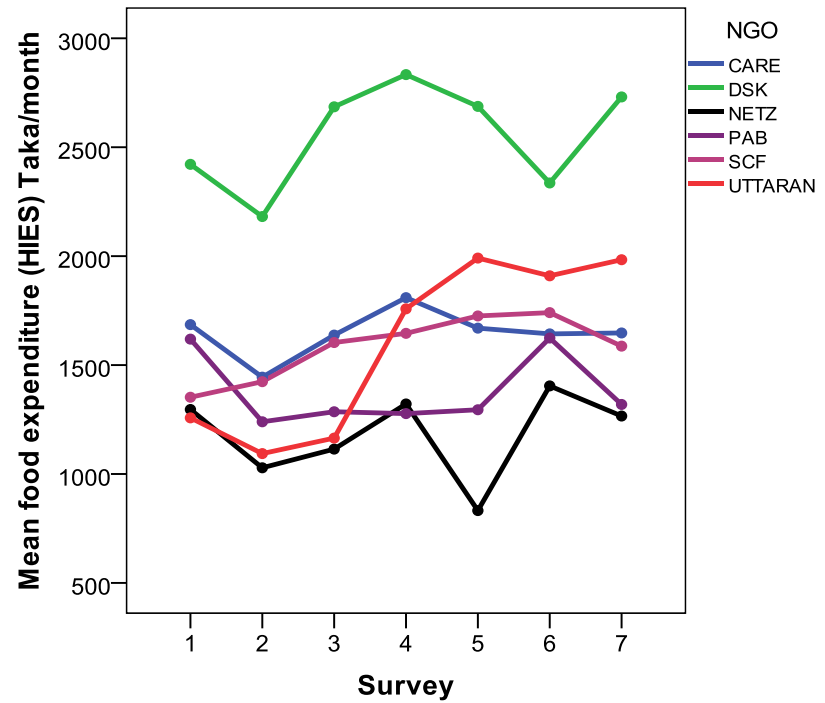
**Figure 26 Mean food expenditure by NGO over the seven surveys**



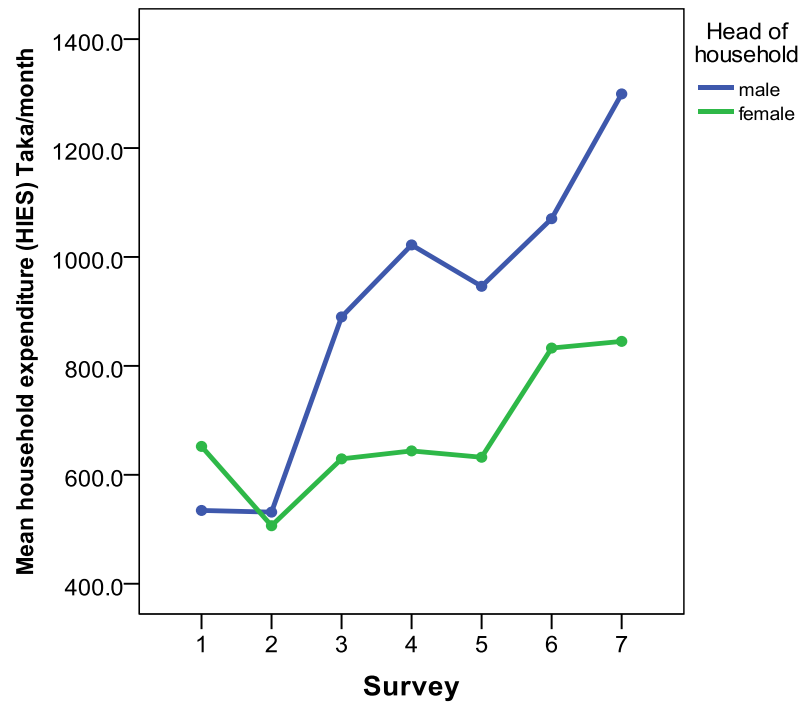
**Figure 27 Mean food expenditure pppd by head of household over the seven surveys**



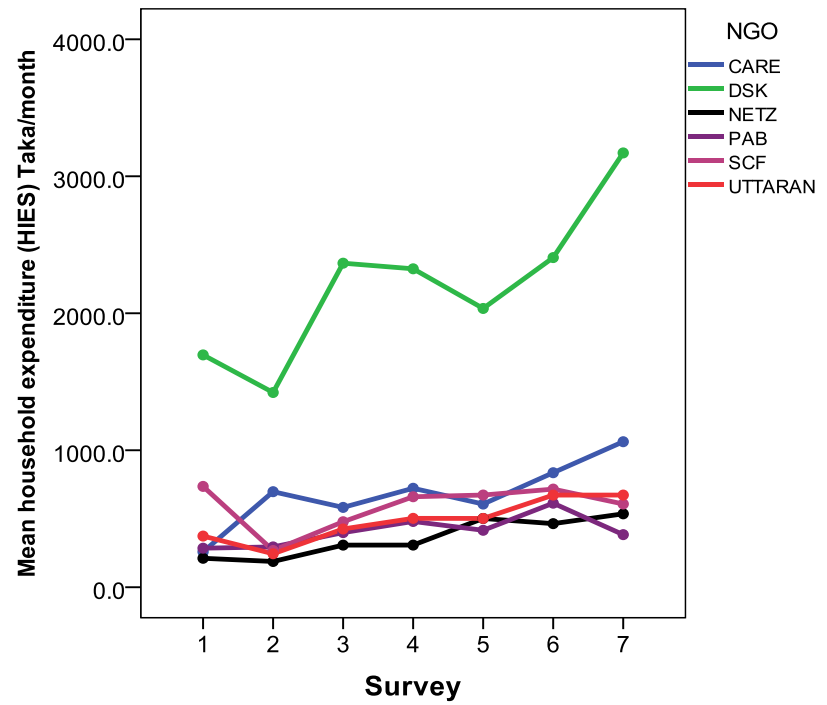
**Figure 28 Mean food expenditure pppd by NGO over the seven surveys**



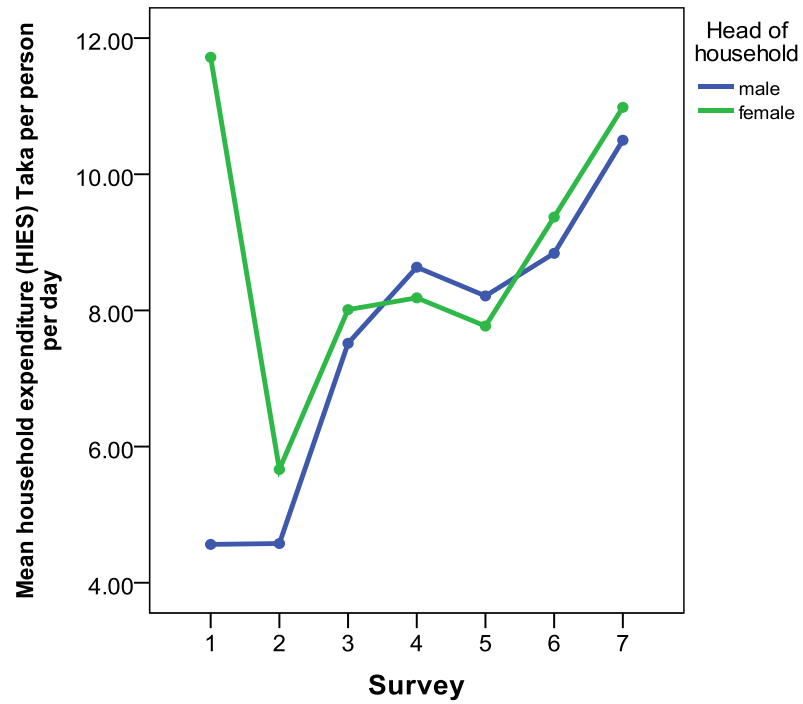
**Figure 29 Mean monthly household expenditure by head of household over the seven surveys**



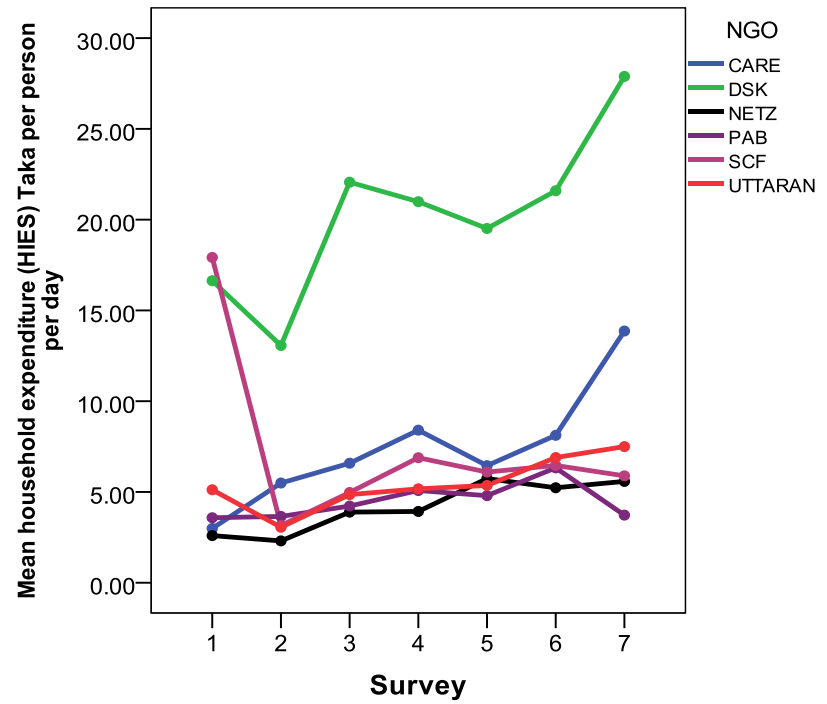
**Figure 30 Mean monthly household expenditure NGO over the seven surveys**



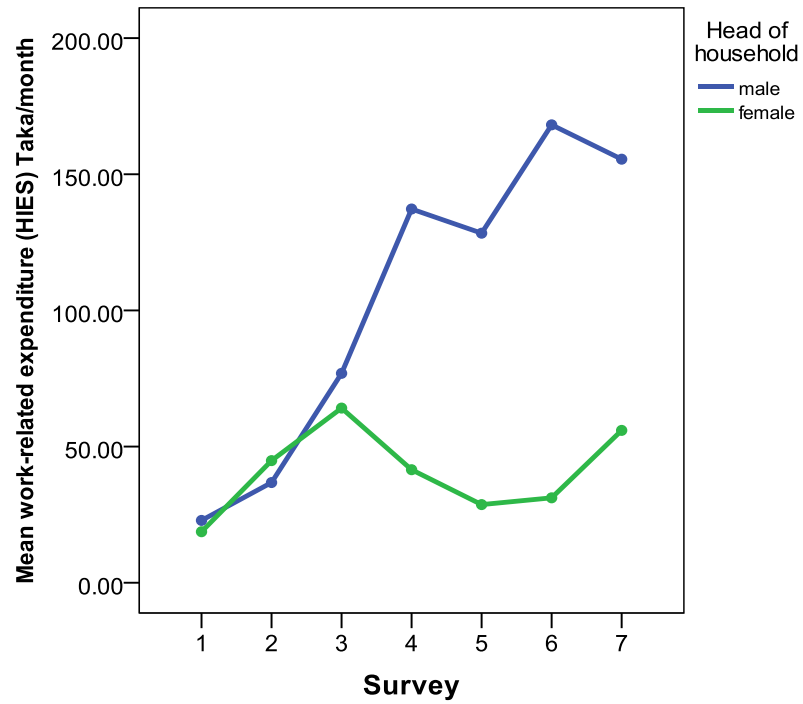
**Figure 31 Mean household expenditure pppd by head of household over the seven surveys**



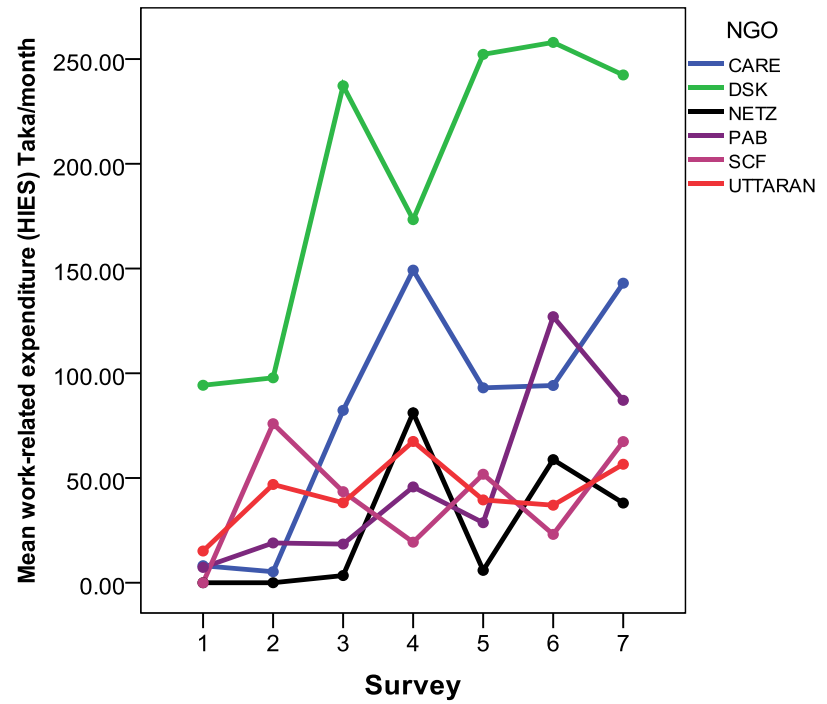
**Figure 32 Mean household expenditure pppd by NGO over the seven surveys**



**Figure 33 Mean monthly work-related expenditure by head of household over the seven surveys**

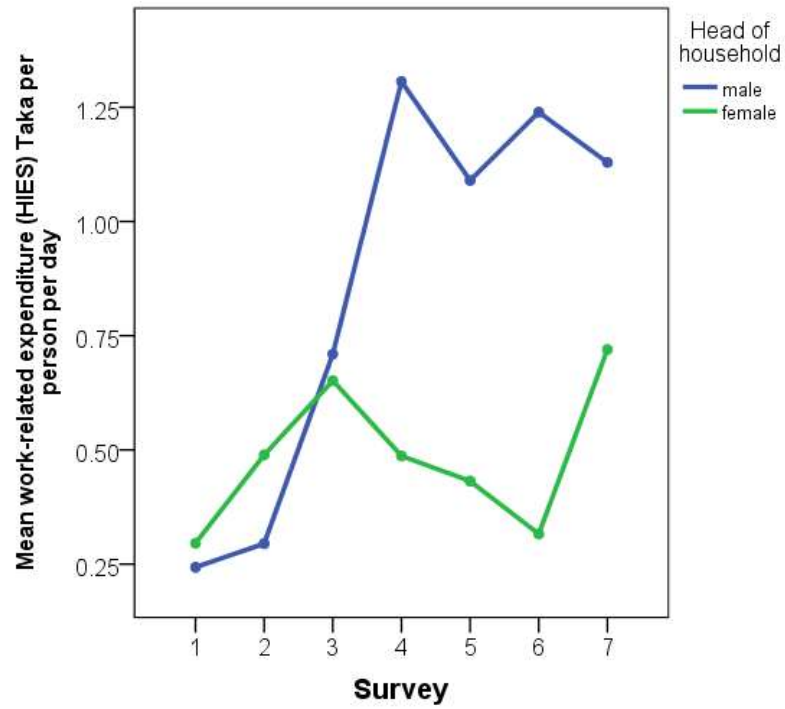


**Figure 34 Mean monthly work-related expenditure by NGO over the seven surveys**

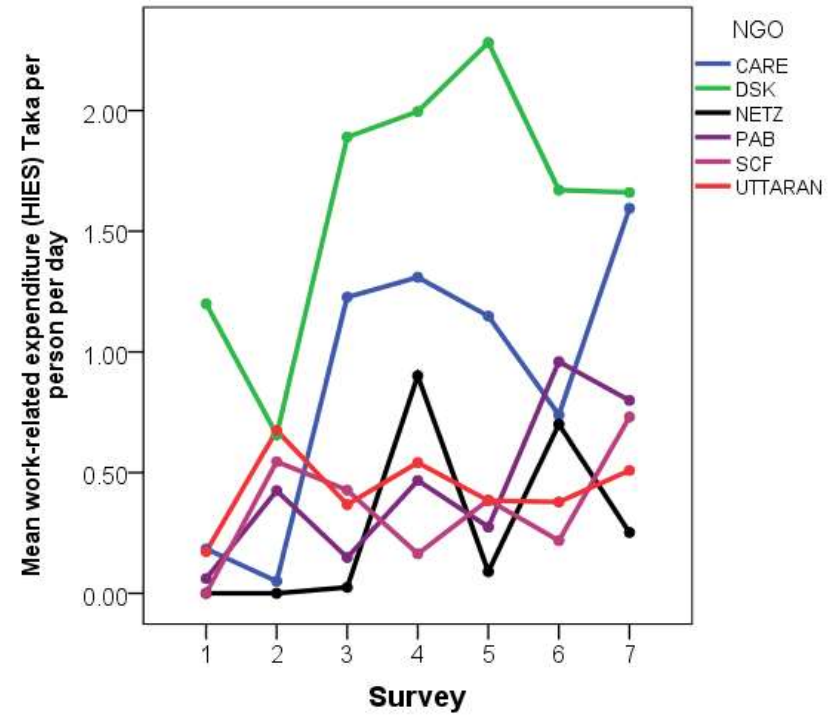




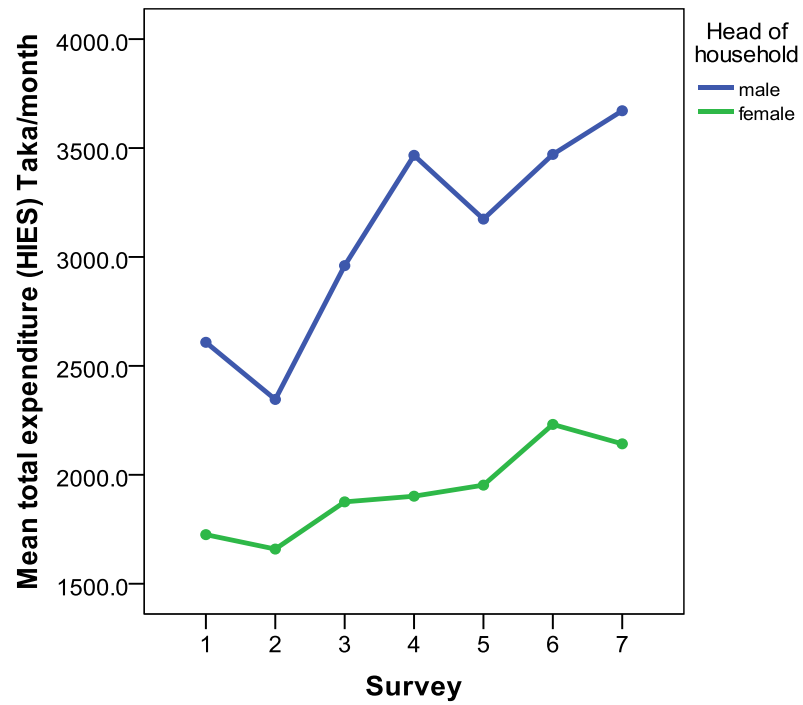
**Figure 35 Mean work-related expenditure pppd by head of household over the seven surveys**



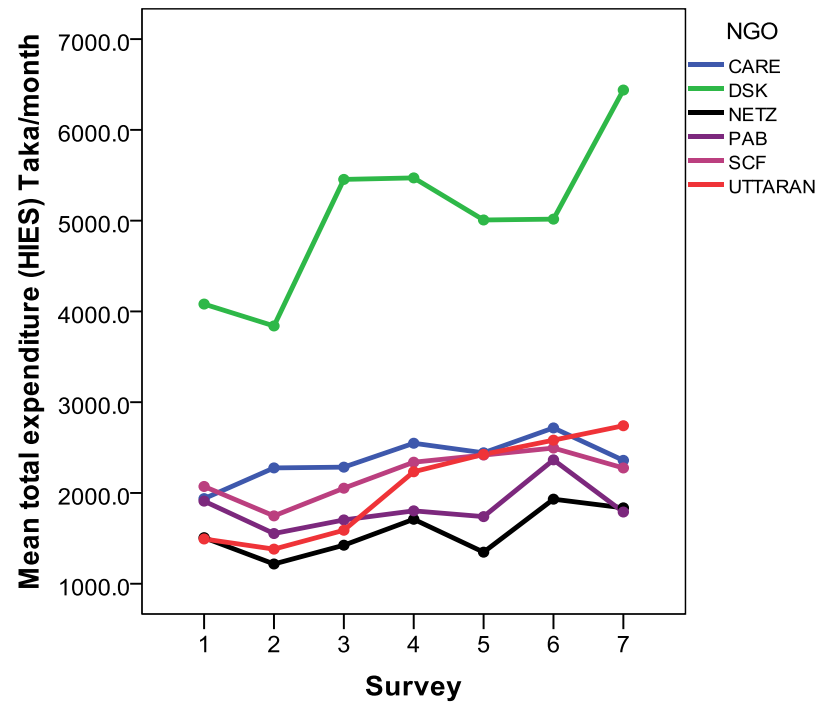
**Figure 36 Mean work-related expenditure pppd by NGO over the seven surveys**



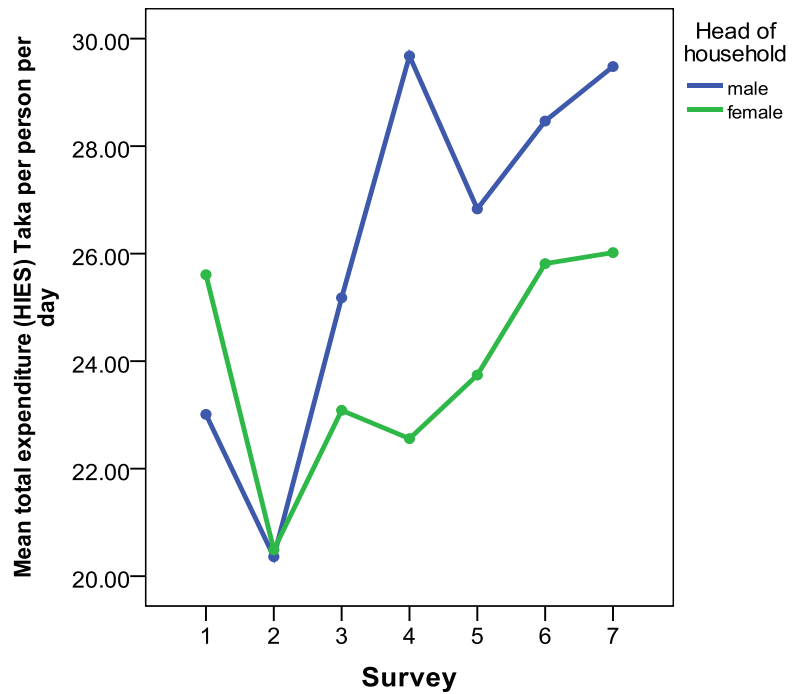
**Figure 37 Mean monthly total expenditure by head of household over the seven surveys**



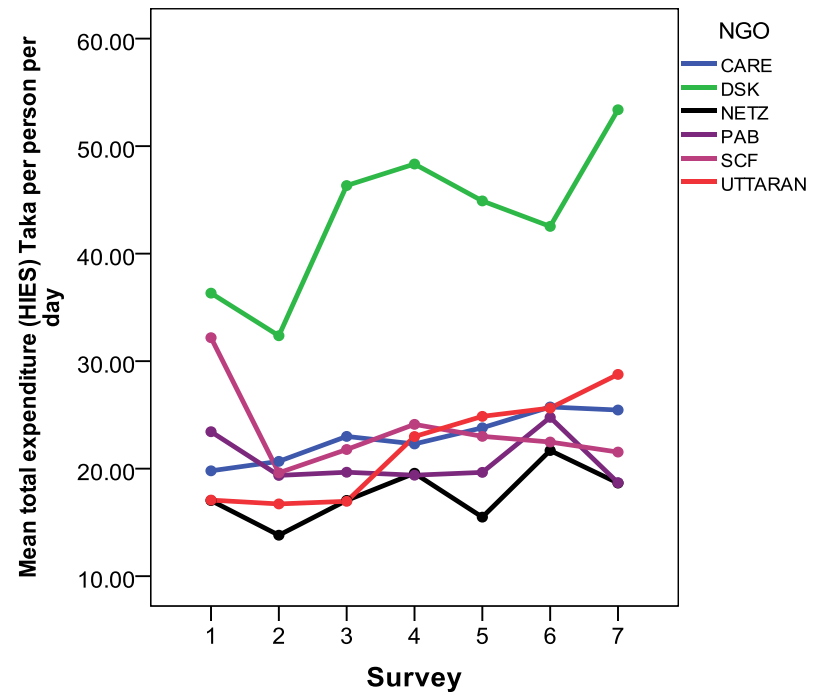
**Figure 38 Mean monthly total expenditure by NGO over the seven surveys**



**Figure 39 Mean total expenditure pppd by head of household over the seven surveys**



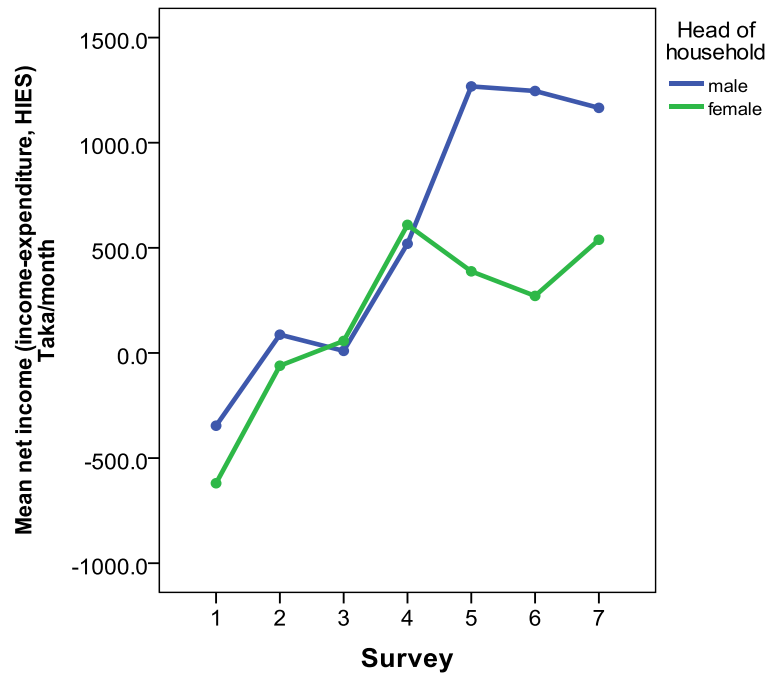
**Figure 40 Mean total expenditure pppd by NGO over the seven surveys**



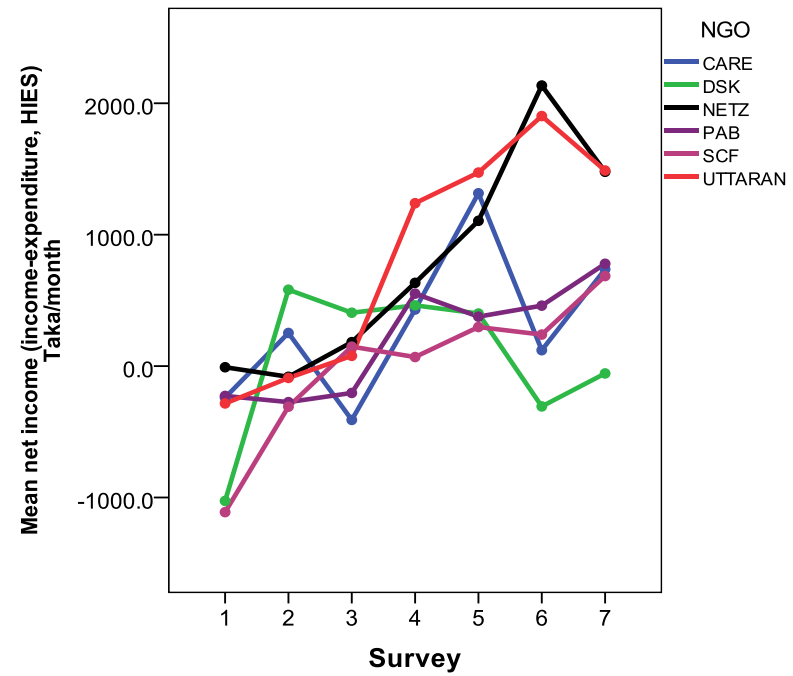
## 5.12 DIFFERENCE BETWEEN HOUSEHOLD INCOME AND EXPENDITURE

The difference between household income and expenditure based on HIES criteria of income minus expenditure (positive sign indicates credit and negative sign debit) was calculated for each household at each survey. Inflation was not taken into account. Repeated measures analysis of variance was used to examine the pattern of credit/debit over the seven surveys and on average households went from a debit in surveys 1 to 3 (-437, -33, -52 Taka/month respectively) to increasing credit in surveys 4 to 7 (+565, +891, +989 and +1076 Taka/month, respectively). Male headed households were significantly more in credit than female headed households over the 7 surveys by on average 400 Taka/month (Figure 41). When the average of the seven surveys was calculated all NGOs were in credit ranging from 3 Taka/month (SCF) to 778 Taka/month (NETZ, Figure 42).

**Figure 41 Mean monthly net income by head of household over the seven surveys**



**Figure 42 Mean monthly net income by NGOs over the seven surveys**



### 5.13 HOUSEHOLD FOOD INTAKE

The households were asked how often family members had eaten 13 food items in the 7 days prior to the study (Table 32). Rice was eaten by nearly all households in all seven surveys. Comparison of March 2011 and March 2013 revealed an increase in fresh fish consumption, pulses, green and other vegetables.

The extent of household food diversity was determined in two ways (a) based on the mean of the number of foods eaten (maximum 13) and (b) based on the 7 food groups (grains, roots and tubers, legumes and nuts, dairy products, flesh foods, eggs, vitamin A rich fruits and vegetables and other fruit and vegetables) as defined by WHO and UNICEF. Consumption of any amount of food from each food group is sufficient to 'count' i.e. there is no minimum quantity.

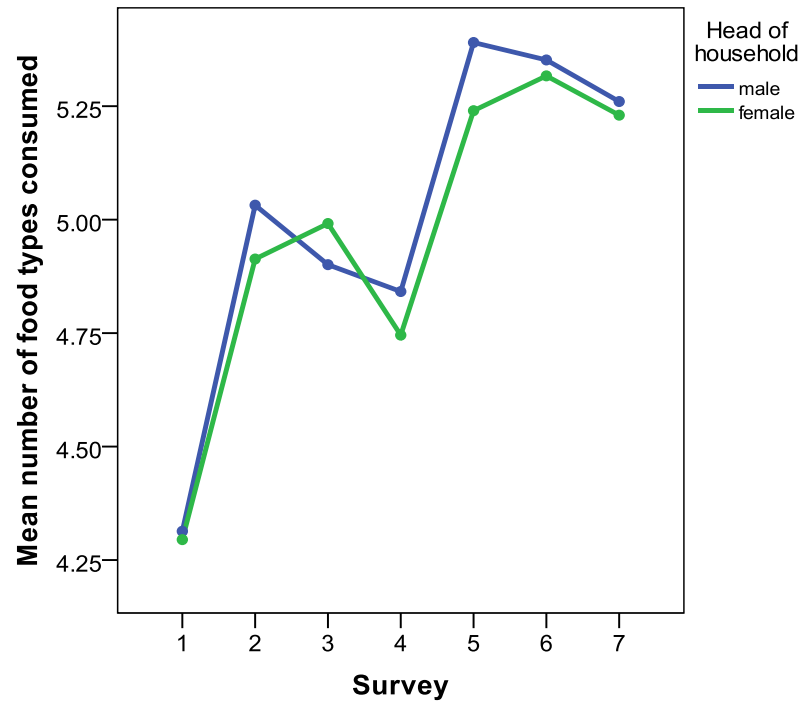
In the total sample the mean number of foods consumed in the last 7 days increased significantly from 5.9 in survey 1 to 7.7 in survey 5 and then fell slightly to 7.6 and 7.3 in surveys 6 and 7. There was no significant difference between male and female headed households (Figure 43) but there was highly significant difference ( $p < 0.001$ ) between NGOs with DSK having the highest mean overall (8.1) and NETZ, PAB and SCF the lowest (all 6.7, Figure 44). UTTARAN has shown the greatest transition with the mean number of food types consumed rising from 5.5 to 8.1.

Overall food diversity rose from 4.3 in survey 1 to 5.3 in survey 5 and 6 before falling slightly to 5.2 in survey 7. There was no significant difference between male and female headed household means (Figure 45). DSK had the highest mean diversity over the seven surveys (5.6) and PAB the least (4.6,  $p < 0.001$ , Figure 46). UTTARAN increased from 4.2 in survey 1 to 5.7 in survey 7.

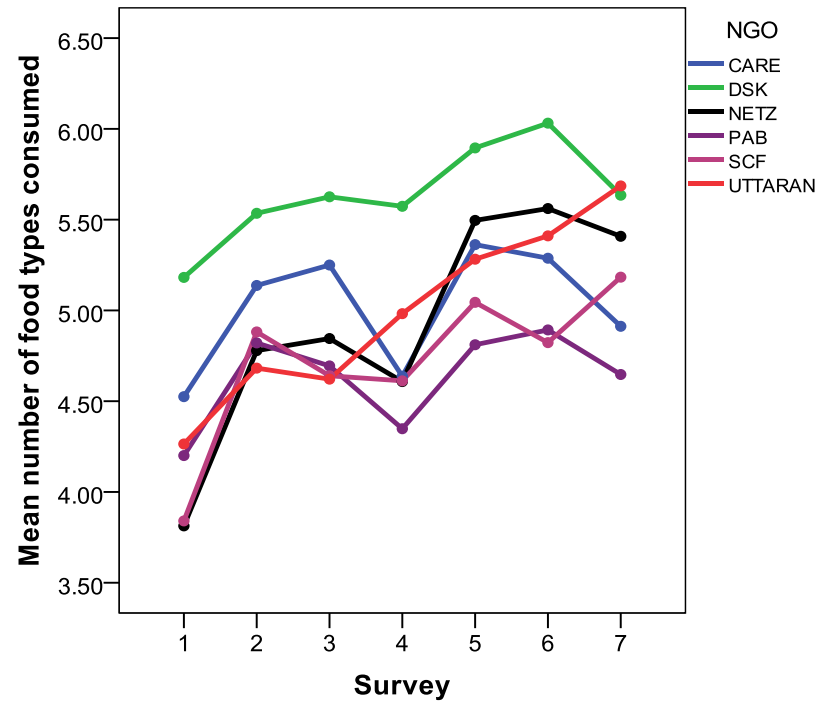
**Table 32 Number of days (%) in the last week that household members consumed foodstuffs over the seven surveys**

Number of days food consumed	Survey							p
	1	2	3	4	5	6	7	
Rice								
0	0	0	0.3	0	0.3	0	0	-
1	0	0	0.3	0	0.3	0	0	
2	0	0.3	0	0	0	0	0	
3+	100	99.7	98.3	100	99.3	100	100	
Flour								<0.001
0	71.6	63.7	67.0	78.2	68.3	63.4	77.6	
1	11.6	17.3	16.2	7.9	10.9	14.5	8.9	
2	8.3	11.7	10.9	6.9	10.6	10.2	6.3	
3+	8.6	7.3	5.9	6.9	10.2	11.9	7.3	
Pulse								<0.001
0	62.0	38.0	36.6	55.4	36.6	46.5	43.6	
1	23.8	33.0	26.4	24.1	21.8	15.5	21.5	
2	9.2	21.0	23.4	14.2	23.4	21.1	20.5	
3+	5.0	8.0	13.5	6.3	18.2	16.8	14.5	
Potato								<0.001
0	1.7	3.0	8.6	0.7	1.7	4.6	0.7	
1	1.3	3.0	8.3	0	2.0	1.7	1.0	
2	5.9	10.7	13.9	0.3	5.9	6.6	2.0	
3+	91.1	83.3	69.2	99.0	90.4	87.1	96.4	
Green vegetables								<0.001
0	17.8	6.7	5.6	14.2	4.0	4.6	7.3	
1	16.8	11.3	14.6	22.8	10.2	14.5	16.2	
2	29.7	26.3	28.8	31.7	29.7	27.7	37.0	
3+	35.6	55.7	51.0	31.4	56.1	53.1	39.6	
Other vegetables								<0.001
0	5.3	5.7	17.2	9.6	5.6	1.7	3.0	
1	4.0	6.7	8.3	10.6	10.6	3.6	5.3	
2	23.4	22.3	19.9	18.8	17.2	8.9	20.1	
3+	67.3	65.3	54.6	61.1	66.7	85.8	71.6	
Fruits								<0.001
0	92.1	57.0	56.6	74.3	33.7	57.4	70.0	
1	5.6	27.3	17.5	8.9	24.4	16.5	12.2	
2	1.0	7.7	14.6	11.2	21.1	12.9	9.9	
3+	1.3	8.0	11.3	5.6	20.8	13.2	7.9	
Milk								0.007
0	92.4	85.3	86.8	85.5	77.2	75.9	81.5	
1	5.0	7.7	5.0	8.6	8.9	10.9	5.6	
2	1.0	4.0	4.3	1.7	3.6	4.6	4.3	
3+	1.7	3.0	4.0	4.3	10.2	8.6	8.6	
Eggs								<0.001
0	70.6	54.0	57.0	42.2	38.9	36.3	35.0	
1	23.1	31.0	21.2	24.8	28.7	22.8	28.4	
2	3.6	10.7	16.9	18.5	16.8	21.1	22.1	
3+	2.6	4.3	5.0	14.5	15.5	19.8	14.5	
Fresh fish								<0.001
0	38.0	20.7	9.9	24.8	17.8	12.5	16.2	
1	35.0	34.0	24.5	27.1	23.1	14.5	21.1	
2	16.5	21.7	28.1	21.5	18.8	21.5	19.5	
3+	10.6	23.7	37.4	26.7	40.3	51.5	43.2	
Dried fish								ns
0	74.3	80.7	81.1	79.9	76.6	76.2	77.2	
1	9.9	9.3	6.3	7.6	5.3	8.3	6.9	
2	9.2	5.0	4.3	5.9	7.3	7.9	8.3	
3+	6.6	5.0	8.3	6.6	10.9	7.6	7.6	
Poultry								<0.001
0	96.0	92.3	91.1	84.8	84.8	80.9	79.2	
1	3.0	6.7	7.9	11.2	10.6	13.9	13.2	
2	0.3	0.3	0.7	3.3	3.6	4.3	5.3	
3+	0.7	0.7	0.3	0.7	1.0	1.0	2.3	
Meat								<0.001
0	90.1	92.7	97.7	92.4	88.4	84.5	82.8	
1	7.6	5.0	1.0	6.6	9.2	9.9	11.9	
2	1.7	0.7	0.3	0.7	2.0	2.0	4.3	
3+	0.7	1.7	1.0	0.3	0.3	3.6	1.0	
Mean foods eaten	5.9	7.1	7.0	6.7	7.7	7.6	7.3	<0.001
Mean food diversity	4.3	5.0	4.9	4.8	5.3	5.3	5.2	<0.001

**Figure 43 Mean number of food types consumed by head of household over the seven surveys**

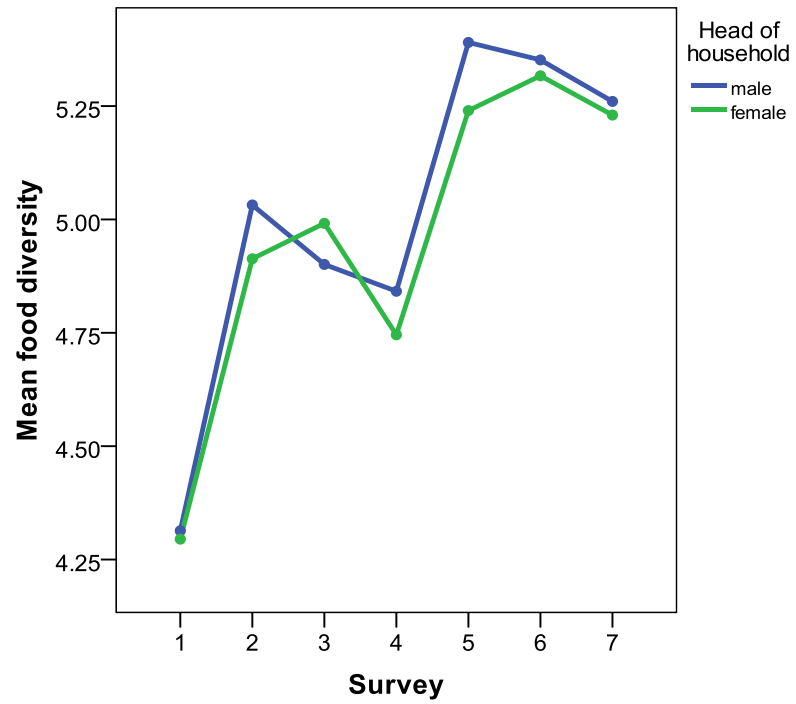


**Figure 44 Mean number of food types consumed by NGO over the seven surveys**

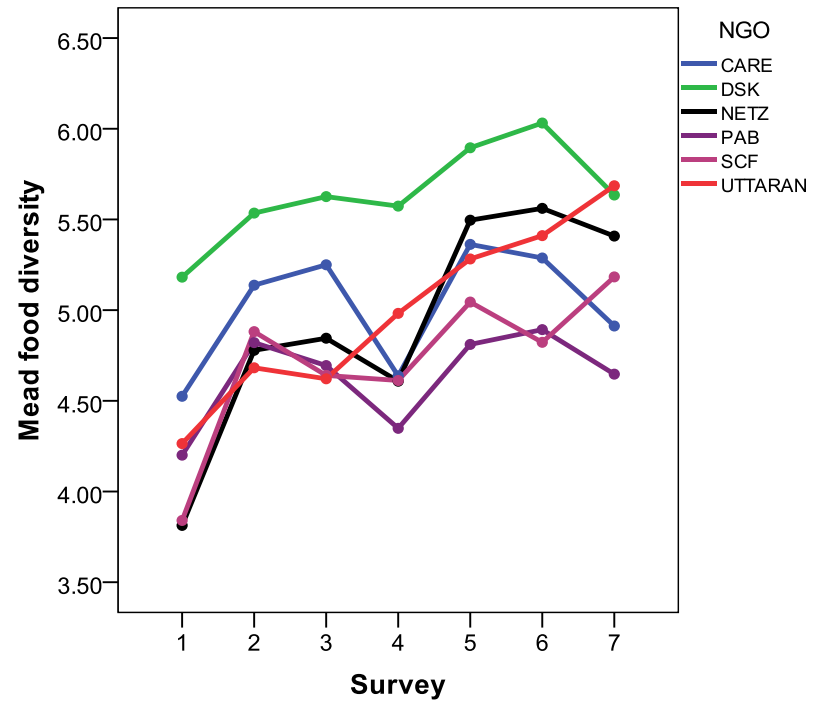




**Figure 45 Mean food diversity by head of household over the seven surveys**



**Figure 46 Mean food diversity by NGO over the seven surveys**



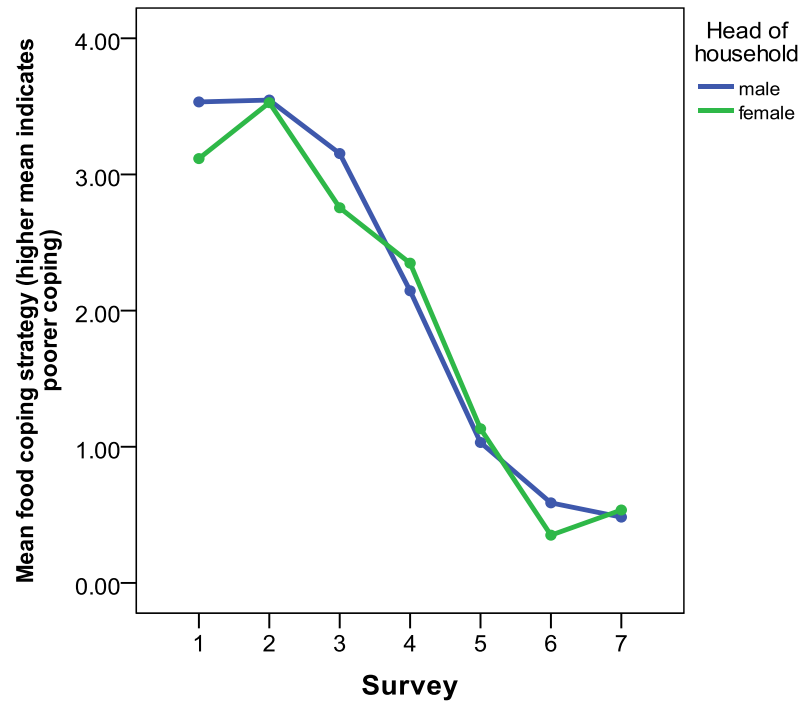
## 5.14 HOUSEHOLD FOOD SECURITY

The households were asked about the coping strategies they used as a result of financial hardship in the seven days prior to the survey with a pre-coded list of 10 food strategies (Table 33). There were significant improvements in all 10 strategies between survey 1 and 7. For example the percentage of households reporting eating smaller portions of food fell between March 2010 and March 2012 from 84.2% to 12.2%; eating less than 3 meals a day (down from 69.3% to 3.0%), eating food of less quality (down from 63.0% to 10.9%). Borrowing money to buy food fell from 19.5% to 2.0% and buying food on credit fell from 29.4% to 5.3%. There was significant improvement (reduction) in food coping strategies with a fall in mean from 3.4 in survey 1 to 0.4 in survey 7. There was no significant difference in mean coping strategies between male and female headed households (Figure 47) but there were significant differences between NGOs and DSK had the best average food coping strategy over the seven surveys (1.1) and PAB the worst (3.1,  $p < 0.001$ , Figure 48).

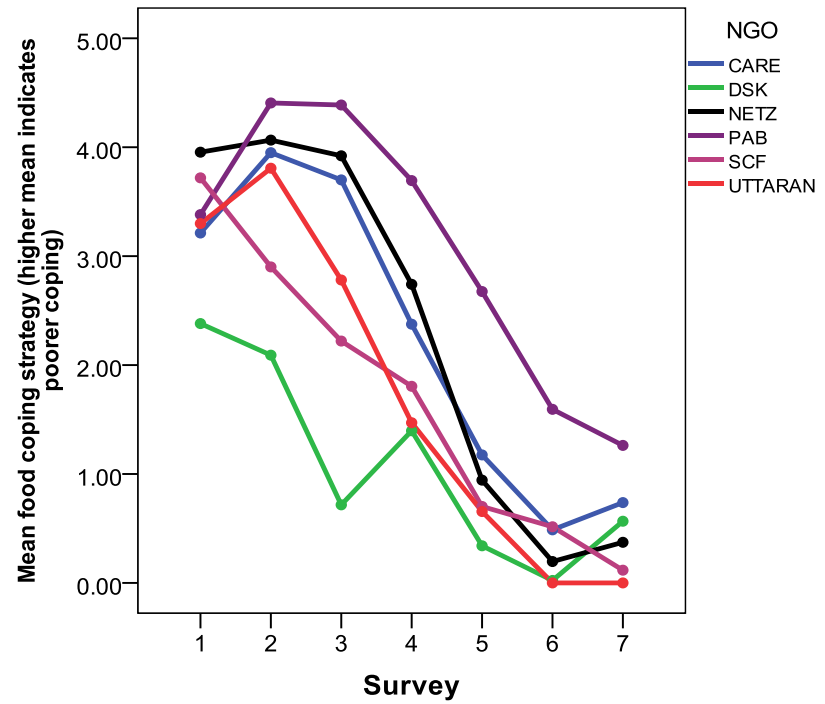
**Table 33 Food coping strategies over the seven surveys**

Food strategy	Survey							P
	1	2	3	4	5	6	7	
Eat smaller portion								<0.001
0 days	15.8	17.9	30.2	46.5	68.0	85.8	87.8	
1 day	8.9	13.6	7.0	8.3	5.3	1.0	1.3	
2 days	27.4	33.6	21.6	19.5	11.2	6.3	5.6	
3+ days	47.9	34.9	41.2	25.7	15.5	6.9	5.3	
Eat < 3 times a day								<0.001
0 days	30.7	26.2	47.5	59.1	76.9	87.1	97.0	
1 day	3.6	4.3	6.0	3.3	4.6	3.0	0.3	
2 days	17.8	16.9	12.6	13.9	5.6	5.3	1.7	
3+ days	47.9	52.5	33.9	23.8	12.9	4.6	1.0	
Eat food of less quality								<0.001
0 days	37.0	49.8	51.5	66.0	83.5	92.7	89.1	
1 day	22.1	20.3	9.3	11.6	3.3	2.0	5.0	
2 days	19.8	18.3	16.6	12.9	7.3	2.6	2.6	
3+ days	21.1	11.6	22.6	9.6	5.9	2.6	3.3	
Eat gathered food								<0.001
0 days	79.5	48.5	58.1	79.9	89.4	96.7	97.0	
1 day	9.6	15.9	12.0	9.9	3.0	0.7	1.0	
2 days	7.9	15.3	14.3	7.6	5.3	1.7	1.0	
3+ days	3.0	20.3	15.6	2.6	2.3	1.0	1.0	
Eat no food in 24 hours adult								<0.001
0 days	93.4	97.7	97.0	98.0	99.7	99.7	99.3	
1 day	5.6	1.7	2.3	2.0	0.3	0	0.3	
2 days	1.0	0.7	0.7	0	0	0.3	0	
3+ days	0	0	0	0	0	0	0.3	
Eat no food in 24 hours child								Ns
0 days	99.7	99.3	99.7	100	100	100	100	
1 day	0.3	0.3	0.3	0	0	0	0	
2 days	0	0.3	0	0	0	0	0	
3+ days	0	0	0	0	0	0	0	
Borrow money to buy food								<0.001
0 days	81.5	80.1	81.7	91.1	96.0	94.7	98.0	
1 day	10.6	10.3	10.0	6.3	2.6	3.0	1.7	
2 days	5.9	8.3	5.0	2.6	1.0	1.0	0.3	
3+ days	2.0	1.3	3.3	0	0.3	1.3	0	
Bought food on credit								<0.001
0 days	70.6	63.8	69.8	78.2	89.1	93.7	94.7	
1 day	10.9	15.0	10.6	9.6	5.6	2.0	2.0	
2 days	11.9	11.6	10.0	8.3	2.6	2.3	2.3	
3+ days	6.6	9.6	9.6	4.0	2.6	2.0	1.0	
Send family member elsewhere for food								<0.001
0 days	82.8	88.4	83.7	87.1	94.4	98.3	98.0	
1 day	4.3	4.3	3.0	1.7	1.3	0.3	0.3	
2 days	5.9	3.3	7.0	5.9	1.3	0.3	1.0	
3+ days	6.9	4.0	6.3	5.3	3.0	1.0	0.7	
Give more food to earning household members								<0.001
0 days	66.3	63.1	63.1	67.3	86.5	92.7	95.4	
1 day	3.0	2.0	0.7	0	0.3	0	1.3	
2 days	6.3	7.3	8.3	2.6	3.0	2.3	1.7	
3+ days	24.4	27.6	27.9	30.0	10.2	5.0	1.7	
Mean food coping	3.4	3.6	3.2	2.3	1.2	0.6	0.4	<0.001

**Figure 47 Mean food coping strategy by head of Household over the seven surveys**



**Figure 48 Mean food coping strategy by NGO over the seven surveys**



## 5.15 SOCIAL EMPOWERMENT

Questions were put separately to the male and female heads of household and to female spouses (Tables 34 and 35). Overall the responses over the three surveys were quite consistent. More women in survey 7 felt there were people who could be relied upon to help and less women in surveys 4 and 7 felt frightened of moving alone outside their village.

**Table 34 Social empowerment (Male replies) over surveys 1, 4 and 7**

	Survey	Agree	Neither	Disagree
Investing in children's education is the best use of my scarce resources	1	97.6	2.4	-
	4	85.7	10.7	3.6
	7	95.2	2.4	2.4
If you earn money or receive a loan, you decide how to use the money	1	73.8	2.4	23.8
	4	79.5	4.8	15.7
	7	66.7	1.2	32.1
You feel confident that you can face whatever the future brings/holds	1	73.8	3.6	22.6
	4	78.6	6.0	15.5
	7	66.7	1.2	17.9
What you say matters in decisions in your household	1	98.8	-	1.2
	4	98.8	-	1.2
	7	97.6	-	2.4
There are people outside your family you can rely on for help	1	54.8	6.0	39.3
	4	57.1	2.4	40.5
	7	57.1	4.8	38.1

**Table 35 Social empowerment (Female replies) over the three surveys**

	Survey	Agree	Neither	Disagree
Investing in children's education is the best use of my scarce resources	1	94.4	3.8	1.9
	4	82.7	12.8	4.5
	7	97.0	0.4	2.6
If you earn money or receive a loan, you decide how to use the money	1	63.9	2.6	33.5
	4	63.5	7.2	29.3
	7	64.9	5.7	29.4
You feel confident that you can face whatever the future brings/holds	1	61.3	9.4	29.3
	4	69.5	10.2	20.3
	7	70.7	7.1	22.2
What you say matters in decisions in your household	1	88.7	1.9	9.4
	4	89.5	3.1	7.4
	7	87.9	4.9	7.2
There are people outside your family you can rely on for help	1	54.9	6.4	38.7
	4	49.2	2.3	48.5
	7	63.2	5.3	31.6
You feel frightened of moving alone outside your village	1	37.6	2.3	60.2
	4	26.3	-	73.7
	7	28.8	2.7	68.6

## 5.16 NUTRITIONAL STATUS

### 5.16.1 Head of Household

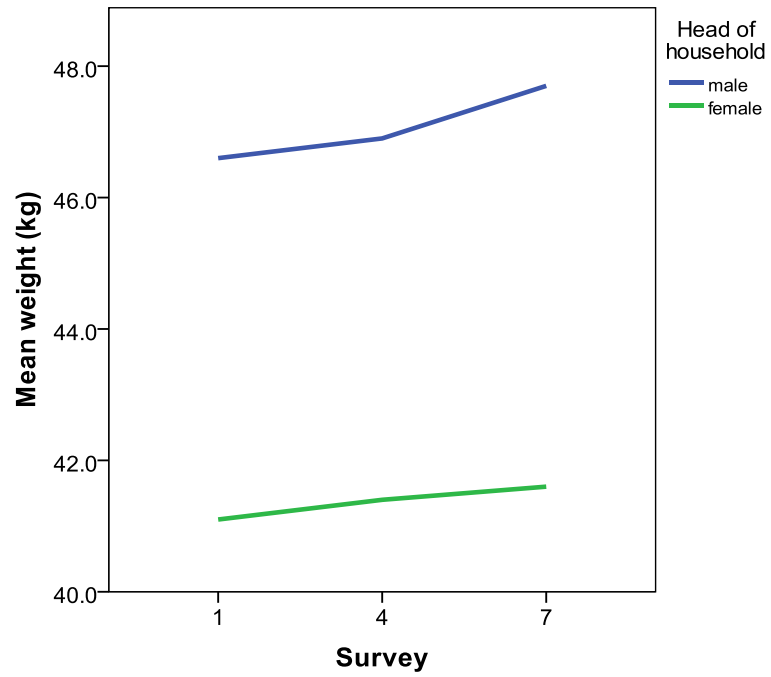
In total 93 male and 114 female heads of household had their weight, height and haemoglobin measured in both March 2010, March 2011 and March 2012. Body Mass Index (BMI, weight (kg)/height (m)<sup>2</sup>) was calculated and adults were placed into one of two categories, either suffering from Chronic Energy Deficiency (BMI <18.5) or normal (BMI ≥ 18.5). Haemoglobin (Hb) level was obtained from a finger prick of blood using a portable haemoglobin analyser (HemoCue, HomoCue Ltd., Sweden). Haemoglobin levels were categorised as severe anaemia <70 (g/l), anaemia 70 - 129.9 in males and 70 - 119.9 in females and normal as ≥130 in males and ≥120 in females.

Repeated measures analysis of variance revealed that the mean weights increased significantly ( $p=0.026$ ) over the three surveys (Table 36, Figure 49) in both male and female adults and the average weight gain between surveys 1 and 7 was 0.7kg. The upward trends were similar in males and females. Mean BMI also increased significantly across the three surveys (Table 36, Figures 50) by 0.4 kgm<sup>-2</sup> and there were concomitant reduction in CED percentages. Mean haemoglobin did not show any significant change over the three surveys but the percentage who were anaemic fell in males but increased slightly in females.

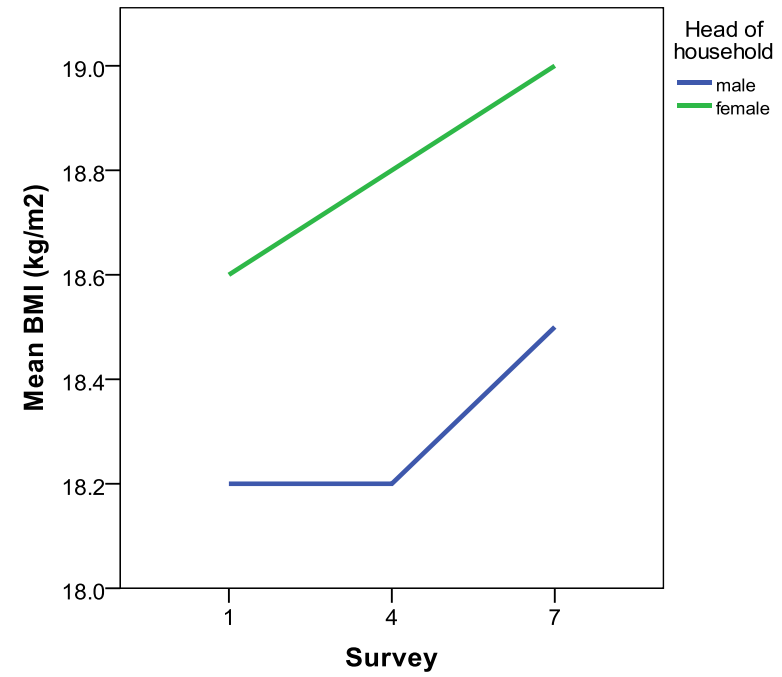
**Table 36 Nutritional status by head of household over the three surveys**

Variable	Male			Female			Total		
	Survey			Survey			Survey		
	1	4	7	1	4	7	1	4	7
Mean values									
Weight	46.6	46.9	47.7	41.1	41.4	41.6	43.6	43.9	44.3
BMI	18.2	18.2	18.5	18.6	18.8	19.0	18.4	18.5	18.8
Haemoglobin	132.3	134.4	133.7	116.5	115.3	116.5	123.6	123.9	124.2
Categories									
BMI <18.5	52.7	49.5	47.3	56.1	54.4	50.9	54.6	52.2	49.3
Anaemic	39.6	33.0	31.9	57.9	58.8	59.6	49.8	47.3	47.3

**Figure 49 Mean weight by head of household over surveys 1, 4 and 7**



**Figure 50 Mean BMI by head of household over surveys 1, 4 and 7**



A combined CED/anaemia index was generated in which individuals were placed into one of four categories (Table 37) of both CED and anaemic, CED only, anaemic only and normal. There were no significant changes between surveys although in the total sample the percentage with CED and anaemia fell by nearly 5%.

**Table 37 Relationship between CED and anaemia categories (%) over surveys 1, 4 and 7**

Head	Survey	CED and anaemic	CED only	Anaemic only	Normal
Male	1	25.3	27.5	14.3	33.0
	4	16.5	33.0	16.5	34.1
	7	20.9	26.4	11.0	41.8
Female	1	37.7	18.4	20.2	23.7
	4	36.0	18.4	22.8	22.8
	7	32.5	18.4	27.2	21.9
Total	1	32.2	22.4	17.6	27.8
	4	27.3	24.9	20.0	27.8
	7	27.3	22.0	20.0	30.7

#### 5.16.2 Under 5 year old children

Information on nutritional status was available on the same 75 children in the three surveys (Table 38). There was no significant change in mean height-for-age and weight-for-age across the three surveys, but there was a highly significant improvement in haemoglobin concentration with an increase in mean of over 8 g/l. The percentage of children who were stunted fell significantly between surveys 1 and 7 while the percentage of children who were underweight increased; the prevalence of wasting reduced between surveys 1 and 4 but increased back to baseline level in survey 7. The prevalence of childhood anaemia fell significantly over the three surveys.

**Table 38 Change in nutritional status over surveys 1, 4 and 7**

Mean	Survey			Prevalence	Survey		
	1	4	7		1	4	7
Height-for-age	-1.94	-2.02	-1.81	Stunting	52.0	49.3	42.7
Weight-for-age	-1.89	-1.95	-1.90	Underweight	44.6	49.3	50.7
Weight-for-height	-0.88	-0.96	-1.14	Wasted	20.5	13.3	20.5
Haemoglobin	106.4	111.1	114.7	Anaemic	60.8	45.3	36.0





**shiree**

House 5, Road 10, Baridhara

Dhaka 1212, Bangladesh

Phone: 88 02 8822758, 88 02 9892425

E-mail: [info@shiree.org](mailto:info@shiree.org)

[www.shiree.org](http://www.shiree.org)