

IMPACT EVALUATION OF THE DFID PROGRAMME TO ACCELERATE IMPROVED NUTRITION FOR THE EXTREME POOR IN BANGLADESH

BASELINE REPORT

MQSUN REPORT

June 2015

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ABOUT MQSUN

MQSUN aims to provide the Department for International Development (DFID) with technical services to improve the quality of nutrition-specific and nutrition-sensitive programmes. The project is resourced by a consortium of six leading non-state organisations working on nutrition. The consortium is led by PATH.

The group is committed to:

- Expanding the evidence base on the causes of undernutrition
- Enhancing skills and capacity to support scaling up of nutrition-specific and nutrition-sensitive programmes
- Providing the best guidance available to support programme design, implementation, monitoring and evaluation
- Increasing innovation in nutrition programmes
- Knowledge-sharing to ensure lessons are learnt across DFID and beyond.

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The logo for MQSUN, consisting of the letters 'MQSUN' in a bold, white, sans-serif font, set against a dark blue rectangular background.

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PREFACE

This report introduces the mixed methods impact evaluation of the DFID Programme to Accelerate Improved Nutrition for the Extreme Poor in Bangladesh, describes the relevant interventions and evaluation design, and presents selected findings from the quantitative baseline survey. The quantitative baseline data collection occurred during September-November 2013, and the endline data collection will occur during September-November 2015. Both baseline and endline quantitative data will be used to estimate impacts of the livelihoods and nutrition intervention components of the Chars Livelihoods Programme (CLP), the Concern subproject within the Shiree Economic Empowerment of the Poorest Programme (Shiree/Concern), and the Urban Partnership for Poverty Reduction Programme (UPPR). The impact evaluation will be composed of the estimates from this quantitative impact component, along with analyses drawn from an exploratory/explanatory component (a qualitative subcomponent, where fieldwork has been ongoing since February 2014 as well as a process evaluation (started in July 2014) and a cost effectiveness component (started August 2014). Given these timelines, this baseline report primarily describes the quantitative component and qualitative subcomponent, and focuses on analysing the quantitative baseline data (for which the fieldwork is already completed).

CONTENTS

About MQSUN.....	2
Preface	4
Acknowledgments.....	17
List of Abbreviations	18
Executive Summary.....	19
1 Introduction	32
1.1 Overview of the baseline report	32
1.1.1 Background of the evaluation	32
1.1.2 Aims of the baseline report	34
1.2 Quantitative impact component	35
1.2.1 Evaluation design.....	35
1.2.2 Sample design	41
1.2.3 Overview of baseline survey	43
1.2.4 Analysis of baseline data.....	45
1.3 Exploratory/explanatory component.....	46
1.3.1 Evaluation design.....	47
1.3.2 Qualitative methodology	47
1.3.3 Literature review on determinants of undernutrition in Bangladesh.....	52
1.4 Mixed method approach.....	52
2 CLP Programme.....	54
2.1 Background.....	54
2.1.1 Description of programme features.....	54
2.1.2 Sample selection	56
2.2 Household demographic and socioeconomic characteristics	57
2.2.1 Household composition and demographic outcomes.....	58
2.2.2 Educational attainment.....	59
2.2.3 Occupational status	60
2.2.4 Dwelling conditions and access to basic amenities.....	62
2.2.5 Exposure to economic shocks, remittances, and transfers	63
2.2.6 Summary	65
2.3 Livelihoods and participation in social programmes	67
2.3.1 CLP programme benefits received by beneficiary households.....	67
2.3.2 Other social programme benefits received by sample households.....	73

2.3.3 Summary	74
2.4 Assets	75
2.4.1 Physical assets	75
2.4.2 Financial assets	78
2.4.3 Summary	79
2.5 Food consumption.....	80
2.5.1 Dietary diversity at the household level.....	82
2.5.2 Dietary diversity among young children.....	83
2.5.3 Dietary diversity among mothers of young children.....	84
2.5.4 Dietary diversity among fathers of young children.....	86
2.5.5 Dietary diversity among adolescent girls	87
2.5.6 Summary	88
2.6 Anthropometry	88
2.6.1 Children’s height-for-age	89
2.6.2 Children’s weight-for-age	91
2.6.3 Children’s weight-for-height.....	92
2.6.4 Women’s body mass index	94
2.6.5 Summary	95
2.7 Women’s autonomy	96
2.7.1 Women’s earning and spending decisions	97
2.7.2 Reproductive decisions	101
2.7.3 Domestic violence.....	102
2.7.4 Women’s financial literacy	104
2.7.5 Women’s financial preferences.....	105
2.7.6 Women’s control and agency.....	105
2.7.7 Summary	108
2.8 Nutrition practices and services	110
2.8.1 Access and use of antenatal care	110
2.8.2 Sources of information on good nutrition practices	113
2.8.3 What have mothers and adolescents heard about infant and young child feeding	115
2.8.4 Summary	117
3 Shiree/Concern Programme	119
3.1 Background	119
3.1.1 Description of programme features.....	119

3.1.2 Sample selection	121
3.2 Household demographic and socioeconomic characteristics	122
3.2.1 Household composition and demographic outcomes.....	122
3.2.2 Educational attainment.....	123
3.2.3 Occupational status	125
3.2.4 Dwelling conditions and access to basic amenities.....	126
3.2.5 Exposure to economic shocks, remittances, and transfers	127
3.2.6 Summary	129
3.3 Livelihoods and participation in social programmes	130
3.3.1 Shiree/Concern programme benefits received by beneficiary households	131
3.3.2 Other social programme benefits received by sample households.....	134
3.3.3 Summary	135
3.4 Assets	137
3.4.1 Physical assets.....	137
3.4.2 Financial assets	140
3.4.3 Summary	141
3.5 Food consumption.....	142
3.5.1 Dietary diversity at the household level.....	144
3.5.2 Dietary diversity among young children.....	145
3.5.3 Dietary diversity among mothers of young children.....	147
3.5.4 Dietary diversity among fathers of young children.....	148
3.5.5 Dietary diversity among adolescent girls	149
3.5.6 Summary	150
3.6 Anthropometry	151
3.6.1 Children’s height-for-age	151
3.6.2 Children’s weight-for-age	153
3.6.3 Children’s weight-for-height.....	155
3.6.4 Women’s body mass index	157
3.6.5 Summary	158
3.7 Women’s autonomy	160
3.7.1 Women’s earning and spending decisions	160
3.7.2 Reproductive decisions	165
3.7.3 Domestic violence.....	166
3.7.4 Women’s financial literacy	168
3.7.5 Women’s financial preferences.....	169

3.7.6 Women’s control and agency.....	170
3.7.7 Summary.....	172
3.8 Nutrition practices and services.....	174
3.8.1 Access and use of antenatal care.....	174
3.8.2 Sources of information on good nutrition practices.....	177
3.8.3 What have mothers and adolescents heard about infant and young child feeding.....	179
3.8.4 Summary.....	182
4 UPPR Programme.....	183
4.1 Background.....	183
4.1.1 Description of programme features.....	183
4.1.2 Sample selection.....	185
4.2 Household demographic and socioeconomic characteristics.....	185
4.2.1 Household composition.....	186
4.2.2 Educational attainment.....	187
4.2.3 Occupational status.....	188
4.2.4 Dwelling conditions and access to basic amenities.....	190
4.2.5 Exposure to economic shocks, remittances, and transfers.....	191
4.2.6 Summary.....	192
4.3 Livelihoods and participation in social programmes.....	194
4.3.1 UPPR programme benefits received by beneficiary households.....	194
4.3.2 Other social programme benefits received by sample households.....	197
4.3.3 Summary.....	198
4.4 Assets.....	199
4.4.1 Physical assets.....	199
4.4.2 Financial assets.....	201
4.4.3 Summary.....	202
4.5 Food consumption.....	204
4.5.1 Dietary diversity at the household level.....	205
4.5.2 Dietary diversity among young children.....	207
4.5.3 Dietary diversity among mothers of young children.....	208
4.5.4 Dietary diversity among fathers of young children.....	209
4.5.5 Dietary diversity among adolescent girls.....	210
4.5.6 Summary.....	211
4.6 Anthropometry.....	212

4.6.1 Children’s height-for-age	212
4.6.2 Children’s weight-for-age	214
4.6.3 Children’s weight-for-height.....	216
4.6.4 Women’s body mass inde	218
4.6.5 Summary	219
4.7 Women’s autonomy	221
4.7.1 Women’s earning and spending decisions	221
4.7.2 Reproductive decisions	225
4.7.3 Domestic violence.....	226
4.7.4 Women’s financial literacy	228
4.7.5 Women’s	229
4.7.6 Women control and agency.....	229
4.7.7 Summary	232
4.8 Nutrition practices and services	234
4.8.1 Access and use of antenatal care	234
4.8.2 Sources of information on good nutrition practices	237
4.8.3 What have mothers and adolescents heard about infant and young child feeding.....	239
4.8.4 Summary	241
5 Summary of quantitative baseline findings	242
5.1 Summary of findings regarding the evaluation design.....	242
5.1.1 Baseline balance between the beneficiary groups.....	242
5.1.2 Baseline comparability of the control groups	244
5.2 Summary of findings regarding beneficiary characteristics.....	246
References	249

TABLES

1.1. Tool matrix for qualitative data collection.....	51
2.1. Baseline sample—CLP	57
2.2. Baseline means of household composition and demographic outcomes, by intervention arm—CLP	59
2.3. Baseline means of indicators of educational attainment, by intervention arm—CLP	60
2.4. Baseline shares of household head and index child’s mother/caregiver in different occupations by intervention arm—CLP.....	62
2.5. Baseline means of dwelling structure and access to amenities of households, by intervention arm—CLP	63
2.6. Baseline means of household receipt of remittances/transfers and exposure to economic shocks, by intervention arm—CLP	64
2.7. Baseline means of access to services by intervention arm—CLP	67
2.8. Baseline means of monetary value of livelihood maintenance stipend and frequency, timing and duration of access to livelihood maintenance stipend, by intervention arm—CLP.....	68
2.9. Baseline means of monetary value of asset maintenance cost stipend and frequency, timing and duration of access to asset maintenance cost stipend, by intervention arm—CLP.....	68
2.10. Baseline means of monetary value of agricultural training and frequency, timing and duration of access to agricultural training, by intervention arm—CLP.....	69
2.11. Baseline means of monetary value of non-agricultural training and frequency timing and duration of access to non-agricultural training, by intervention arm—CLP	69
2.12. Baseline means of monetary value of financial training and frequency timing and duration of access to financial training, by intervention arm—CLP.....	70
2.13. Baseline means of monetary value of financial training and frequency timing and duration of access to health and nutrition training, by intervention arm—CLP.....	70
2.14. Baseline means of assets transfer, by intervention arm—CLP	70
2.15. Baseline means of number of assets received, by intervention arm—CLP	71
2.16. Baseline means of monetary value of assets received, by intervention arm—CLP	71
2.17. Baseline means of current ownership of assets received, by intervention arm—CLP	72
2.18. Baseline means of other supports received, by intervention arm—CLP.....	72
2.19. Baseline means of access to other safety net schemes, by intervention arm—CLP	73
2.20. Baseline means of quantity of consumer durables currently owned by the household, by intervention arm—CLP	76
2.21. Baseline means of quantity of productive assets currently owned by the household, by intervention arm—CLP	77

2.22. Baseline means of quantity of livestock assets currently owned by the household, by intervention arm—CLP	77
2.23. Baseline means of financial assets outcomes, by intervention arm—CLP	78
2.24. Baseline means of dietary diversity outcomes over the past 7 days for households, by intervention arm—CLP	82
2.25. Baseline means of dietary diversity outcomes the previous day for Index Child aged 6-24 months, by intervention arm—CLP	84
2.26. Baseline means of dietary diversity outcomes the previous day for mothers of Index Children, by intervention arm—CLP	85
2.27. Baseline means of dietary diversity outcomes the previous day for fathers of Index Children, by intervention arm—CLP	86
2.28. Baseline means of dietary diversity outcomes the previous day for adolescent girls (oldest aged 11-19 years), by intervention arm—CLP	87
2.29. Baseline means of height-for-age outcomes for children aged 0-5 years, by intervention arm—CLP	90
2.30. Baseline means of weight-for-age outcomes for children aged 0-5 years, by intervention arm—CLP	92
2.31. Baseline means of weight-for-height outcomes for children aged 0-5 years, by intervention arm—CLP	93
2.32. Baseline means of weight-for-height outcomes for children aged 0-5 years, by intervention arm—CLP	95
2.33. Baseline means of work experience outcomes for working women—CLP	98
2.34. Baseline means of work experience outcomes for non-working women outcomes, by intervention arm—CLP	99
2.35. Baseline means of spending decision outcomes, by intervention.....	100
2.36. Baseline means of access to NGO loans outcomes, by intervention arm—CLP	101
2.37. Baseline means of reproductive decisions outcomes, by intervention arm—CLP	102
2.38. Baseline means of domestic violence outcomes, by intervention arm—CLP	103
2.39. Baseline means of financial literacy outcomes, by intervention arm—CLP	105
2.40. Baseline means of financial preferences outcomes, by intervention arm—CLP	105
2.41. Baseline means of women's control and agency outcomes, by intervention arm—CLP	107
2.42. Baseline means of women's control and agency outcomes, by intervention arm—CLP	108
2.43. Baseline means of antenatal visits, by intervention arm—CLP	111
2.44. Baseline means of ANC advice and actions, by intervention arm—CLP	111
2.45. Baseline means of iron supplement outcomes, by intervention arm—CLP	112
2.46. Baseline means of Tetanus Toxoid vaccines and access to vitamin A at birth, by intervention arm—CLP	112

2.47. Baseline means of assistance at birth, by intervention arm—CLP	113
2.48. Baseline means of birth weight outcomes, by intervention arm—CLP	113
2.49. Baseline means of sources of information about IYCF, by intervention arm—CLP.....	114
2.50. Baseline means of advice given during home visits, by intervention arm—CLP	115
2.51. Baseline means of knowledge and action on breastfeeding and IYCF, by intervention arm—CLP	116
2.52. Baseline means of mothers' knowledge about feeding practices, by intervention arm—CLP.....	117
2.53. Baseline means of adolescents' knowledge about feeding practices, by intervention arm—CLP	117
3.1. Baseline sample—Shiree.....	122
3.2. Baseline means of household composition and demographic outcomes, by intervention arm—Shiree	123
3.3. Baseline means of educational attainment indicators, by intervention arm—Shiree	124
3.4. Baseline means of household head and index child's mother/caregiver in different occupations, by intervention arm—Shiree	126
3.5. Baseline means of dwelling structure and access to basic amenities of households, by intervention arm—Shiree	127
3.6. Baseline means of household receipt of remittances/transfers and exposure to economic shocks, by intervention arm—Shiree.....	128
3.7. Baseline means of access to services by intervention arm—Shiree.....	131
3.8. Baseline means of monetary value of financial training and frequency timing and duration of access to financial training, by intervention arm—Shiree	131
3.9. Baseline means of assets transfer, by intervention arm—Shiree.....	132
3.10. Baseline means of number of assets received, by intervention arm—Shiree.....	133
3.11. Baseline means of monetary value of assets received, by intervention arm—Shiree	133
3.12. Baseline means of current ownership of assets received, by intervention arm—Shiree.....	134
3.13. Baseline means of other supports received, by intervention arm—Shiree	134
3.14. Baseline means of access to other safety net schemes, by intervention arm—Shiree.....	135
3.15. Baseline means of quantity of consumer durables currently owned by the household, by intervention arm—Shiree	137
3.16. Baseline means of quantity of productive assets currently owned by the household, by intervention arm—Shiree	138
3.17. Baseline means of quantity of livestock assets currently owned by the household, by intervention arm—Shiree	140

3.18. Baseline means of positive responses to questions concerning ownership of financial assets, by intervention arm—Shiree.....	141
3.19. Baseline means of dietary diversity outcomes over the past 7 days for households, by intervention arm—Shiree	145
3.20. Baseline means of Dietary Diversity outcomes the previous day for Index Child aged 6-24 months, by intervention arm—Shiree	146
3.21. Baseline means of dietary diversity outcomes the previous day for mothers of Index Children, by intervention arm—Shiree.....	148
3.22. Baseline means of dietary diversity outcomes the previous day for fathers of Index Children, by intervention arm—Shiree.....	149
3.23. Baseline means of dietary diversity outcomes the previous day for adolescent girls (oldest aged 11-19 years), by intervention arm—Shiree	150
3.24. Baseline means of height-for-age outcomes for children aged 0-5 years, by intervention arm—Shiree	153
3.25. Baseline means of weight-for-age outcomes for children aged 0-5 years, by intervention arm—Shiree	155
3.26. Baseline means of weight-for-height outcomes for children aged 0-5 years, by intervention arm—Shiree	156
3.27. Baseline means of body mass index of mothers of index children, by intervention arm—Shiree	158
3.28. Baseline means of work experience outcomes for working women, by intervention arm—Shiree	160
3.29. Baseline means of work experience outcomes for non-working women outcomes, by intervention arm—Shiree	162
3.30. Baseline means of spending decision outcomes, by intervention arm—Shiree	164
3.31. Baseline means of NGO loans outcomes, by intervention arm—Shiree	165
3.32. Baseline means of reproductive decisions outcomes, by intervention arm—Shiree.....	166
3.33. Baseline means of domestic violence outcomes, by intervention arm—Shiree	167
3.34. Baseline means of financial literacy outcomes, by intervention arm—Shiree.....	169
3.35. Baseline means of financial preferences outcomes, by intervention arm—Shiree	169
3.36a. Baseline means of women's control and agency outcomes, by intervention arm—Shiree	171
3.36b. Baseline means of women's control and agency outcomes, by intervention arm—Shiree.....	172
3.37. Baseline means of antenatal visits, by intervention arm—Shiree.....	175
3.38. Baseline means of ANC advice and actions, by intervention arm—Shiree	175
3.39. Baseline means of iron supplement outcomes, by intervention arm—Shiree.....	176
3.40. Baseline means of Tetanus Toxoid vaccines and access of vitamin A at birth, by intervention arm—Shiree	176

3.41. Baseline means of assistance at birth, by intervention arm—Shiree	177
3.42. Baseline means of birth weight outcomes, by intervention arm—Shiree.....	177
3.43. Baseline means of sources of information about IYCF, by intervention arm—Shiree	178
3.44. Baseline means of advice given during home visits, by intervention arm—Shiree.....	179
3.45. Baseline means of knowledge and action on breastfeeding and IYCF, by intervention arm—Shiree	180
3.46. Baseline means of mothers' knowledge about feeding practices, by intervention arm—Shiree	181
3.47. Baseline means of adolescents' knowledge about feeding practices, by intervention arm—Shiree	181
4.1. Baseline sample—UPPR.....	185
4.2. Baseline means of household composition and demographic outcomes, by intervention arm—UPPR	186
4.3. Baseline means of educational attainment indicators, by intervention arm—UPPR.....	188
4.4. Baseline shares of household head and index child's mother/caregiver in different occupations, by intervention arm—UPPR.....	189
4.5. Baseline means of dwelling structure and access to basic amenities of households, by intervention arm—UPPR	190
4.6. Baseline means of household receipt of remittances/transfers and exposure to economic shocks, by intervention arm—UPPR	192
4.7. Baseline means of access to services, by intervention arm—UPPR	194
4.8. Baseline means of monetary value of financial training and frequency timing and duration of access to financial training, by intervention arm—UPPR.....	195
4.9. Baseline means of assets transfer, by intervention arm—UPPR.....	195
4.10. Baseline means of number of assets received, by intervention arm—UPPR.....	195
4.11. Baseline means of monetary value of assets received, by intervention arm—UPPR	196
4.12. Baseline means of current ownership of assets received, by intervention arm—UPPR.....	196
4.13. Baseline means of other supports received, by intervention arm—UPPR.....	196
4.14. Baseline means of access to other safety net schemes, by intervention arm—UPPR	197
4.15. Baseline means of quantity of consumer durables currently owned by the household, by intervention arm—UPPR	200
4.16. Baseline means of quantity of productive assets currently owned by the household, by intervention arm—UPPR	201
4.17. Baseline means of quantity of livestock assets currently owned by the household, by intervention arm—UPPR	201

4.18. Baseline means of financial assets outcomes, by intervention arm—UPPR	202
4.19. Baseline means of dietary diversity outcomes over the past 7 days for households, by intervention arm—UPPR	206
4.20. Baseline means of dietary diversity outcomes the previous day for Index Child aged 6-24 months, by intervention arm—UPPR	207
4.21. Baseline means of dietary diversity outcomes the previous day for mothers of Index Children, by intervention arm—UPPR	209
4.22. Baseline means of dietary diversity outcomes the previous day for fathers of Index Children, by intervention arm—UPPR	210
4.23. Baseline means of dietary diversity outcomes the previous day for adolescent girls (oldest aged 11-19 years). by intervention arm—UPPR	211
4.24. Baseline means of height-for-age outcomes for children aged 0-5 years, by intervention arm—UPPR	214
4.25. Baseline means of weight-for-age outcomes for children aged 0-5 years, by intervention arm—UPPR	216
4.26. Baseline means of weight-for-height outcomes for children aged 0-5 years, by intervention arm—UPPR	217
4.27. Baseline means of anthropometry of mother of index child, by intervention arm—UPPR	219
4.28. Baseline means of work experience outcomes for working women, by intervention arm—UPPR	222
4.29. Baseline means of work experience outcomes for non-working women outcomes, by intervention arm—UPPR	223
4.30. Baseline means of spending decision outcomes, by intervention arm—UPPR.....	224
4.31. Baseline means of access to NGO loans outcomes, by intervention arm—UPPR.....	225
4.32. Baseline means of reproductive decisions outcomes, by intervention arm—UPPR.....	226
4.33. Baseline means of domestic violence outcomes, by intervention arm—UPPR	227
4.34. Baseline means of financial literacy outcomes, by intervention arm—UPPR.....	229
4.35. Baseline means of financial preferences outcomes, by intervention arm—UPPR.....	229
4.36. Baseline means of women's control and agency outcomes, by intervention arm—UPPR	231
4.37. Baseline means of women's control and agency outcomes, by intervention arm—UPPR	232
4.38. Baseline means of antenatal visits, by intervention arm—UPPR	235
4.39. Baseline means of ANC advice and actions, by intervention arm—UPPR.....	235
4.40. Baseline means of iron supplement outcomes, by intervention arm—UPPR.....	236
4.41. Baseline means of Tetanus Toxoid vaccines and access to vitamin A at birth, by intervention arm—UPPR	236
4.42. Baseline means of assistance at birth, by intervention arm—UPPR	237
4.43. Baseline means of birth weight outcomes, by intervention arm—UPPR.....	237

4.44. Baseline means of sources of information about IYCF, by intervention arm—UPPR.....	238
4.45. Baseline means of advice given during home visits, by intervention arm—UPPR	238
4.46. Baseline means of knowledge and action on breastfeeding and IYCF, by intervention arm—UPPR	239
4.47. Baseline means of mothers' knowledge about feeding practices, by intervention arm—UPPR.....	240
4.48. Baseline means of adolescents' knowledge about feeding practices, by intervention arm—UPPR.....	240
5.1. Baseline means of anthropometric indicators and selected household characteristics among beneficiaries, by programme.....	247

FIGURES

1.1 Schematic of different paths of outcomes, according to interventions received	36
1.2 Schematic of impacts of interventions	37
2.1. Baseline distribution of height-for-age Z-scores, for children age 0-5 years—CLP	90
2.2. Baseline distribution of weight-for-age Z-scores, for children age 0-5 years—CLP	91
2.3. Baseline distribution of weight-for-height Z-scores, for children age 0-5 years—CLP	93
2.4. Baseline distribution of body mass index, for mothers of index children—CLP.....	94
3.1. Baseline distribution of height-for-age Z-scores, for children age 0-5 years—Shiree.....	153
3.2. Baseline distribution of weight for age Z-scores, for children age 0-5 years—Shiree.....	154
3.3. Baseline distribution of weight-for-height Z-scores, for children age 0-5 years—Shiree	156
4.1. Baseline distribution of height-for-age Z-scores, for children age 0-5 years—UPPR	214
4.2. Baseline distribution of weight-for-age Z-scores, for children age 0-5 years—UPPR	215
4.3. Baseline distribution of weight-for-height Z-scores, for children age 0-5 years—UPPR.....	217
4.4. Baseline distribution of body mass index, for mothers of index children—UPPR.....	219

BOX

1.1. Selection of the qualitative community cluster sites.....	48
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LIST OF ABBREVIATIONS

ANCOVA	Analysis of covariance
ATP	Asset Transfer Programme
BF	breastfeeding
BIGD	BRAC Institute of Governance and Development
BMI	Body Mass Index
BRAC	Building Resources Across Community
CDCs	Community Development Committees
CLP	Chars Livelihoods Programme
CMS	change monitoring system
CRNS	Center for Natural Resource Studies
DATA	Data Analysis and Technical Assistance Limited
DFID	Department for International Development
EEP	Economic Empowerment of the Poorest
HAZ	height-for-age Z-score
IDS	Institute for Development Studies
IFA	iron and folic acid
IFPRI	International Food Policy Research Institute
INFE	International Network on Financial Education
IYCF	Infant and Young Child Feeding
MA	Management Agency
NGO	nongovernmental organisation
OTTR	observe, think, test, revise
PSU	primary sampling unit
SEF	Socioeconomic Fund
SIF	Settlement Improvement Fund
SLM	Settlement and Land Mapping
UNICEF	United Nations Children's Fund
UPPR	Urban Partnership for Poverty Reduction
VGF	vulnerable group feeding
WHO	World Health Organisation
WAZ	weight-for-age Z-score
WHZ	weight-for-height Z-score

EXECUTIVE SUMMARY

Introduction

The DFID Programme to Accelerate Improved Nutrition for the Extreme Poor in Bangladesh aims to improve nutrition outcomes for young children, pregnant and lactating mothers, and adolescent girls. Its approach is to integrate direct nutrition interventions into the livelihood support currently provided to extremely poor households in Bangladesh through three existing programmes: the Chars Livelihoods Programme (CLP), the Shiree Economic Empowerment of the Poorest Programme (Shiree or EEP, within which we focus on the Concern subproject), and the Urban Partnership for Poverty Reduction Programme (UPPR).

In order to rigorously and independently assess the impacts of these integrated nutrition and livelihoods programmes, DFID has collaborated with research partners and implementation partners to undertake a mixed methods impact evaluation, entitled “Impact Evaluation of the DFID Programme to Accelerate Improved Nutrition for the Extreme Poor in Bangladesh.” The evaluation team includes IDS (the lead organisation), IFPRI, ITAD, CNRS, and BRAC University. The evaluation uses mixed quantitative and qualitative methods within a strong theory-based design to assess the impacts of the integrated programmes on nutritional status.

As discussed in Section 1.1, the evaluation specifically addresses the following three objectives:

1. To estimate the quantitative impact of the combined direct nutrition and livelihoods interventions in three different DFID programmes on nutritional status of children under two; and to compare this with the impact of the existing livelihoods interventions;
2. To explain this impact, drawing on qualitative and quantitative evidence regarding programme-specific and wider societal/contextual factors that could affect programme outcomes; and
3. To assess the cost effectiveness (benefit received for cost incurred) of integrating direct nutrition components into the livelihoods interventions of the three existing programmes.

The quantitative impact component involves a baseline survey (conducted in September-November 2013) and an endline survey (to be conducted in September-November 2015). The exploratory/explanatory component includes a qualitative subcomponent (for which the first phase of fieldwork has been ongoing since February 2014), as well as a process evaluation subcomponent (ongoing since July 2014, final results not yet available). The cost effectiveness component began in August 2014 and will be completed in early 2016 following the quantitative endline survey completion. Given these timelines, this baseline report will describe the quantitative component and qualitative subcomponent of the exploratory/explanatory component, and will focus on presenting and analysing the quantitative baseline data (the fieldwork that is already completed).

The primary users of the evaluation are DFID, its programme implementing partners at all levels, and the Government of Bangladesh. DFID also expects the findings to be published and disseminated more widely to benefit other stakeholders in the Bangladesh nutrition and development community, as well as global policy makers, practitioners, and researchers concerned with nutrition programming.



Overview of quantitative component

The quantitative component aims to provide numerical estimates of the programmes' causal impacts on beneficiaries' nutrition outcomes. IFPRI and IDS lead this component, with in-country support from survey firm DATA on conducting the baseline and endline surveys.

The evaluation design of the quantitative component derives from the notion of 'impact.' In a quantitative evaluation, 'impact' refers to the difference in beneficiary households' observed outcomes after receiving a set of interventions, relative to those same households' counterfactual outcomes in the same time period had they not received the interventions. The three key research questions regarding programme impact that will be addressed are:

1. What is the impact on nutrition outcomes of receiving a combination of livelihoods and direct nutrition interventions (denoting this scenario (L+N)), relative to receiving a livelihoods intervention only (denoting this scenario (L))?
2. What is the impact on nutrition outcomes of receiving a combination of livelihoods and direct nutrition interventions (L+N), relative to receiving no intervention (denoting this scenario (C) for control)?
3. What is the impact on nutrition outcomes of receiving a livelihoods intervention only (L), relative to receiving no intervention (C)?

As detailed in Section 1.2.1, in order to construct a proxy for the (L+N) households in the counterfactual (L) scenario, randomisation is used. Among the households that already receive the livelihoods intervention at baseline, half are randomly assigned to additionally receive the nutrition intervention after the baseline (denoted the (L+N) group). The remaining half continue to receive only the livelihoods intervention (denoting the (L) group). Randomisation is conducted at the level of primary sampling units (PSUs) that cover an entire locality, rather than at the level of individual households. The randomisation makes it very likely that characteristics of the (L) and (L+N) groups will on average be similar at baseline. (L) is then a valid proxy for (L+N), and average differences between the groups at endline can be interpreted as impacts caused only by the addition of the nutrition component rather than pre-existing differences.

In order to construct a proxy for the (L+N) households in the counterfactual (C) scenario of no intervention, non-randomised approaches are used. Since none of the original livelihoods interventions was rolled out following a randomised control trial design, there is no obvious set of comparable non-beneficiaries to serve as the counterfactual. Because a control group is nonetheless required to assess the absolute benefits of either (L) or (L + N) interventions, attempts were made to construct the best possible control group out of non-randomly selected non-beneficiaries. It is important to emphasise that a non-random control group is not expected to be on average identical to beneficiary households. In the baseline survey, the objective was simply to sample a group of non-beneficiaries as similar as possible to the beneficiaries except for receipt of the intervention.

The main body of this baseline report focuses on analysing average differences between beneficiary groups and the control group as a diagnostic. Following completion of the main baseline report but prior to the endline survey, additional econometric analysis using propensity score matching was conducted to explore potential for finding subsets of control households that were very similar pre-programme to the beneficiary households and could potentially be used to estimate absolute programme impact. This exploratory analysis for each programme is summarized in Appendix G.

As described in Section 1.2.1.2, impacts will be estimated using both baseline and endline data following the completion of the endline survey. The estimation will use the ‘double-difference’ approach and/or the Analysis of Covariance (ANCOVA) specification. It is worth emphasising that the estimated impacts will be based on the specific programme contexts in this study. In particular, as in all evaluations, the findings will be shaped by the study environment, and although the design will aim to ensure internal validity, it cannot guarantee external validity such that results will necessarily generalise to very different contexts. Nonetheless, attempts will be made to draw broader lessons from the findings by comparing patterns across the three distinct programme settings and triangulating using the exploratory/explanatory analysis.

The quantitative sample design is described in Sections 1.2.2. The sample is designed around the ability to detect impacts in key outcomes of interest – in particular, 0.25 standard deviation changes in height-for-age Z-scores (HAZ scores) of children aged 0-24 months. Sample size calculations indicate that a minimum of 70 localities must be sampled for each intervention arm ((L+N), (L), (C)) for each programme (CLP, Shiree/Concern, UPPR), with about 18 children aged 0-24 months sampled per locality. Therefore the design implies 1,260 children per intervention arm per programme, for an overall total of 11,340 children aged 0-24 months.

As described in Section 1.2.3, the quantitative baseline survey was fielded from September-November 2013. Because all three intervention arms were interviewed at the same time of year, seasonal factors are not expected to bias comparisons across the ((L+N), (L), and (C) groups within a programme. The endline survey, designed as a repeated cross-section, is scheduled to be fielded 24 months after the baseline survey, from September-November 2015. The key instrument of the quantitative component is a questionnaire that collects information on indicators along the causal chain for nutrition outcomes. In particular, it captures indicators that allow tracing out that, without improvement in ‘intermediate outcomes,’ it is highly unlikely that improvement in ‘final outcomes’ will be observed. Accordingly, it collects direct measures of anthropometry, but also elicits information on the following: household demographic characteristics; assets; savings and loans; livelihoods; food consumption; maternal knowledge; attitudes and practice regarding care behaviours; infant and young child feeding practices; measures of health status and recent illness; women’s status; and retrospective information on some of these domains. Logistical details of the fieldwork and resulting datasets are described in Section 1.2.3.

Overview of explanatory/exploratory component

The exploratory/explanatory component of the evaluation consists of two complementary and interlinked subcomponents: a process evaluation and qualitative evaluation.

The process evaluation aims to identify the critical processes in the implementation of the programme's strategy and to assess whether these processes were implemented as planned. Furthermore, the process evaluation will map the quality of programme delivery to more proximate outcomes identified in the quantitative survey and use this to explain the impacts detected or not. ITAD leads this component in partnership with Centre for Natural Resources Studies (CRNS), Bangladesh. The process evaluation will start in July 2014 and will draw on the findings from the quantitative baseline and the first data collection in the qualitative subcomponent of the exploratory/explanatory component.

The qualitative evaluation component aims to explain how and why the combination of livelihood and nutrition interventions may be effective in triggering behaviour change and improving child nutrition within the context of the three programmes. The sub-aims of the qualitative investigation are:

1. To investigate interactions between societal, community, family and programme structures and how these might influence intervention uptake and behaviour change;
2. To identify contextual factors that can enhance or hinder the programme uptake. This will include an in-depth examination and testing of the programme assumptions and causal chain processes (described in the Theory of Change) within the context of the study communities.

IDS leads this component in collaboration with BRAC Institute of Governance and Development (BIGD, formerly BRAC Development Institute) at BRAC University. Two qualitative, longitudinal data collection processes are being carried out as part of this evaluation. The first phase of qualitative data collection began in February 2014 (delayed due to political instability from its originally scheduled start in November 2013) and was completed in May 2014. Follow up field visits in some selected sites is ongoing, with the final second phase of fieldwork expected to be carried out between September-November 2015 to coincide with the quantitative endline survey.

As described in Section 1.3.2.1, sites were selected for the qualitative component using a multi-site case study approach, with purposefully selected community focus clusters. A subsample of the quantitative study communities were selected to include (L) and (L+N) intervention groups in the three programme areas, as well as control sites for each programme. In each of the selected community clusters, study participants were selected purposefully using stratified purposeful sampling to illustrate characteristics of different relevant subgroups and to allow comprehensive understanding of the programme in different settings. First, the research teams met with the local programme implementers and described the purpose and aims of the evaluation. The aim of the meetings was to understand the current status of the programme implementation and in particular the progress of different intervention arms. Second, the research teams conducted informal walks (so called transect walks) through the community to facilitate building of rapport and identification of key informants who could provide background context on the locality. Third, enlisting the help of the key informants and programme implementers, participants for focus group discussions, in-depth interviews, observations and life histories were identified. The aim was to collect information from a variety of interviewees with different experiences, perceptions, and points of view. Interviewing different household members was important for obtaining insight into gender roles and intrahousehold decisionmaking in relation to child nutrition and health.

Section 1.3.2.2 details the data collection tools used to obtain qualitative data from different sources. The development of the topic guides for the in-depth interviews and focus group discussions was informed by preliminary findings of the quantitative survey analysis and review of existing literature.

Major topics areas covered by the qualitative data collection tools include the following:

1. Social, economic, institutional and political context of the community
2. Local practices, resources, customs in regards to health, hygiene, nutrition and care of children, pregnant and lactation mothers, adolescent girls
3. For (L) and (L+N) sites: Perceived impact of the livelihood intervention
4. For (L+N) sites: Perceived synergies and disconnects between the nutrition and livelihood interventions in the communities
5. For (L+N) sites: Micro-dynamics of the nutrition intervention at the community level and how beneficiaries perceive/experience the intervention

Preliminary analysis of the qualitative data will be conducted by the BRAC field teams in collaboration with IDS as soon as the data become available. Following an ‘observe, think, test, revise’ (OTTR)-sequence, emerging results will be discussed in the team during several debriefing meetings in Dhaka and then inform the collection of further data and in some cases the inclusion of new interviewees. In addition to the concurrent analysis, a content analysis approach will be employed for the analysis of the textual data after completion of the qualitative data collection. The content analysis will facilitate the unpacking of the mechanism-based causality being triggered in specific contexts and, in particular, behavioural change among beneficiaries of the nutrition intervention.

Overview of mixed method approach

Section 1.4 discusses in detail the sequential mixed method approach in which the different quantitative, exploratory/explanatory, and cost effectiveness components are integrated across the stages of the evaluation. As part of this iterative process, findings from the quantitative baseline survey and first round of qualitative data collection were presented and compared at a joint partner workshop in Dhaka in June 2014 in order to establish the context in which the livelihood and nutrition interventions are embedded and against which the effectiveness of the interventions will be assessed, and to help shape the design of remaining quantitative and qualitative fieldwork activities. Key findings from this analysis are presented in Appendix F¹.

Synergies are highlighted between the quantitative and exploratory/explanatory components (the two components where activities have already begun).

¹ Appendix F has been prepared as a separate and standalone product originally planned to synthesise and report after the baseline quantitative reporting. The version annexed here is expected to undergo further revisions before being published as an output of this project and is included here for reference as a work in progress.

Quantitative baseline analysis

Analysis of the quantitative baseline data in Sections 2 through 4 serves two key purposes as a foundation for the eventual impact estimation. The first is to explore how well the baseline samples align with the specifications of the evaluation design described. Sections 2 through 4 empirically assess the similarity of the groups sampled for (L), (L+N), and (C) groups in the quantitative baseline survey for each of the programmes. If the randomisation was successful, the baseline differences in each outcome indicator between the (L) and (L+N) groups should be small and statistically insignificant. As described above, it is not expected that the full (C) group will be as similar to (L) or (L+N) as the latter two groups are to each other. However, the analysis of average differences in this report is informative in that it provides preliminary assessment on the feasibility of finding a subset of the (C) group that can serve as a valid counterfactual for the (L) and (L+N) groups in each programme.

Following completion of the main body of this report but prior to the endline survey, additional econometric analysis was conducted using propensity score matching to explore the overlap in observable characteristics between the (L) and (L+N) groups and subsets of the (C) group in each programme. This exploratory analysis is summarized in Appendix G.

The second key purpose of the quantitative baseline analysis is to provide context for the impact estimates, by describing the situation of each programme's sample prior to the introduction of direct nutrition interventions. It is important to reiterate that these statistics are representative of the population being studied (beneficiary households with at least one child aged 0-24 months located in each programme area that is included in the study; similar non-beneficiary households with at least one child aged 0-24 months). Therefore they should not be expected to match statistics on national averages or even on averages of all programme beneficiaries irrespective of household composition.

Detailed quantitative baseline findings are presented by programme in Sections 2 through 4. A summary of these findings over all three programmes is given in Section 5, along with a brief synopsis of implications from the exploratory analysis described in Appendix G.

Summary of quantitative baseline findings regarding the evaluation design

Comparability of (L) and (L+N)

As described in Section 5, the analysis in Sections 2 through 4 shows that the randomisation is successful in statistically balancing nearly all indicators across all three programmes between the (L) and (L+N) arms. In the isolated cases where statistically significant average differences in indicators are found between (L) and (L+N), the magnitudes of differences tend to be quite small. It is worth noting that given the large numbers of indicators over which tests of statistical significance are conducted in Sections 2 through 4, it is expected that some statistically significant differences may appear by chance due to multiple testing. Because this baseline report's purpose in analysing statistically significant differences in baseline indicators is illustrative, to broadly assess patterns of similarity or difference rather than to estimate individual impacts, no formal tests are conducted in this report to adjust for multiple testing.

Adjustments for multiple testing (such as use of Bonferroni corrections or tests of joint significance) will be made during the estimation of quantitative impacts to be presented in the final report. Moreover, even the small baseline differences found here between (L) and (L+N) can be controlled for in the eventual impact analysis.

The pattern of similarity across (L) and (L+N) includes receipt of other social programmes, as shown in Sections 2.3.2, 3.3.2, and 4.3.2. As would be expected in Bangladesh, a country with considerable NGO presence and government support, both (L) and (L+N) beneficiaries in all three programmes report receiving a number of other social programmes in addition to the livelihoods interventions that are the focus of this evaluation. However, because coverage of these other programmes tends to be well balanced across (L) and (L+N) groups, any average effects from exposure to their benefits should affect the two groups similarly; the small baseline differences between (L) and (L+N) in coverage of certain social programmes can moreover be controlled for in the eventual impact analysis. Therefore, despite there being several other social programmes operating in the (L) and (L+N) areas, their presence does not complicate the *comparison* of (L) and (L+N), and therefore does not complicate attribution in estimating the relative impact of adding the nutrition interventions to the livelihoods interventions.

Overall, the analysis of the quantitative baseline data therefore gives confidence that any statistically significant differences between the (L+N) and (L) groups later found at endline can be causally attributed to the additional nutrition component, rather than any pre-existing differences between the two groups. In addition to there being good statistical balance on nearly all baseline characteristics, the eventual impact estimation will control for any baseline difference in each outcome of interest through the double-difference or ANCOVA specification, and can further control for any small statistically significant baseline differences that are found in other characteristics.

For CLP, these additional baseline covariates could potentially include the following, in which statistically significant but typically small baseline differences were found between (L) and (L+N): household head's education; any household member's loss of employment in preceding 5 years; value of livestock assets received by CLP; share of adolescent girls who consumed meat in the preceding 7 days; decisionmaker on whether women work, how to spend money on education, how to spend money on clothing; duration of receiving iron supplements conditional on receiving them.

For Shiree Concern, these additional baseline covariates could potentially include the following, in which statistically significant but typically small baseline differences were found between (L) and (L+N): women's occupation; death of a household member in preceding 5 years; receipt of financial training from Shiree; receipt of dairy cows from Shiree; receipt of the external Vulnerable Group Feeding safety net programme; ownership of productive assets such as a hammer and mason's equipment; dimensions of dietary diversity for households, mothers, and adolescent girls; weight for age among children age 0-5 years; decisionmaker on whether women work, how to spend money on clothing, whether to take a loan; reason for women not working; control over money to buy food at the market; reasons for not using birth control; frequency of husbands' threats of taking another wife; women's ability to do simple addition; women's receipt of antenatal care; index child's birth attended by a friend or neighbour; adolescent girls' knowledge of when a baby should start getting breast milk and what seasoning is fortified with iodine.

For UPPR, these additional baseline covariates could potentially include the following, in which statistically significant but typically small baseline differences were found between (L) and (L+N): education of the index child's mother/caregiver; occupation of the household head; household access to a sanitary latrine; access to the Maternity Allowance Programme for Poor Lactating Mothers; ownership of consumer durables such as a trunk/suitcase; ownership of productive assets such as hammers; some dimensions of adolescent girls' dietary diversity; whether a child is stunted; whether a child is severely underweight; decisionmaker on spending the money women earn, spending money on food, spending money on housing, spending money on education, spending money on clothing, taking a loan, and spending money from the loan; receipt of advice on pre- or post-lacteals; mothers' knowledge of what seasoning is fortified with iodine.

To summarize, although the baseline balance between (L+N) and (L) is likely strongest for UPPR, followed by CLP and then by Shiree, the evaluation design appears strong across all three programmes, with respect to identifying relative impacts of the combined livelihoods and nutrition intervention, over and above the livelihoods intervention only.

Comparability of (C) with (L) and (L+N)

As also described, although the full (C) group sampled for each programme is not expected to statistically balance with the (L) and (L+N) groups, the smaller the average differences, the more likely it is that a comparable subset can be found. Results in the main report indicate that the average similarity of the control groups to the beneficiary groups differs by programme. In particular, the preliminary analyses of average baseline differences in Sections 2 through 4 suggest that UPPR's control group might give the strongest basis to estimate absolute differences, Shiree/Concern's may fall somewhere in between, and CLP's remaining control group (excluding Cohort 2.6) is likely to be the weakest. This pattern includes exposure to other social programmes, as shown in Sections 2.3.2., 3.3.2, and 4.3.2. In all three programme samples, receipt of other social programmes is well balanced between the (L) and (L+N) groups, but different to varying degrees in the (C) group. In particular, in the UPPR and Shiree/Concern (C) groups, there is higher or lower coverage of certain social programmes than among the (L) and (L+N) groups, although these social programmes are accessed to some degree by all three intervention arms. In these cases, the observation indicates that it will be important to account for differential exposure between the control and beneficiary groups when constructing the counterfactual.

The additional exploratory analysis in Appendix G supports a similar pattern of findings. For CLP – where only riverine chars appear in the treatment group and only mainland chars remain in the control group after exclusion of Cohort 2.6 – the treatment and control groups exhibit almost literally no overlap in propensity scores based on observables. This lack of overlap reflects that observable characteristics are very different for CLP treated and control households, showing quite conclusively that the control group without Cohort 2.6 cannot serve as a proxy for the treatment group. For Shiree – where the programme had nearly blanket coverage of areas meeting its eligibility criteria – the distributions of propensity scores for the treatment and control groups exhibit a small amount of overlap, but over a very small proportion of the sample. The implication is that the Shiree control group is not an ideal proxy for the treatment

group; although it might be possible to find a very small subset of control households to serve as a proxy for a very small subset of the treatment group, in practice these matched samples with common support in observables might be too small for meaningful impact estimation. For UPPR – which covers only a subset of the many urban slums in Bangladesh – the distributions of propensity scores for the treatment and control groups exhibit a considerable amount of overlap, over a small but potentially meaningful proportion of the sample. This overlap indicates that there is reasonable potential for a subset of the UPPR control group to serve as a proxy for a subset of the treatment group; although the matched samples with common support are likely considerably smaller than the full sample, they might be sufficient for impact estimation on some outcomes.

These findings are largely as expected, given the discussion in Section 1.3 on scope for identifying non-intervention areas similar to intervention areas for each programme. However, it is important to note that factors other than the matching analysis will also play a role in the final determination of which programmes' control groups should be included in the impact evaluation. Although for CLP the analysis makes quite clear that the control group without Cohort 2.6 is not comparable and should not be included, for Shiree Concern and UPPR the value of including the control group depends on the size of impact that could reasonably be expected from the respective programme. The smaller we expect the impact to be, the larger we would need the overlapping control group subset to be in order to statistically detect that impact. Therefore, relevant factors for this decision in Shiree Concern and UPPR would include the evolving quality of implementation in each programme component, as well as the timing of each component's start and end relative to the evaluation's study period. As details of these and other features of the implementation develop between baseline and endline, decisions will be finalized on how best to design the sampling of the endline.

Summary of quantitative baseline findings regarding beneficiary characteristics

Based on Sections 2 through 4, a general pattern emerges that at baseline, UPPR sample beneficiaries tend to have the “best” indicators related to nutrition, CLP sample beneficiaries tend to fall somewhere in between, and Shiree/Concern sample beneficiaries tend to have the “worst” indicators related to nutrition.

Table E.1 below highlights these differences over a subset of key indicators. The pattern described above holds consistently in terms of key anthropometric indicators, including in the height-for-age Z-score (the primary outcome measure in this evaluation). It also holds in terms of a range of demographic and socioeconomic conditions, asset ownership, dietary diversity, women's status, nutrition practices and services, etc.

These characteristics align with what might be expected given the environments of each of the three programmes. UPPR beneficiaries live in urban areas and have the strongest linkages, while Shiree/Concern beneficiaries live in perhaps the most challenging setting of the three programmes (both remote and flooded for several months of the year), with corresponding implications for access to infrastructure, education, food, services, etc.

As simple descriptives, the baseline differences seen across programmes are not intended to show conclusively which factors are the key determinants of undernutrition in each context. However, they do

provide support for the relationships described in the evaluation's theory of change. For example, the analyses show that the context with the lowest 'intermediate outcomes' (such as the lowest dietary diversity, the lowest access to services, the lowest knowledge of feeding practices, the lowest perceived empowerment of women) is also the context with the lowest 'final outcome' of height-for-age Z-scores, and vice versa. While it cannot be concluded which if any of these low 'intermediate outcomes' is the dominant factor underlying low 'final outcomes,' if the nutrition intervention is able to meaningfully increase such an 'intermediate outcome,' there may be potential for meaningful impact on the 'final outcome.'

As such, these baseline conditions, along with the intensity of the eventual nutrition interventions, are likely to shape the potential for impact in each programme. For example, if an equally intensive nutrition intervention were to be provided within all programmes and if underlying constraints to nutrition were addressed by the intervention (the exploratory/explanatory components will examine the extent to which these appear to be true), then Shiree/Concern beneficiaries would have the greatest potential scope for improvement given their lowest starting point. As part of the mixed methods approach of this evaluation, analysis drawn from the exploratory/explanatory component will help illuminate how intensively and effectively each of the programmes' nutrition interventions does in fact reach its beneficiaries.

Table E.1. Baseline means of anthropometric indicators and selected household characteristics among beneficiaries, by programme

	CLP	Shiree	UPPR
Anthropometric Indicators			
Height-for-age Z-score (HAZ) for children under 5	-1.33 to -1.30	-1.74 to -1.65	-0.97 to -1.08
Proportion stunted (HAZ<-2)	0.32 to 0.35	0.45	0.25 to 0.28
Proportion severely stunted (HAZ<-3)	0.11 to 0.12	0.19 to 0.22	0.08 to 0.10
Weight-for-age Z-score (WAZ) for children under 5	-1.41 to -1.39	-1.71 to -1.62	-1.13 to -1.06
Proportion underweight (WAZ<-2)	0.29 to 0.31	0.38 to 0.41	0.22 to 0.23
Proportion severely underweight (WAZ<-3)	0.07 to 0.08	0.12 to 0.13	0.04 to 0.06
Weight-for-height Z-score (WHZ) for children under 5	-0.91 to -0.92	-1.00 to -0.97	-0.75 to -0.73
Proportion wasted (WHZ<-2)	0.15	0.16 to 0.18	0.13 to 0.15
Proportion severely wasted (WHZ<-3)	0.02 to 0.03	0.04	0.03
Body Mass Index (BMI) for mothers of index children	19.33 to 19.34	19.05 to 19.13	21.47 to 21.57
Proportion underweight (BMI<18.5)	0.40	0.44 to 0.45	0.21 to 0.22
Proportion overweight (BMI>25)	0.02	0.02	0.16 to 0.18
Household Demographic and Socioeconomic Characteristics			
Household size	4.4	5.5	5.3
Age of male household head	34	37 to 38	38 to 39
Female headed household (%)	10 to 11	9 to 11	8 to 10
Age of female household head	32	36 to 37	45 to 46
Number of children < 2 years	1.0	1.0	1.0
Dependency ratio	1.1	1.4 to 1.5	0.8 to 0.9
Head's years of schooling	1.3 to 1.6	0.9 to 1.0	3.4 to 3.5
Child's mother/caregivers's years of schooling	2.1 to 2.3	1.2 to 1.4	4.6 to 5.1



Child's mother/caregiver in a non-earning occupation (%)	19 to 20	41	68 to 69
Dirt floor (%)	100	100	56 to 58
Tin wall (%)	54	55 to 56	40 to 43
Other non-permanent wall (%)	46	43	18 to 19
Tin roof (%)	95	93 to 94	91
Other non-permanent roof (%)	4	5 to 6	3
Access to electricity (%)	4	9 to 16	91
Access to sanitary latrine (%)	35	8 to 10	50 to 57
Access to safe drinking water (%)	99	96	99
Loss of home to river erosion, last 5 years (%/)	11 to 12	1	-
Loss of crops/assets to floods, last 5 years (%)	14	5	0.5
Loss of livestock to illness/ theft, last 5 years (%)	8	6	2
Loss of crops/assets to storms/drought/theft, last 5 years (%)	4	7 to 8	1 to 2
Household Asset Ownership (numbers owned)			
Bicycle	0.1	-	0.2
Metal Cooking Pots	4.8	6.8	12.4
Bed/Khat/Chowki	1.3	1.0	1.8
Armoire/Cabinet/Alna	0.4	0.2	1.3
Table / chair	1.0	0.5	1.9
Electric fan	0.0	0.1	1.4
Wall clock /watch	0.1	0.0	0.4
Television (Color)	-	-	0.5
Solar energy panel	0.1	0.1	-
Sewing machine	-	-	0.5
Rickshaw	-	-	0.1
Boat	0.0	0.2	-
Mobile phone set	0.6	0.5	1.3
Hammer	0.1	0.1	0.2 to 0.3
Fishing net	0.3	0.7	0.1
Spade (Kodal)	0.5	0.3	0.2
Axe(Kural)	0.1	0.1	0.2
Shabol	0.1	0.1	0.2
Hoe	0.7	0.1	0.1
Winnower	0.9	0.7	0.1
Hand tube well	0.4	0.0	0.2
Bulls/oxen	0.2	0.1	0.1
Milk Cow	0.2	0.1	0.1
Goat	0.1	0.1	0.1
Sheep	0.1	0.3	0.0
Chicken	2.8	2.2	0.7 to 1.1
Duck	0.5	2.1 to 2.8	0.3
Total amount of current cash savings (tk)	3,600 to 3,900	1,200	4,800 to 5,100
Household Dietary Diversity			
Household consumed cereal in last 7 days (%)	100	99 to 100	100
Household consumed vitamin A-rich vegetables in last 7 days (%)	41 to 44	7 to 8	47 to 48

Household consumed white tubers/roots in last 7 days (%)	91 to 93	93	97 to 98
Household consumed green leafy vegetables in last 7 days (%)	87 to 88	72 to 73	81 to 83
Household consumed other vegetables in last 7 days (%)	33 to 34	15 to 17	62
Household consumed vitamin A-rich fruits in last 7 days (%)	99 to 100	99 to 100	100
Household consumed other fruits in last 7 days (%)	5 to 7	4	7 to 8
Household consumed meat in last 7 days (%)	48 to 49	48 to 52	62
Household consumed eggs in last 7 days (%)	24 to 26	14 to 15	53 to 54
Household consumed fish in last 7 days (%)	89	99	95 to 96
Household consumed beans peas lentils in last 7 days (%)	29 to 32	17 to 20	39 to 41
Household consumed Dairy in last 7 days (%)	70 to 72	69 to 70	95 to 96
Number of groups (of 12)	7.2	6.4	8.4
Women's Status			
Women's perceived position on a 9-step "power" ladder (people on Step 1 are completely without rights, people on Step 9 have a lot of power)	2.43 to 2.57	2.31 to 2.24	2.69 to 2.73
Women's perceived position on a 9-step "control" ladder (people on Step 1 are totally unable to change their lives, people on Step 9 have full control over their own lives)	2.85 to 2.97	2.54 to 2.69	3.02 to 3.03
Nutrition Practices and Services			
Any antenatal sessions	0.70	0.41 to 0.50	0.89
Number antenatal sessions	2.74 to 2.88	2.38	3.84
Received advice on food to eat	0.81	0.40 to 0.41	0.68 to 0.70
Followed advice	0.86 to 0.88	0.78	0.90 to 0.92
Received iron supplement	0.68 to 0.69	0.35 to 0.40	0.68 to 0.70
Birth attended by: Doctor	0.05	0.05	0.42 to 0.45
Birth attended by: Midwife or nurse	0.05	0.04 to 0.05	0.49 to 0.50
Birth attended by: Any trained person	0.38 to 0.41	0.34 to 0.40	0.73 to 0.75
Exposed to any source of information about nutrition	0.75 to 0.78	0.25 to 0.27	0.67
Did health worker give advice on IYCF during home visit?	0.52 to 0.55	0.10 to 0.11	0.23
Attend group meeting	0.55 to 0.58	0.10 to 0.12	0.08 to 0.09
Any home visit or group meeting	0.77	0.16 to 0.17	0.27
Score on test of nutrition knowledge (of 10), mother	7.40 to 7.42	6.39 to 6.47	7.46 to 7.53
Knows when should a baby start getting breast milk, mother	0.90 to 0.91	0.83 to 0.84	0.90 to 0.92
Knows what should mother do with colostrum, mother	0.85 to 0.86	0.87 to 0.89	0.85 to 0.86
Knows at what age babies should be given other foods, mother	0.63	0.53	0.74 to 0.75
Knows what seasoning is fortified with iodine, mother	0.57	0.26 to 0.27	0.56 to 0.62

Score on test of nutrition knowledge (of 10), adolescent	6.48 to 6.68	5.65 to 6.09	6.74 to 6.94
Knows when should a baby start getting breast milk	0.65 to 0.68	0.54 to 0.67	0.73 to 0.74
Knows what should mother do with colostrum, adolescent	0.60 to 0.73	0.62 to 0.65	0.68 to 0.71
Knows at what age babies should be given other foods, adolescent	0.54 to 0.56	0.43 to 0.46	0.58 to 0.63
Knows what seasoning is fortified with iron, adolescent	0.66 to 0.72	0.37 to 0.54	0.71 to 0.76

1 INTRODUCTION

1.1 Overview of the baseline report

1.1.1 Background of the evaluation

Undernutrition is widespread in Bangladesh. In 2011, according to the Bangladesh Demographic and Health Survey, 41.3 per cent of children under age five were stunted, 36.4 per cent were underweight, 15.6 per cent were wasted, and more than 50 per cent were anaemic. Prevalences were even higher among extremely poor households. Meanwhile, evidence from South Asia shows that high rates of economic growth and reduction in poverty have not led to similarly large reductions in undernutrition (e.g., Smith et al. 2002; Ramalingaswami, Jonsson, and Rohde 1996; Deaton and Dreze 2009). These findings have suggested that improvements in income alone may not be sufficient to improve nutritional status. Extensive research has also shown that the critical window for nutritional interventions is during the “first thousand days” of life (e.g., Bhutta et al. 2013; Hoddinott et al. 2013), from the time when a child is in utero until about two years of age. Based on this accumulated evidence, growing attention has come to introducing nutrition interventions that target children’s “first thousand days” alongside household poverty reduction programmes. In particular, there has been growing emphasis on nutrition interventions that aim to improve infant and young child feeding practices—through increasing nutritional knowledge of women who are pregnant, lactating, or likely to be pregnant in the future—as well as to improve the nutritional status of these women themselves.

Although there exists considerable evidence assessing the effectiveness of various livelihoods interventions and other social protection programmes, as well as some evidence on the effectiveness of various direct nutritional interventions, little research directly assesses how an integrated livelihoods and nutrition programme might compare with livelihoods support alone. There are several reasons why the combination of nutrition and livelihoods support may have nutritional benefits over and above livelihoods support only. First, a key constraint to improved nutritional status may be insufficient knowledge of appropriate infant and young child feeding practices (for example, the appropriate duration of exclusive breastfeeding, the appropriate frequency and diversity of child feeding thereafter, etc.). If this is the case, then improving income alone will not necessarily lead to improved feeding practices. Second, there may be synergies between the two types of support. For example, even if a mother’s knowledge of infant and young child feeding practices improves, she may still need access to sufficient resources for undertaking those practices (such as income to purchase the recommended types of food), which can be facilitated through a livelihoods intervention. Third, there may be other dynamics shifted through the direct nutrition intervention that mediate how the livelihoods intervention affects nutritional status. For example, if a direct nutrition intervention targeting women improves women’s bargaining power within the household, and if women tend to prefer devoting more resources to young children’s nutrition (e.g., Quisumbing and Maluccio 2003), the result may also be larger impacts on nutritional status than livelihoods support alone.

The DFID Programme to Accelerate Improved Nutrition for the Extreme Poor in Bangladesh aims to improve nutrition outcomes for young children, pregnant and lactating mothers, and adolescent girls. Its approach is to integrate direct nutrition interventions into the livelihood support currently provided to extremely poor households in Bangladesh through three existing programmes: the Chars Livelihoods Programme (CLP), the Shiree Economic Empowerment of the Poorest Programme (Shiree or EEP, within which we focus on the Concern subproject), and the Urban Partnership for Poverty Reduction Programme (UPPR).

In order to rigorously and independently assess the impacts of these integrated nutrition and livelihoods programmes, DFID has collaborated with research partners and implementation partners to undertake a mixed methods impact evaluation, entitled “Impact Evaluation of the DFID Programme to Accelerate Improved Nutrition for the Extreme Poor in Bangladesh.” The original TOR for the impact evaluation appears in Appendix A, and deviations from the design described in the TOR are presented in the impact evaluation’s Inception Report (March 2014). The evaluation team includes IDS (the lead organisation), IFPRI, ITAD, CNRS, and BRAC University. The evaluation uses mixed quantitative and qualitative methods within a strong theory-based design to assess the impacts of the integrated programmes on nutritional status.

The evaluation specifically addresses the following three objectives:

1. To estimate the quantitative impact of the combined direct nutrition and livelihoods interventions in three different DFID programmes on nutritional status of children under two; and to compare this with the impact of the existing livelihoods interventions;
2. To explain this impact, drawing on qualitative and quantitative evidence regarding programme-specific and wider societal/contextual factors that could affect programme outcomes; and
3. To assess the cost effectiveness (benefit received for cost incurred) of integrating direct nutrition components into the livelihoods interventions of the three existing programmes.

The mixed methods nature of the evaluation enables us to approach these objectives using a variety of methodological and analytical orientations. The evaluation comprises three main components, each aligned with the theory of change described in the evaluation’s inception report (see Appendix B):

1. The *quantitative impact component* will provide quantitative estimates of “outcomes” and “impacts” of the direct nutrition and livelihoods interventions, supporting hypothesis testing in the presence of a counterfactual, as well as assessment of the relationship between “outcomes” and “impacts.”
2. The *exploratory/explanatory component* will address beneficiary selection and interventions targeting, management, and delivery, and provide estimates of beneficiary coverage at the “output” level. It will also explore underlying causal processes and mechanisms and provide detailed contextual analysis that will help to explain how and why the combination of livelihoods and direct nutrition interventions may have had an impact on child nutrition outcomes within the three programmes.

3. The *cost effectiveness component* will allow an estimate of the costs of the different interventions relative to their “impacts” on child undernutrition; these estimates can be compared globally with external benchmarking.

The evaluation is phased (as per the mixed methods approached described in section 1.4) to include a quantitative “baseline” survey (prior to the integration of any direct nutrition interventions into the livelihood support) and a quantitative “endline” survey (two years after a subset of the study areas have direct nutrition interventions integrated into the livelihood support), as well as exploratory/explanatory fieldwork and costing data collection in the intervening period.

The primary users of the evaluation are DFID, its programme implementing partners at all levels, and the Government of Bangladesh. DFID also expects the findings to be published and disseminated more widely to benefit other stakeholders in the Bangladesh nutrition and development community, as well as global policy makers, practitioners, and researchers concerned with nutrition programming.

1.1.2 Aims of the baseline report

The purpose of this baseline report is to introduce the context for the evaluation, further describe the interventions and evaluation design, and summarize selected data from the quantitative baseline survey. The baseline report is organised as follows. The remainder of Section 1 describes the design of the quantitative component and the qualitative subcomponent of the exploratory/explanatory component, as well as the sequential mixed method approach by which these two components are integrated at each stage of the evaluation (along with the cost effectiveness component). Each of Sections 2 through 4 focuses on one of the three programmes. These sections first provide an overview of the programme’s features, then describe the quantitative study’s sample design for that programme, followed by an exploration of descriptive statistics for a range of outcomes in the quantitative baseline survey sample. The sequencing of these outcomes starts with what might be considering background characteristics of households relevant to children’s nutritional status (indicators related to household demographics and socioeconomics; livelihoods and participation in social programmes; asset ownership; food consumption). It then continues to outcomes derived from anthropometric measures, the key indicators of nutritional status in the evaluation. It finally proceeds to characteristics of mothers that might be expected both to affect their children’s nutritional status and to be directly affected by the interventions (women’s autonomy within the household; and women’s knowledge and practices related to infant and young child feeding). Section 2 focuses on these outcomes within the CLP programme, Section 3 within the Concern subproject of the Shiree programme, and Section 4 within the UPPR programme. Section 5 summarises key findings from the quantitative baseline analysis regarding evaluation design and beneficiary characteristics across all three programmes.

1.2 Quantitative impact component

1.2.1 Evaluation design

1.2.1.1 Aims of the evaluation design

The quantitative component of the evaluation focuses on addressing Objective 1 described in Section 1.1.1, namely “To estimate the quantitative impact of the combined direct nutrition and livelihoods interventions in three different DFID programmes on nutritional status of children under two; and to compare this with the impact of the existing livelihoods interventions.”

Specifically, the quantitative component aims to provide numerical estimates of the programmes’ causal impacts on beneficiaries’ nutrition outcomes. IFPRI and IDS lead this component, with in-country support from survey firm DATA on conducting the baseline and endline surveys.

For the purposes of the quantitative discussion—wherein the terms ‘outcomes’ and ‘impacts’ have statistical definitions distinct from those intended in the theory of change—alternative terminology is used for clarity. In the quantitative component, the ‘impacts’ in the theory of change (i.e., the effects on nutritional status as measured by improvements in anthropometric Z-scores) are referred to instead as ‘final outcomes.’ The ‘outputs’ and ‘outcomes’ in the theory of change (e.g., parents’ adoption of appropriate childcare and feeding practices; quantity and quality of children’s dietary intake) are referred to instead as ‘intermediate outcomes.’

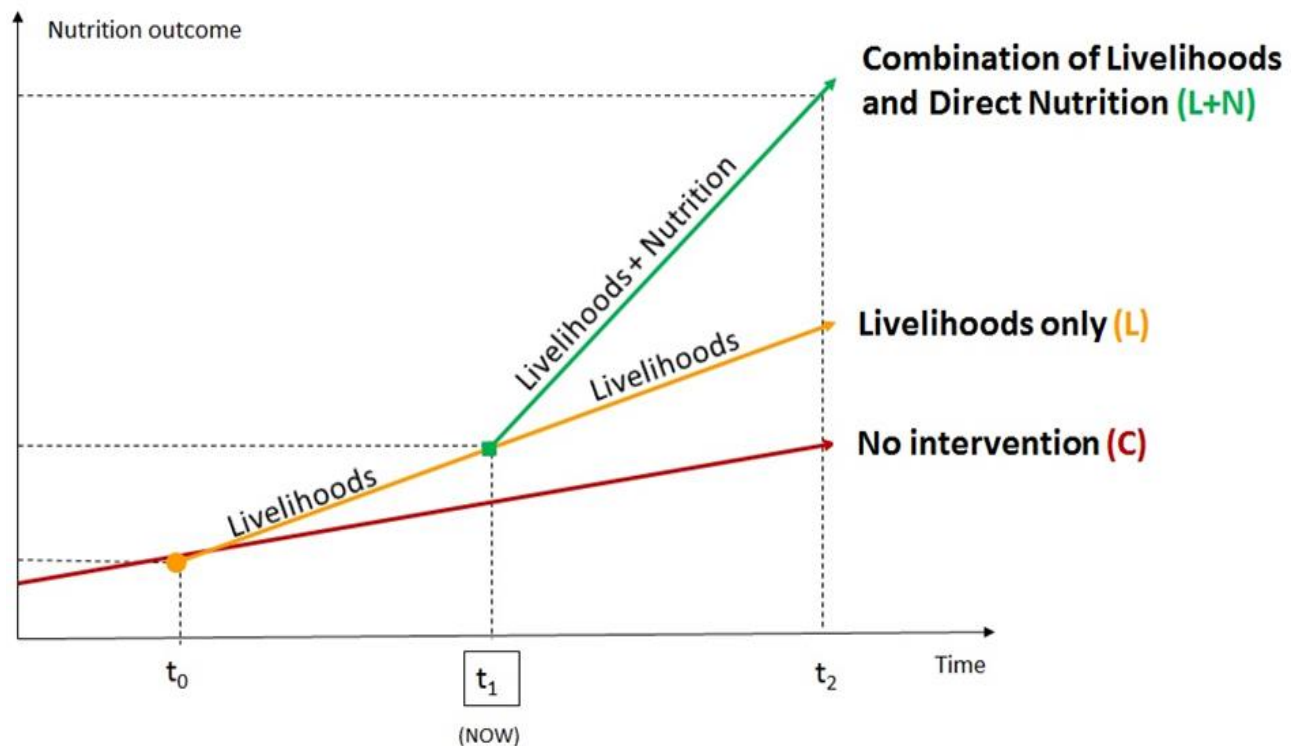
The evaluation design of the quantitative component derives from the quantitative notion of ‘impact.’ In a quantitative evaluation, ‘impact’ refers to the difference in beneficiary households’ observed outcomes after receiving a set of interventions, relative to those same households’ counterfactual outcomes in the same time period had they not received the interventions. Three key research questions regarding programme impact that will be addressed are:

1. What is the impact on nutrition outcomes of receiving a combination of livelihoods and direct nutrition interventions (denoting this scenario (L+N)), relative to receiving a livelihoods intervention only (denoting this scenario (L))?
2. What is the impact on nutrition outcomes of receiving a combination of livelihoods and direct nutrition interventions (L+N), relative to receiving no intervention (denoting this scenario (C) for control)?
3. What is the impact on nutrition outcomes of receiving a livelihoods intervention only (L), relative to receiving no intervention (C)?

The three distinct measures of impact can be conceptualized by imagining three possible ‘paths’ for a particular household, depending on whether the household receives no intervention (C), livelihoods only (L), or livelihoods and direct nutrition (L+N). Figure 1.1 shows a visualization of these possible paths for a given nutrition outcome, with the horizontal axis reflecting time. First, consider a path in which the household receives no intervention through three successive periods (t0, t1, and t2). The red line (C) gives an example of this possible path, reflecting that the nutrition outcome may slightly increase over time, despite no intervention, for example due to general improvements in hygiene and sanitation. Then,

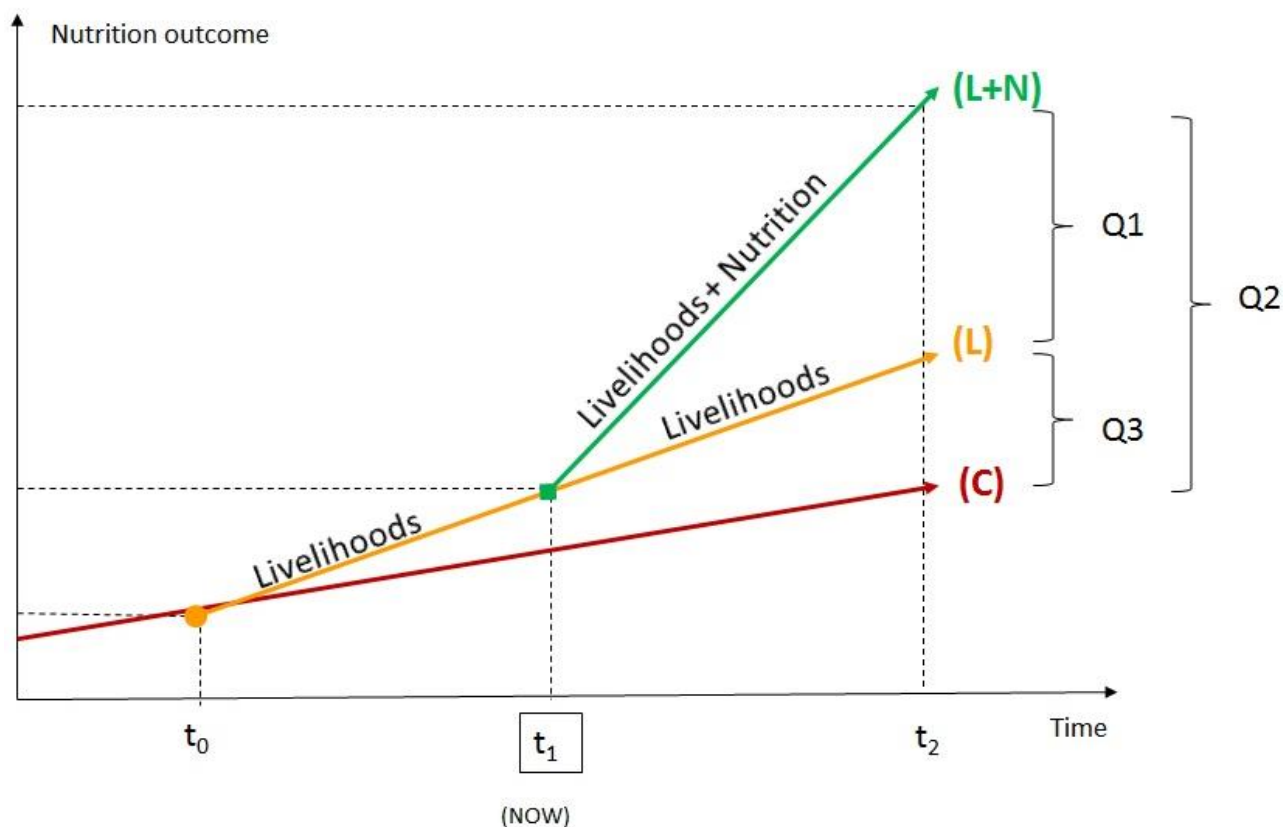
consider an alternate path for the same household, in which until t_0 the household receives no intervention like the (C) group, but after t_0 and continuing through time t_1 and time t_2 the household receives a livelihoods intervention. The yellow line (L) gives an example of this possible path. Finally, consider another alternate path for the same household, in which until t_0 the household receives no intervention like the (C) and (L) groups, after t_0 the household receives a livelihoods intervention like the (L) group, but after time t_1 the household receives a combined nutrition and livelihoods intervention. The green line (L+N) gives an example of this possible path.

Figure 1.1 Schematic of different paths of outcomes, according to interventions received



If it were possible to observe all three possible paths (i.e., (L+N), (L) and (C)) for a given household, it would also be possible to answer all three of the research questions by directly comparing across them. Figure 1.2 shows visualisations of the measures of impact that would correspond to each of the three research questions. The difference between the (L+N) and (L) groups at time t_2 provides the answer to Question 1—the impact on a nutrition outcome of receiving a combination of livelihoods and direct nutrition interventions (L+N), relative to receiving a livelihoods intervention (L). The difference between the (L+N) and (C) groups at time t_2 provides the answer to Question 2—the impact on a nutrition outcome of receiving a combination of livelihoods and direct nutrition interventions (L+N), relative to receiving no intervention (C). The difference between the (L) and (C) groups at time t_2 provides the answer to Question 3—the impact on a nutrition outcome of receiving a livelihoods intervention (L), relative to receiving no intervention (C).

Figure 1.2 Schematic of impacts of interventions



However, the key complication in impact evaluation is that all three paths cannot be observed for any household. For a given household, it is possible to observe only a single one of the three paths, depending on which (if any) interventions it actually does receive. Therefore, in order to develop a measure of counterfactual scenarios for observed households, proxies must be constructed.

Specifically for this evaluation the challenge is to find, for beneficiary households that receive the (L+N) intervention (the green path in the schematic), a set of households that can proxy their situation had they counterfactually received the (L) intervention (the yellow path in the schematic) and a set of households that can proxy their situation had they counterfactually received no intervention (C), the red path in the schematic).

The strategy for constructing these counterfactuals in this evaluation is as follows. The timing of the baseline survey in this evaluation corresponds to time t_1 in terms of the schematic. Some households had received no intervention, and some households had received livelihoods interventions. After the baseline survey at t_1 , some households that already received the livelihoods intervention would additionally receive the nutrition component, while others would continue to receive the livelihoods intervention only or continue to receive no intervention at all.

- In order to construct a proxy for the (L+N) households in the counterfactual (L) scenario, randomisation is used.* In particular, among the households that already receive the livelihoods intervention at t1, half are randomly assigned to additionally receive the nutrition intervention after t1. The remaining half continue to receive only the livelihoods intervention. The randomisation is crucial here. As can be seen in the schematic, in order for the (L) group to be a valid proxy, it must be as similar as possible to the (L+N) group at time t1. If not, any differences observed at endline at time t2 cannot be distinguished between programme impact and pre-existing differences. Random assignment is widely recognised to be the best way to ensure that two groups are nearly identical on average. Through the randomisation, it can be guaranteed that characteristics of the (L) and (L+N) groups will on average be very similar at time t1, so that the (L) is indeed a valid proxy for (L+N). Average differences at time t2 can then be interpreted as impacts caused only by the addition of the nutrition component.

In practice, the randomised assignment of (L) and (L+N) was conducted at the level of primary sampling units (or PSUs, also known as clusters in the statistical terminology) that each covered an entire locality, rather than at the level of individual households. The reason for randomizing at the PSU level was twofold. First, if some households within a single PSU were randomly assigned to receive nutrition interventions while others were randomly assigned not to receive them, there was potential for contamination, as the nutrition messages could spill over to the latter group. Second, for programme implementers, it was more logistically straightforward to assign nutrition workers in some PSUs and not others, rather than to assign nutrition workers in all PSUs but only work with a subset of eligible households in each. In the case of the rural programmes (CLP and Shiree), each PSU was an administrative ward, which corresponds to a collection of villages. In the case of the urban programme (UPPR), each PSU was a programme-defined “cluster,” which corresponds to a collection of slums.

The similarity of the groups sampled for (L) and (L+N) at time t1 (i.e., in the baseline survey) will be empirically assessed for each of the programmes in Sections 2 through 4. Ideally, the baseline differences in each outcome indicator between the (L) and (L+N) groups will be small and statistically insignificant.

- In order to construct a proxy for the (L+N) households in the counterfactual (C) scenario of no intervention, non-randomised approaches will be used.* Purely from the standpoint of evaluation, the ideal programme implementation would have been if each livelihoods intervention had been rolled out following a randomised control trial design. That is, if each livelihoods intervention had been randomly assigned to a subset of eligible households, a subset of non-beneficiary households would have remained that nonetheless met all the inclusion criteria and were on average very similar to the beneficiary households. However, none of the livelihoods interventions was assigned using randomisation (likely due to infeasibility on the ground, as well as due to this evaluation having not yet been conceived), such that there is no obvious set of comparable non-beneficiaries to serve as the counterfactual. Nonetheless, a control group is required to assess the absolute benefits of either (L) or (L + N) interventions. Therefore, it was determined at the inception of this evaluation that attempts would be made based on the best available information to identify a

control group among non-randomly selected non-beneficiaries. The analytical methods using a non-random control group (such as matching methods) do not assume that control group households are on average identical to beneficiary households, but use statistical criteria to find subsets of control and beneficiary households that are in fact very similar and tease out programme impact using these subsets.

It is worth noting that at this evaluation's inception, it was also acknowledged that it was not clear to what extent a valid control group could be found for the three programmes considered. In particular, as later described in 2.1.2 and 3.1.2, CLP's and Shiree's livelihood interventions had nearly blanket coverage of areas meeting their eligibility criteria at inception, meaning there were likely to be very few areas not receiving livelihoods interventions that were similar to intervention areas. (As described in 4.1.2, UPPR covered only a subset of the many urban slums in Bangladesh, giving somewhat more confidence in finding a control group for that programme.) However, given that finding an appropriate control group would be valuable to the evaluation's learning objectives, and in particular given that research questions (2) and (3) would have to be unambiguously dropped if no attempt were made, it was decided that efforts would be made in the baseline survey to select and sample a control group for each of the three programmes. After analysis of the baseline data and prior to the endline survey, the overall value of using each programme's control group would be assessed. Among other considerations, this assessment would factor in the "common support" in key observable characteristics between beneficiary and control groups based on matching analysis, which would indicate whether the sampled control group could in fact serve as a counterfactual for the beneficiary groups.

In practice, in order to select this control group in the baseline survey, non-beneficiary households were found that appeared to have been very similar to the eventual (L) and (L+N) households at time t0 (the period before any households received the livelihood intervention), based on recalled information collected at time t1 (the baseline survey). In particular, the households were not selected to be representative of all non-beneficiary households, but rather representative of non-beneficiary households that were very similar to beneficiary households before the livelihood intervention. These non-beneficiary households should continue to receive no intervention after the baseline survey, through time t2 (the endline survey).

It is important to note that collecting information on time t0 using recall data at a later time t1, although appropriate given the circumstances, comes with a number of concerns. Ideally information on time t0 would have been collected on (L), (L+N), and (C) households in a survey at time t0 itself. However, at time t0 before livelihoods interventions were introduced, this evaluation had not been envisioned, nor had the (L), (L+N), and (C) samples been devised. The inception of this evaluation and its first associated survey occurred several years after the start of all three livelihoods interventions. Therefore, the only available option to attempt capturing characteristics prior to the start of livelihoods interventions was to use recall at the time of this first survey in 2013. Specifically, the 2013 baseline survey asked a series of recall questions regarding characteristics in April/May 2008, a period preceding the start of any of the livelihoods interventions. Although not ideal, to mitigate concerns to the extent possible, the time period was chosen to be the most recent year prior to start of the livelihoods intervention (minimizing lag to the extent possible) as well as to coincide with a time of year that local households tend to remember

relatively well (coinciding with the Bangla new year, the month of Baishakh in the Bangla calendar which rural people typically remember well, and the start of summertime when the Nor'wester referred to locally as "Kalboishakhi" hits). There remains a possibility that recall bias exists, if for example (L) and (L+N) are systemically more likely than (C) to overestimate their well-being prior to the livelihoods intervention due to confusion with their situation after the livelihoods intervention. Unfortunately, given the situation at this evaluation's inception, there is little that can be done to overcome or directly check this possibility.

In Sections 2 through 4, the similarity of the (C) group with the (L) group and with the (L+N) group at time t1 (i.e., in the baseline survey) will also be empirically assessed for each of the programmes. Although it is not expected that the (C) group will be as similar to (L) or (L+N) as the latter two groups are to each other, this analysis is informative in that it gives some indication as to whether a subset of the (C) group may form a reasonable counterfactual for the (L) and (L+N) groups. Appendix G provides a summary of the additional analysis using exploratory matching that was conducted after completion of the main body of this report but before the endline survey.

1.2.1.2 Estimation approach

Following the completion of the endline survey and with both baseline and endline datasets available, impacts will be estimated corresponding to the three quantitative research questions posed in Section 1.2.1.1, using the 'double-difference' approach and/or the Analysis of Covariance (ANCOVA) specification.

The double-difference approach, which is standard in impact evaluation, calculates the difference between endline outcomes in two groups and subtracts the difference between baseline outcomes in those groups to construct an estimate of programme impact. Formally, estimating double-difference impacts translates to running the simple Ordinary Least Squares (OLS) regression shown below:

$$Y = \beta_0 + \beta_1 * Treat + \beta_2 * POST + \beta_3 * Treat * POST + \varepsilon.$$

For each programme's sample, for any outcome Y , taking $Treat$ as an indicator variable denoting treatment status and $POST$ as an indicator variable denoting the time period at which the outcome is measured (=1 if endline, =0 if baseline), the difference-in-difference impact is the estimated β_3 .

In practical terms:

- To estimate impacts of (L+N) relative to (L), the $Treat$ indicator will be defined as 1 for the (L+N) group and 0 for the (L) group
- To estimate impacts of (L+N) relative to (C), the $Treat$ indicator will be defined as 1 for the (L+N) group and 0 for the (C) group, with appropriate adjustments made to assure the comparability of the (C) group as described above

- To estimate impacts of (L) relative to (C), the *Treat* indicator will be defined as 1 for the (L) group and 0 for the (C) group, again with appropriate adjustments made to assure the comparability of the (C) group as described above

The related ANCOVA estimates of impact follow the same intuition, but are more flexible in terms of imposing fewer assumptions on how outcomes evolve over time. If an outcome is perfectly correlated across subsequent rounds (which is assumed in the double-difference approach), ANCOVA estimation is equivalent to double-difference estimation.

In all cases, regressions will be run using the statistical software package, Stata. For each regression, the results produced by Stata will include an estimate of the coefficient β_3 , as well as of a ‘standard error,’ indicating the noise in the coefficient estimate. The estimate of β_3 , taken together with its standard error, will indicate both the magnitude of the estimated impact and whether the estimated impact is statistically significant.

This methodology applies to estimating impacts on any outcome of interest Y . It can be used to estimate impacts on the ‘final outcomes’ of interest in the evaluation (i.e., children’s nutritional status as measured by anthropometric Z-scores) or on ‘intermediate outcomes’ along the causal chain (e.g., parents’ knowledge of appropriate childcare and feeding practices; quantity and quality of children’s dietary intake). Therefore, the results of the quantitative impact estimation can shed light not only on whether the interventions have an impact on children’s nutritional status, but also on why or why not. For example, if no impacts are found on ‘intermediate outcomes’ along the pathway described in the theory of change, it will not be surprising if no impact is found on the ‘final outcome.’

Given that there will be large numbers of indicators over which impacts will be estimated, the estimation will account for the possibility that some statistically significant differences appear by chance due to multiple testing. Adjustments for multiple testing will be made following standard approaches (such as using Bonferroni corrections or testing joint significance).

It is worth emphasising that the estimated impacts will be based on the specific programme contexts in this study. In particular, as in all evaluations, the findings will be shaped by the study environment, and although the design will aim to ensure internal validity, it cannot guarantee external validity such that results will necessarily generalise to very different contexts. Nonetheless, attempts will be made to draw broader lessons from the findings by comparing patterns across the three distinct programme settings and triangulating using the exploratory/explanatory analysis.

1.2.2 Sample design

The sample is designed around the ability to detect impacts in key outcomes of interest. As detailed in the evaluation’s inception report, it was determined that the key nutrition outcome of interest in the evaluation’s quantitative component would be height-for-age Z-scores (HAZ scores) of children aged 0-24 months. Moreover, the target expected impact on height-for-age was determined to be 0.25 standard deviations, corresponding to an increase of 0.25 in the HAZ score. Given cost considerations, the sample would also be designed to detect impacts over boys and girls in aggregate, rather than distinctly.

Sample size calculations were conducted accordingly, prior to the baseline survey. The formula for these calculations takes into account the magnitude of the expected impacts for the outcome indicator, the variability of the indicator (as measured by its standard deviation), and the size of the ‘design effect’ or intra-cluster correlation. All else equal, the larger the expected impact, the smaller the required sample. Indicators with higher variability relative to expected impacts require larger sample sizes. Intuitively, the rationale is that if there is a great deal of random variation in an indicator, a large sample is needed to distinguish programme impact from this ‘noise.’ For this evaluation, the calculations incorporated the following specifications: randomisation would be conducted at the level of PSUs; required statistical power would be set at 80 per cent; significance level would be set at 0.05; and intra-cluster correlations would be assumed between 0.00 and 0.10. Data recently collected as part of the Bangladesh Integrated Household Survey (BIHS), augmented by statistics held by UNICEF, were used as the sources of information on the variability of height-for-age Z-scores.

Based on these calculations, it was found that 70 PSUs was the smallest feasible number to include in each intervention arm ((L+N), (L), (C)) for each programme (CLP, Shiree, UPPR), in order to retain sufficient statistical power. Moreover, in order to detect an improvement of 0.25 standard deviations in HAZ scores, information would be required on about 18 children aged 0-24 months per PSU. These calculations implied collecting information on 1,260 children (=70 PSUs x 18 children per PSU) per intervention arm per programme. In total, the designed sample came to 11,340 children aged 0-24 months.

In practice, the sample for the baseline survey was selected as follows. In each study PSU assigned as (L+N) or (L), a census was conducted of all households that were beneficiaries of the livelihoods intervention (according to the programmes’ beneficiary lists). Among these, of the households that were found to have a child aged 0-24 months, 18 households were randomly selected to be part of the sample. In each study area determined to be outside the relevant programme’s coverage area but nonetheless similar, and therefore a reasonable PSU to include in the (C) group, a census was conducted of all households in the PSU (since programmes did not have information on these households). Among these, of the households that were not beneficiaries of any similar programs and found to have a child aged 0-24 months, 18 households were randomly selected to be part of the sample. Where possible, these were selected such that 9 sampled households had a boy aged 0-24 months and 9 sampled households had a girl aged 0-24 months. Details on the sample for each programme are included in Sections 2 through 4.

In all cases, the youngest child aged 0-24 months in each sampled household was designated as the “index child.” The index child was used as the primary reference for questions regarding such indicators as infant and young child feeding practices. The index child’s mother was used as the primary reference for questions regarding indicators such as nutritional knowledge.

The resulting sample for each programme is representative of the specific population relevant to this evaluation. In the case of (L+N) or (L) groups, the sample represents beneficiary households with at least one child aged 0-24 months located in a PSU covered by the programme and included in the study. In the case of (C) groups, the sample represents non-beneficiary households with at least one child aged 0-24

months located in a PSU that is outside programme coverage but similar to programme areas included in the study. It is not expected that these samples will constitute a nationally representative sample or even a representative sample of all programme beneficiary households (irrespective of household composition). However, in terms of the relevant population for this evaluation, the random selection of 18 households ensures that the sample is representative in its composition of household characteristics (including factors related to gender, age, ethnicity, caste, religion, geographic location, ability, socioeconomic status and hard to reach groups).

1.2.3 Overview of baseline survey

1.2.3.1 Baseline survey instrument

The key instrument of the quantitative component is a survey (see Appendix C) that collects information on indicators along the causal chain detailed in the inception report's theory of change. The quantitative component focuses both on 'final outcomes' of anthropometric Z-scores (referred to as 'impacts' in the terminology of the theory of change) and on 'intermediate outcomes' such as parents' adoption of appropriate childcare and feeding practices (referred to as 'outputs and 'outcomes' in the theory of change). As a result, the quantitative analysis will allow moving logically through impact pathways. In particular, it will capture the necessary indicators to trace out that, without improvement in 'intermediate outcomes,' it is highly unlikely that improvement in 'final outcomes' will be observed.

Accordingly, the baseline survey elicited information on the following components: direct measures of anthropometry; as well as household demographic characteristics; assets; savings and loans; livelihoods; food consumption; maternal knowledge; attitudes and practice regarding care behaviours; infant and young child feeding practices; measures of health status and recent illness; women's status; and retrospective information collected on some of these domains. The survey instrument was submitted for ethics review and approved by the IFPRI Institutional Review Board. Stakeholders had an opportunity to comment on the design and content of the survey instrument before it was fielded.

The same survey instrument was administered to the (L+N), (L), and (C) groups for each programme, so that data could be compared across groups. In addition, (L+N) and (L) households' identification numbers were carried over from the programmes' M&E database so that the data could be linked as necessary.

In addition, a short questionnaire collecting information on community-level characteristics was administered. The community is defined as the "village" for CLP and Shiree/Concern and as the "slum" for UPPR. The questionnaire collects information such as access to infrastructure, disaster proneness, land ownership patterns, and some characteristics specific to the context (e.g., related to the char for CLP, related to flood protection infrastructure for Shiree/Concern, related to the slum for UPPR). Information is to be provided by a community leader or other knowledgeable community member, in order to allow matching (C) clusters to similar (L+N) and (L) clusters, as well as to provide context and suggest explanatory factors for the impact estimates.

1.2.3.2 Fieldwork and dataset logistics

The survey firm Data Analysis and Technical Assistance Limited (DATA) conducted the preparation and administration of the baseline survey. DATA has extensive experience conducting large-scale household surveys in Bangladesh that focus on social protection and nutrition, including measurements of anthropometry and elicitation of detailed food consumption recall. IFPRI has collaborated with DATA on impact evaluations in Bangladesh for over 20 years. DATA's supervisors and enumerators are all locals and native speakers of Bangla.

Prior to enumerator training, the baseline survey instrument was translated from English to Bangla. Many of the modules in the survey instrument were drawn from previous questionnaires administered by IFPRI and DATA, such that these modules were already well tested and translated. DATA's enumerator training for the baseline survey was conducted over 14 days in July-August 2013, with a break for Eid holidays. From July 25 to August 3, eight days of training included comprehensive discussion of each survey module (facilitated by DATA senior staff and/or members of the evaluation team), as well as a pre-test (in Habiganj, Tangail, and Narayanganj districts), a review session, a mock interview, and a test. Following Eid holidays, six additional days of training were conducted from August 17-22, including a refresher training, a field practice, feedback from field practice, a problem-solving session, and a final discussion of logistics and survey tools distribution.

Fieldwork for the baseline survey was conducted from September-November 2013. Because all three intervention arms were interviewed at the same time of year, seasonal factors are not expected to bias comparisons across the groups. Each household interview took approximately two hours to field. As part of the baseline fieldwork, there were two phases to receiving informed consent. In the first phase, DATA survey supervisors met with village leaders of the village (typically the ward member or other respected person in the village) to describe the scope, purpose and duration of the study, the respondent burden, the potential risks and benefits and provide contact details of individuals in Bangladesh who could be contacted for additional details. If the work was deemed acceptable to this local leadership, a survey supervisor and enumerator would make initial contact with respondent households, describing the same information about the study (also included in the written consent form), stressing that participation was strictly voluntary, and recording voluntary consent. No payment or other gifts were offered to households in exchange for participation. However, refusal to participate among sampled households was very low.

Field teams were structured to include supervision and coordination at several levels. For each of the three programmes' baseline survey, the field staff consisted of one overall coordinator, three field coordinators, 15 survey supervisors (one for each of 15 distinct field teams), 15 field editors (one for each of 15 field teams), and 75 enumerators (five for each of 15 field teams).

After completion of the baseline fieldwork, data entry and preliminary cleaning were conducted through January 2014, with additional cleaning performed by both DATA and the evaluation team during subsequent analysis (including DATA reverting to the hard copy questionnaires to resolve questions on outliers or possible data entry errors). Names and other easily recognizable identifiers were removed

prior to data entry and have not been included in any electronic databases. Study identifiers have been included instead, which are not meaningful to casual observers but can be used to link data for the same household across several instruments. Study logs and filled questionnaire hard copies are stored in locked facilities in Dhaka. Data files have been released only to the evaluation team members working on the quantitative analysis at IFPRI and IDS.

The endline survey will be fielded 24 months after the baseline survey, from September–November 2015. As detailed in the inception report, the endline survey will be designed as a repeated cross-section rather than a panel follow-up of the baseline sample. It will collect information in an identical manner, such that changes in relevant indicators can be detected. The endline survey will additionally include questions regarding beneficiary households' experience with the programme, as well as quantitative exploration of issues drawn from the qualitative investigation that will occur between the quantitative baseline and endline surveys. It will again take approximately two hours per household interview.

Data entry and cleaning for the endline survey, as well as delivery of electronic files and storage of hard copies, will be conducted in the same manner as for the baseline survey. Following IFPRI's official dataset policy, the baseline and endline data will be made publicly available two years after all data collection for this evaluation ceases. Prior to the end of the two-year release time, access to these data will be permitted in response to reasonable requests only with the agreement of the quantitative researchers in the evaluation team.

1.2.4 Analysis of baseline data

Analysis of the quantitative baseline data serves as a foundation for the eventual impact estimation described in Section 1.2.1.2. The key contributions of the baseline analysis are to provide context for the impact estimates by describing the situation of each programme's sample prior to the introduction of direct nutrition interventions, as well as to explore how well the baseline samples align with the specifications of the evaluation design described in Section 1.2.1.1.

The main analysis of quantitative baseline data in this report appears in the subsequent sections. Section 2 focuses on the CLP programme, Section 3 focuses on the Concern subproject within the Shiree programme, and Section 4 focuses on the UPPR programme. Each section begins with a brief description of the programme's features, then proceeds to present summary statistics on the key outcome indicators relevant to the evaluation.

The summary statistics for each indicator are shown in tables that provide the mean value by intervention arm, as well as provide the 'p-values' of the differences in these means across intervention arms. The 'p-values' indicate whether the mean differences between intervention arms are statistically significant at baseline. The rule-of-thumb convention in statistics is to consider p-values less than 0.05 as statistically significant, p-values between 0.05 and 0.10 as weakly significant, and p-values greater than 0.10 as statistically insignificant. The standard errors from which these p-values derive, while not shown for parsimony, are adjusted for the survey design and in particular corrected for clustering.

The tables on baseline summary statistics serve several specific purposes in informing the evaluation. First, the mean values shed light on how key indicators tended to look in study areas prior to the start of

any direct nutrition interventions. It should be emphasised that these statistics are representative of the particular population from which they are randomly sampled: beneficiary households in each programme location included in the study that have at least one child aged 0-24 months at baseline, and non-beneficiary households in very similar locations that have at least one child aged 0-24 months at baseline. Therefore, it is not expected that these statistics will align with other statistics representing national averages, averages over all households in the programme areas, or even averages over all beneficiary households in programme areas (inclusive of those without children aged 0-24 months). However, these descriptive characteristics provide useful context on the unique environments of the three programmes' sample sites. Moreover, noting the dimensions in which sample households show poor outcomes at baseline gives some insight into where the addition of direct nutrition interventions may have the most potential for impact.

Second, the magnitude of differences and statistical significance of mean differences between the (L) and (L+N) samples indicates the extent to which the randomisation succeeded in balancing baseline characteristics across these two groups. As described in Section 1.2.1.1, the baseline balance across these two groups is an important feature of the evaluation design, since it allows us to identify differences between the two as causal impacts of the combined intervention relative to a livelihoods intervention only. It is important to note that, while the (L+N) households are assigned to start receiving the direct nutrition intervention *after* the baseline survey, they should be very comparable to the (L) households at the time of the baseline survey.

Third, the magnitude of differences and statistical significance of mean differences between the (C) group and the (L) and (L+N) groups indicate the extent to which the non-randomly sampled control group may be able to serve as a counterfactual for the beneficiary groups in the absence of intervention. Although the overall (C) group is not expected to be well-balanced with the (L) and (L+N) groups since it was not selected randomly, it is more likely that a comparable subset of the (C) group can be found if the overall means are fairly similar and the p-values for differences in means are fairly large. Following the completion of the main body of this baseline report, additional analysis was conducted on the (C) groups, using exploratory propensity score matching to further assess their suitability to serve as counterfactuals in the evaluation; this analysis is summarized in Appendix G.

It is important to note that given the large numbers of indicators over which tests of statistical significance are conducted in Sections 2 through 4, there is potential for some statistically significant differences to appear by chance due to multiple testing. Because this baseline report's purpose in analysing statistically significant differences in baseline indicators is illustrative, to broadly assess patterns of similarity or difference rather than to estimate individual impacts, no formal tests are conducted in this report to adjust for multiple testing. Adjustments for multiple testing (such as use of Bonferroni corrections or tests of joint significance) will be made during the estimation of quantitative impacts to be presented in the final report.

1.3 Exploratory/explanatory component

1.3.1 Evaluation design

The exploratory/explanatory component of the evaluation focuses on addressing Objective 2 described in Section 1.1.1, namely “To explain [this] impact, drawing on qualitative and quantitative evidence regarding programme-specific and wider societal/contextual factors that could affect programme outcomes.” It consists of two complementary and interlinked subcomponents: a process evaluation and qualitative evaluation.

The process evaluation aims to identify the critical processes in the implementation of the programme’s strategy and to assess whether these processes were implemented as planned. Furthermore, the process evaluation will map the quality of programme delivery to more proximate outcomes identified in the quantitative survey and use this to explain the impacts detected or not. ITAD leads this component in partnership with Centre for Natural Resource Studies (CRNS), Bangladesh. The process evaluation started in July 2014 and will draw on the findings from the quantitative baseline and the qualitative subcomponent of the exploratory/explanatory component.

The qualitative evaluation aims to explain how and why the combination of livelihood and nutrition interventions may be effective in triggering behaviour change and improving child nutrition within the context of the three programmes. The sub-aims of the qualitative investigation are:

To investigate interactions between societal, community, family and programme structures and how these might influence intervention uptake and behaviour change;

To identify contextual factors that can enhance or hinder the programme uptake. This will include an in-depth examination and testing of the programme assumptions and causal chain processes (described in the Theory of Change) within the context of the study communities.

IDS leads this component in collaboration with BRAC Institute for Governance and Development (BIGD, formerly BRAC Development Institute) at BRAC University. Two qualitative, longitudinal data collection processes are being carried out as part of this evaluation. Originally, the first qualitative data collection was planned to be conducted between November 2013 and January 2014. However, countrywide strikes (hartals) and blockades (oborod) prior and after to the 10th national parliamentary election on 05 January 2014 posed a security risk and restricted movements of the qualitative field teams and delayed the start of the qualitative fieldwork, including the pilot-testing of the qualitative tools, until February 2014. The first phase of qualitative data collection was completed in May 2014. Follow up in some select field sites is ongoing with the final second phase of fieldwork anticipated to take place between September and November 2015 to coincide with the quantitative endline survey. In the following section, the further development of the different elements of the qualitative evaluation component that took place after the inception phase will be presented.

1.3.2 Qualitative methodology

Between November 2013 and February 2014, the IDS/BRAC team selected the qualitative case study sites, designed and pilot-tested the qualitative data collection tools, commenced the qualitative data collection, and further developed the analytical approach to the qualitative data. To inform the tool



development and to gain a better understanding of the country-specific causes of child undernutrition in Bangladesh, the team also conducted a comprehensive literature review on child undernutrition in Bangladesh.

1.3.2.1 Sampling

Site selection

The qualitative component employs a multi-site case study approach with purposefully selected community focus clusters. The cluster sites were selected as a subsample of the quantitative study communities and reflect the two major intervention groups (L) and (L+N) in the three programme areas. The team aimed to strategically select information-rich cases that would allow the exploration of the link between the interventions and the outcome in different contextual settings. Box 1.1 describes the selection of the case study sites within the three programme areas. The control sites for the qualitative work are currently being selected.

Box 1.1. Selection of the qualitative community cluster sites

Qualitative sites in CLP

Nilphamari district is located in Rangpur Division in Northern Bangladesh. It is 400 km from the capital Dhaka and comprises 1,547 square km. It has one of the highest poverty head count ratios of Bangladesh and is extremely vulnerable to annual flooding. CLP is active in two upzillas of Nilphamari: Jhaldhaka and Dimla. One village from Jhaldhaka was selected for the (L) area and one village from Dimla were selected as (L+N) areas. The villages are geographically close and have similar socioeconomic and environmental contexts.

Qualitative sites in Shiree (Concern)

Sunamgaonj district is situated in northeastern Bangladesh within the Sylhet Division. It is a harbor area and affected by extreme flooding for up to 7 months each year. It is also one of the poorest districts in the Sylhet division (World Bank, WFP). One village in Dharmopasha Sadar (L+N) and one village in Selborosh Union (L) were selected from among the sites covered by the Shiree (Concern) programme.

Qualitative sites in UPPR

The qualitative sites are located in Chittagong, the second largest city of Bangladesh. Two urban slum settlements in Uttar Pahartoli and Dakshin Kattali were selected for the (L) and (L+N) sites from among UPPR programme communities. Uttar Pahartoli is densely populated and situated in a hilly, sandy area that is highly vulnerable to landslides and flooding. Dakshin Kattali is situated nearby the sea. Both areas have a high percentage of very poor households.

Participant selection

In each of the selected community clusters, study participants were selected purposefully using stratified purposeful sampling to illustrate characteristics of different relevant subgroups and to allow comprehensive understanding of the programme in different settings. First, the research teams met with the local programme implementers and described the purpose and aims of the evaluation. The aim of the

meetings was to understand the current status of the programme implementation and in particular the progress of different intervention arms. Second, the research teams conducted informal walks (so called transect walks) through the community to facilitate building of rapport and identification of key informants who could provide background context on the locality. Third, enlisting the help of the key informants and programme implementers, participants for focus group discussions, in-depth interviews, observations and life histories were identified. The aim was to collect information from a variety of interviewees with different experiences, perceptions, and points of view. Interviewing different household members is important to obtain insight into gender roles and intra-household decisionmaking in relation to child nutrition and health.

1.3.2.2 Tool development

Multiple data collection tools are being used to obtain qualitative data from different sources (see Table 1.1 for an updated version of the tool matrix). The use of different data sources is important to allow for triangulation of different qualitative findings. This will involve deliberate attempts to corroborate, confirm, elaborate and disconfirm facts and interpretations from the qualitative findings and to create a fuller picture of the impact of the intervention (or combination of interventions). The development of the topic guides for the in-depth interviews and focus group discussions was informed by preliminary findings of the quantitative survey analysis and review of existing literature² (see Appendix D for the topic guides).

Major topics areas covered by the qualitative data collection tools include:

1. Social, economic, institutional and political context of the community:
 - social networks, power dynamics, gender relationships
 - political economy and perceived governance (e.g., perceived political tensions, corruption)
 - access to markets (e.g., to sell agricultural products, buy nutritious food)
 - activities from other institutions, non-governmental organisations, actors (e.g., health and nutrition promotion, ante-natal care)
2. Local practices, resources, customs in regards to health, hygiene, nutrition and care of children, pregnant and lactation mothers, adolescent girls
 - perceived major nutritional challenges in the community
 - intrahousehold decision-making processes in regards to child care and nutrition
3. For (L) and (L+N) sites: Perceived impact of the livelihood intervention
 - perceptions of why the livelihood intervention improved/did not improve the nutritional status in the beneficiary households

² As part of this evaluation IDS has carried out two desk-based literature reviews (one on determinants of undernutrition in Bangladesh, the other on livelihoods in Bangladesh) and one review of programme information relating to the three programmes being evaluated.

4. For (L+N) sites: Perceived synergies and disconnects between the nutrition and livelihood interventions in the communities
5. For (L+N) sites: Micro-dynamics of the nutrition intervention at the community level and how beneficiaries perceive/experience the intervention

1.3.2.3 Analytical approach

A common feature in evaluations that use case-study approaches is that parts of the qualitative data analysis are concurrent with the data collection (GAO 1990). In this evaluation, preliminary analysis of the qualitative data is being conducted by the BRAC field teams in collaboration with IDS as soon as the data become available. Emerging results are discussed in the team during the several debriefing meetings in Dhaka and then inform the collection of further data and in some cases the inclusion of new interviewees. This is an 'observe, think, test, revise' (OTTR)-sequence. Returning repeatedly to the case study sites will allow the teams to explore changes in response to the interventions as well as potential changes in the communities that may have occurred independent from the interventions. It will also allow the team to analyse contextual factors (including seasonality) in greater depth and understand how they may interact with and influence the intervention up-take and behaviour change.

Table 1.1. Tool matrix for qualitative data collection							
SL	Methods	Stakeholder/respondent group	(L+N) AREA	(L) AREA	Control area	Estimated number of activities (Each prog.)	Total units
1	Social mapping	Local elite, key individual, people from different occupational groups	1	1	1	3	9
2	In-depth interviews	Local elite	1	1	1	18	54
		Partner NGO official/programme implementer	1 (N official)	1 (L official)			
		Health worker/nutrition worker	2 (Health and nutrition worker)	1 (health worker)	1 (other org health worker)		
		Elderly male member of beneficiary household ^a	1	1	1		
		Elderly female member of beneficiary household ^a	2	2	2		
3	Focus Group discussion	beneficiaries of (L) intervention		2		9	27
		Beneficiaries of (L+N) intervention	2				
		Non beneficiaries (female)			2		
		Male from different occupation group	1	1	1		
4	Household-level observation	Livelihood Beneficiaries household of 6-24 months children		2		6	18
		Livelihood and nutrition beneficiary's household of 6-24 months children	2				
		Non beneficiary's household of 6-24 months children			2		
5	Life history	Livelihood beneficiaries household of 6-24 months children (3)		3		9	27
		Livelihood and nutrition beneficiary's household of 6-24 months children (3)	3				
		Non beneficiary's household of 6-24 months children (3)			3		
Total						45	135

^a In Bangladesh household-level decision-making in regards to health and nutrition is often the prerogative of male and female senior household members.

Apart from the concurrent analysis, a content analysis approach will be employed for the analysis of the textual data after completion of the qualitative data collection. Elements of a realistic evaluation (Pawson and Tilley (1997) will thereby facilitate the unpacking of the mechanism-based causality being triggered in specific contexts and, in particular, behavioural change among beneficiaries of the nutrition intervention.

1.3.3 Literature review on determinants of undernutrition in Bangladesh

In order to better understand the country-specific causes of child undernutrition in Bangladesh and to inform the qualitative data collection (and, where relevant, the other evaluation components), a comprehensive literature review was conducted as part of the qualitative subcomponent of the evaluation between November 2013 and January 2014. The review aimed to identify, review, and summarize existing research evidence on the determinants of undernutrition in children aged two years and below in Bangladesh. A summary of key findings from this review are included in Appendix E.

1.4 Mixed method approach

This evaluation uses a sequential mixed method approach in which the different quantitative, exploratory/explanatory, and cost effectiveness components are actively integrated at all stages of the evaluation. This section focuses on highlighting the synergies and overlaps already identified between the quantitative and exploratory/explanatory components.

- **Sampling**

The qualitative sites were selected as a subsample from the sites selected for the quantitative surveys, in order to allow for triangulation of information and the ability to draw out contextual qualitative information from the same communities that may either explain or contradict the quantitative findings. Similarly, the selection of study communities for the process evaluation (which started in July 2014) was informed by the quantitative and qualitative samples selected, as well as the descriptive analysis of the baseline survey and the contextual analysis of the qualitative data. To reduce participant burden, qualitative cluster sites were included in the sample frame for the process evaluation.

- **Data collection**

Quantitative and exploratory/explanatory data collection tools are designed to complement and extend each other. The development of the qualitative data collection tools was informed by and extended from the quantitative baseline survey. Hence the evaluation team was able to follow up on specific topic areas that were covered in the survey, in more detail in the qualitative work. For example, child care and feeding practices are explored in greater detail in the qualitative evaluation strand to get an insight into potential context specific barriers and facilitators of intervention up-take and behaviour change. Similarly, the process evaluation tools developed were strongly informed and guided by the quantitative and qualitative data collection tools, as well as by results generated so far. Findings and initial hypotheses

from the ongoing exploratory/explanatory component will also be fed into the development of the quantitative endline survey to allow follow-up at a more representative and generalizable scale.

- Data analysis and interpretation

The quantitative and qualitative and process subcomponents of the exploratory/explanatory evaluation components will initially be analysed separately to emphasize interpretations and findings from different methods.

An integrative third analysis step will follow and will combine the different analyses. Ongoing communication and collaboration between members of the evaluation team located in different partner organisations will facilitate the prompt combination of emerging findings at critical stages. For example, quantitative survey data will be extracted to complement the qualitative case study analyses and will allow for a more comprehensive understanding of contextual factors in the chosen communities. The nature of the qualitative investigations in the exploratory/explanatory component might also offer new avenues for the analysis of the quantitative survey and suggest additional strategies for the stratification and disaggregation of data.

A mixed methods workshop was held in June 2014 to facilitate this integrative process and help identify follow-up threads between the different data sources and shape the design of remaining fieldwork activities. Bringing together staff from across the quantitative and exploratory/explanatory evaluation teams, participants reviewed and compared data collected so far from the quantitative baseline survey and first phase of qualitative fieldwork. The focus of analysis was to establish the characteristics and context of the environment in which the livelihood and nutrition interventions were operating which could potentially influence uptake of the interventions and behavior change and against which the effectiveness of the interventions will be assessed during the final phase of the evaluation.

Analysis from across the quantitative and qualitative datasets highlighted some major differences in the key features of the three programmes' livelihood interventions such as beneficiary selection, the range of services and assets provided and mechanisms for selection and delivery. It also showed a wide variation in beneficiaries' reported experiences of programme benefits (e.g., improved sanitation facilities) and perceived weaknesses (e.g., dissatisfaction with type of assets received). The manifestation of child undernutrition across the three programme area also varied significantly (e.g., child stunting rates ranging from very high [45%] in some areas to medium [25-28%] in others) and both qualitative and quantitative data confirmed wide variation in associated level of knowledge and cultural practices, e.g., related to breastfeeding, complementary feeding and diet. Qualitative findings were particularly useful in explaining, and some cases contradicting, baseline quantitative findings relating to the wider social, economic, political and cultural context of the programme intervention areas. More detailed findings are presented in Appendix F.

Emerging (and seemingly contradictory) differences between the findings from the different evaluation components will thereby be seen as a major strength of the mixed method approach as they will provide deeper insights and real-world understanding of the different intervention components and their interactions.

2 CLP PROGRAMME

2.1 Background

2.1.1 Description of programme features

The Chars Livelihoods Programme (CLP) is a major programme delivering a mix of livelihood and social development support to extremely poor households living on island chars on the Jamuna River in Northern Bangladesh. The first phase of the programme ('CLP-1') which cost £50 million, ran from 2004-2010 and was funded by the UK Department for International Development (DFID). It has been succeeded by a second phase ('CLP-2') which began in 2010 and is due for completion in 2016, with the Australian Agency for International Development (AusAID) joining as a funding partner (HTSPE 2011). On the ground, implementation of the CLP has been managed by Maxwell Stamp Plc since 2004.

The original strategy of the CLP-1 was to provide targeted infrastructure, strengthen the voice of poor char dwellers and build the capacity of local government to provide basic services (Howes 2006). However following a review the design changed in 2006 to move away from local government level toward a more direct delivery model targeting the household level, centering programme activities on an Asset Transfer Programme (ATP) with the aim of lifting extreme poor out of poverty by the transfer of income-generating assets. The ATP involved the transfer of £100 plus productive assets to the 50,000 poorest households. The package of support for each household lasted 18-months and female household members were the main target recipients.

Interventions included in the package included

1. The transfer of an initial amount of capital to buy an income generating assets (e.g., cow, rickshaw or sewing machine) followed by a monthly stipend;
2. The provision of physical infrastructure such as plinths to raise homesteads above the flood line, latrines and tube wells; and
3. The delivery of social development training and other types of support such as village savings and loans associations, community health care and enterprise development trainings (Ibid).

The rationale behind the CLP programme design and theory of change is that, through the ATP and participation in weekly social development meetings, extremely poor households can build up assets (economic, human and social) to generate reliable income streams and carve a pathway out of poverty (IIA 2011). The expectation is that not only will livelihoods of the beneficiary households be protected and promoted, but they will be transformed, allowing households to have sustainable and self-sufficient livelihoods. In line with its theory of change, CLP interventions are designed to protect very poor people while at the same time working toward longer term social and economic transformation. Thus the long term aim of CLP-1 was about making beneficiaries independent of other outside assistance so that the benefits created by the programme could continue without further support (CLP 2012).

The recipient selection process under the CLP is based on a number of basic criteria including (Ibid)

- Not owning land
- Assets of less than Tk 5,000
- No regular source of income
- At least six months of residence at the CLP intervention areas
- No outstanding loans
- Not a recipient of grants/assets from other social programmes,
- Willingness to participate in the programme

From this list of selected participants, the CLP further divided its beneficiaries between core and non-core recipients. The core recipients benefit from the ATP, social development trainings and infrastructure support, while the non-core beneficiaries receive support only through the infrastructure programmes and social development training programmes (HTSPE 2011). The CLP-1 delivered a tailored package of interventions to 90,684 households in total—of which 55,000 (considered core beneficiaries) received a full package of support and the remaining 35,684 households were non-core beneficiaries. The population impact of the CLP-1 has been estimated at 335,500 people³ (HTSPE 2010).

The CLP-2 began in April 2010, following straight on from the CLP-1 and providing the same package of livelihood support, but with a widened working area: it continues to operate in Kurigram, Gaibandha, and Jamalpur, but has expanded coverage to include the new districts of Lalmonirhat, Nilphamari, Rangpur, Pabna, and Tangail (CLP 2014).

Between 2010 and 2011, the CLP-2 delivered assets to 13,748 beneficiaries and, in 2013, to around 16,309 beneficiaries. This brought the cumulative number of beneficiaries that received assets under the CLP-2 to 50,857 (CLP 2012/13). The CLP-2 this year (2014) is assisting 16,123 households to establish homestead gardens, bringing the overall target under the CLP-2 to 50,372 households. As part of the CLP-2 intervention's focus on infrastructural development, 16,273 households were raised on an earthen plinth, 35,000 latrines were installed, and over 14,000 household benefited from improved water supply (Ibid). The Village Savings and Loan groups (VSL) have benefited more than 35,000 members, and the social development activities created 759 participant groups while adding 110 further village developments (Ibid).

In addition to the livelihoods support described above, and in accordance with guidance received from DFID on the implementation of a direct nutrition support programme (which is the focus of this evaluation) CLP-2 is introducing a set of complementary direct nutrition-specific activities. These are targeting a total of 73,017 core participant households in eight Districts (Kurigram, Gaibandha, Rangpur, Lalmonirhat, Nilphamari, Jamalpur, Tangail, and Pabna). Activities are being implemented via trained Community Nutrition Workers, or *Char Pushti Karmis* (CPKs) selected from char villages via the 17

³ To demonstrate the impact of the programme, the CLP's Innovation, Monitoring and Learning Division (IML) introduced in the first phase a rolling baseline or pipeline controls to estimate its impact. This is where the baseline status of new, annual entrants, or new cohorts, provided the basis against which one could measure the progress of earlier cohorts. The IML collected baseline data from a control group from a sample of villages where the programme would not work for at least one year and used these as control group (CLP approach to control groups, 2010).

Implementing Organisations (IMOs) they are partnering with to deliver the programme. Activities include

- Household Level Counselling: Counselling on initiation of breastfeeding within 1 hour of birth, colostrum feeding, exclusive breastfeeding, continuous breastfeeding, complementary feeding and hygiene promotion) through monthly visits
- Micronutrient Supplement:
 - Five components Micronutrients (including '5 micro nutrients powder': Iron: 12.5 mg, Folic Acid: 0.16 mg, Zinc: 5 mg, vitamin A: 0.3 mg, Vitamin C: 30 mg) will be given to children aged between 7 to 23 months. Dosage of 120 sachets/ year. Intake of supplements will be ensured through home visits.
 - Iron and Folic Acid (IFA) Tablets (each tablet contains 60mg iron and 400 mg folic acid): 180 IFA tablets will be given to each pregnant woman after first trimester and up to 180 for each breastfeeding woman per year while 104 tablets will be given to each adolescent girl a year. Deworming Treatment: Children one to five years of age, adolescent girls, pregnant women after the first trimester of pregnancy will receive regular deworming treatment based on WHO and Government of Bangladesh guidelines
- Identification and Referral of Acute Malnutrition: MOU signed with partners for treatment and services to be provided
- Facilitation of Government campaigns: participation in different Government of Bangladesh promotion campaigns with emphasis on nutrition related events

In addition, CLP is imparting some training and orientation activities to different relevant stakeholders, including:

- Newly married couple orientation
- Village doctors training
- Community clinic management support group orientation
- Special social mobilization event
- Nutrition education on eight topics for other households where there is no DNIP specific target groups

2.1.2 Sample selection

As described in Section 1.2.2, for the CLP quantitative baseline survey, sample households were selected from the 70 (L+N) PSUs and 70 (L) PSUs using CLP's beneficiary lists. PSUs were specified to be administrative wards, which are groups of adjacent villages. In each of the 140 PSUs, a census was conducted of all households that were listed as CLP beneficiaries. Among these, of the households that were found in the census listing to have a child aged 0-24 months, ideally 18 households were randomly selected to be part of the sample. If a PSU was found to have fewer than 18 beneficiary households total

with a child aged 0-24 months, the maximum number available were selected. Where possible, these households were selected such that half the sampled households had a boy aged 0-24 months and half had a girl aged 0-24 months. In each sampled household, the youngest child aged 0-24 months was designated as the “index child.”

It had been intended that 70 PSUs would be selected for the CLP (C) group as well. Given that the CLP programme aims for blanket coverage of eligible areas, it was challenging to find localities in which households had similar observable characteristics to CLP beneficiary households but which were not already covered by the programme. At the time of the baseline survey, 70 PSUs were identified as potentially similar, among which 8 PSUs were scheduled to begin receiving the programme in the future as part of ‘CLP Cohort 2.6.’ In each of these 70 PSUs, a census was conducted of all households in the PSU (since CLP did not have information on these households). Of the households that were found in the census listing not to be beneficiaries of any similar programs but found to have a child aged 0-24 months, ideally 18 households were randomly selected to be part of the sample. Again, if a PSU was found to have fewer than 18 beneficiary households total with a child aged 0-24 months, the maximum number available were selected. Where possible, these households were selected such that half the sampled households had a boy aged 0-24 months and half had a girl aged 0-24 months. In each sampled household, the youngest child aged 0-24 months was designated as the “index child.”

After the baseline survey, it was decided that CLP Cohort 2.6 would begin receiving CLP benefits in April 2015, prior to the endline survey, such that the 8 PSUs in CLP Cohort 2.6 would need to be dropped from the study as control sites. CLP programme staff also indicated that the remaining 62 PSUs already sampled for the control group were likely dissimilar to beneficiary sites. The CLP (C) group analysed in this baseline report consists of only these 62 PSUs. Further analysis will indicate whether this group includes sufficient numbers of households similar to the (L) and (L+N) households to serve as a counterfactual.

The final sample breakdown is as shown in Table 2.1.

	Number of sampled PSUs	Number of sampled households
(L+N)	70	1,174
(L)	70	1,214
(C)	62	1,109
Total	202	3,497

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

2.2 Household demographic and socioeconomic characteristics

The analysis of the CLP quantitative baseline data begins with an exploration of the demographic and socioeconomic characteristics of sample households. In this section, we examine the demographics within these households, the educational attainment and occupational status of household members, the dwelling conditions and access to basic amenities they face, their exposure to economic shocks, and the remittances and transfers they report. These descriptions provide useful context on the situation in CLP

sample areas prior to the introduction of direct nutrition interventions. We also give particular attention to how these characteristics differ across the three intervention arms, since for the purposes of the evaluation, ideally they will be very similar across the arms at baseline.

2.2.1 Household composition and demographic outcomes

The average household size in the *chars* is approximately 4.4 (Table 2.2). This is slightly less than the national rural average of 4.7 members per household according to the Bangladesh Demographic and Health Survey 2011 (NIPORT 2013). In the control areas, the household size is lower at 4.2. Among the male-headed households, the household heads are in their early thirties- aged around 33/34 years. Approximately 10 per cent of the households are female-headed and these household heads are also in their early thirties but the average age is lesser at 32 years for the (L+N) and (L) households and significantly lesser at 27.5 years for the control households. The data shows that majority of the women household heads were widows, which is probably a manifestation of the poor access to healthcare facilities and consequent high mortality rates that plague the *chars*.

Since the sample was selected in such a way that each household has a child less than 2 years, the numbers in the table below also reflect this. In terms of the gender division, 51 per cent of these households have boys below 2 years and 51 per cent of these households have girls below 2 years. This symmetry is because during the sample selection we also tried to ensure that households were split equally, as far as possible, between boys and girls below 2 years of age. If we look at the number of children below 5 years of age, the number per household goes up slightly to 1.3. For the control areas the number is somewhat lesser at 1.2. On an average, the (L+N) households and the (L) households have approximately one child of school-going age while the control households have less than one child of school-going age.

Each household in the (L+N) and (L) areas have, on an average, slightly more than 2 members of working age (between 15 to 64 years). The number of dependents in these two areas is marginally higher rendering a dependency ratio of 1.12. For the control areas, the dependency ratio is less than 1, given that the number of working age members is 10 per cent more than the number of dependents. For each of the demographic indicators discussed above, there are no significant differences at the 5% level between the (L+N) and (L) households, implying that the randomization was successful in maintaining the homogeneity in demographic outcomes between the two groups. However between each of these two areas and the comparison areas there are some significant differences in the means of some indicators viz. household size, age of male and female household heads, number of school aged children, number of dependents, and the dependency ratio. This suggests that a careful selection of the counterfactual households would have to be made for estimating the livelihood cum nutrition impact estimates.

Table 2.2. Baseline means of household composition and demographic outcomes, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Household size	4.38	4.45	4.18	0.29	0.00	0.00
Age of male household head	34.04	34.35	33.11	0.51	0.03	0.01
Female headed household (%)	10.73	9.80	9.92	0.60	0.65	0.95
Age of female household head	32.13	31.98	27.46	0.93	0.00	0.00
Number of children < 2 years	1.02	1.01	1.01	0.08	0.09	0.95
Number of children < 5 years	1.31	1.30	1.18	0.89	0.00	0.00
Number of school aged children (5-18 years)	0.94	1.00	0.82	0.13	0.00	0.00
Number of working age members (15-64 years)	2.15	2.18	2.19	0.36	0.29	0.89
Number of dependents (< 15 years and > 64 years)	2.23	2.26	1.99	0.53	0.00	0.00
Dependency ratio ^a	1.12	1.12	0.99	0.99	0.00	0.00

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

^a Dependency ratio = number of dependents (less than 15 or over 60 years of age) divided by the number of working age people.

2.2.2 Educational attainment

Women have a higher exposure to schools than men as shown by Table 2.3. In the (L+N) and (L) locations, male household heads have gone to school for less than 2 years in their lives while for women the figure is above 2 years. Interestingly the average years of schooling is higher in the control areas than the intervention areas for both men and women, but the edge that women demonstrate over men in terms of higher schooling years is maintained here as well. One reason for the higher overall schooling years in the control areas could be that the control households were largely taken from mainland *chars* while the intervention households were from island *chars*. As the names indicate, mainland *chars* have good links to the mainland while island *chars* are surrounded by water throughout the year. Mainland *chars* were also island *chars* at some point in time but with changes in the course of the river, these *chars* have now physically merged with the mainland. Island *chars* can also have a connection with the mainland but, if so, the only direct link is a narrow strip of land where most motorized vehicles cannot cross over. Due to the geographical advantage, mainland *chars* have better access to facilities such as schools, healthcare and even early warning systems compared to their island counterparts.

A look at the level of education shows that 68-73 per cent of the men never went to school in the (L+N) and (L) areas. The corresponding figure for women are much lower ranging from approximately 52 per cent to 55 per cent. For Bangladesh as a whole, until the early 1980s, males were given significant preference over the females in education and accordingly investment in female education was lower than required. Since 1990, the country has seen a steep rise in girls' gross primary as well as at the secondary enrolment. The female-male gap in the enrolment rates began to narrow down and gender parity in primary and secondary education began to be established. It is apparent that some of the achievements at the national level in closing the gender gap in education have seeped on to the *chars* too, as the numbers in the table below indicate. Approximately 22-25 per cent of the mothers/caregivers of the index children

had successfully completed primary education while for men the numbers ranged from 13-16 per cent. Again for the control areas, 39 per cent of the women had completed primary school as against 30 per cent of the men. Moving on to the next tier of education, not even 1 per cent of the men or women could successfully complete secondary education in the CLP areas. However in the control areas, slightly above 1 per cent of the men and close to 2 per cent of the women had graduated from secondary school. A look at the p-values show significant differences between the some of the educational attainments of household heads and the index child's mother/caregiver which are understandable given the fact that the control households belonged mainly to mainland *chars*.

In terms of comparability between (L) and (L+N), the majority of educational attainment indicators are balanced between the two groups at the 5% level. Nonetheless there are quantitatively small but statistically significant differences in two indicators related to household heads' education – the average years of schooling and the proportion with no schooling – indicating that these small baseline differences may be worth controlling for in the eventual impact analysis of (L+N) over and above (L).

Table 2.3. Baseline means of indicators of educational attainment, by intervention arm—CLP						
	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Household head						
Years of schooling	1.56	1.29	2.70	0.05	0.00	0.00
Level of education						
No schooling	68.48	73.15	53.74	0.05	0.00	0.00
Below primary school	13.88	12.85	13.35	0.51	0.72	0.75
Completed primary school	16.01	12.77	29.58	0.07	0.00	0.00
Completed secondary school	0.94	0.91	1.26	0.94	0.45	0.38
Completed high school	0.34	0.08	1.08	0.16	0.05	0.00
Above high school	0.26	0.25	0.81	0.97	0.06	0.05
Religious or other education	0.09	0.00	0.18	0.32	0.53	0.15
Index child's mother/caregiver						
Years of schooling	2.26	2.06	3.48	0.21	0.00	0.00
Level of education						
No schooling	52.39	55.35	38.32	0.32	0.00	0.00
Below primary school	21.38	22.16	19.48	0.71	0.35	0.18
Completed primary school	25.38	21.66	39.22	0.11	0.00	0.00
Completed secondary school	0.60	0.66	1.80	0.85	0.03	0.03
Completed high school	0.17	0.08	1.08	0.54	0.01	0.00
Above high school	0.00	0.00	0.09		0.32	0.32
Religious or other education	0.09	0.08	0.00	0.98	0.32	0.32

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

2.2.3 Occupational status

More than 60 per cent of the household heads under CLP are daily wage labourers, overwhelmingly agricultural wage labour (Table 2.4). In the control areas, the share is close to 50 per cent. These numbers

are in conformity with the findings of the latest Household Income and Expenditure Survey (conducted at regular intervals by the Bangladesh Bureau of Statistics) which shows that daily wage labourers form the poorest occupational group (BBS 2011). The next most prevalent occupation in the *chars* was self-employment, predominantly rickshaw pulling, which requires no skill. Other notable self-employed engagements in the CLP areas included tailoring, carpentry, making handicrafts and being a porter, in order of decreasing frequency. Petty trading/business, mostly in the nature of a small roadside tea/snack stall or a small shop followed self-employment in both the programme and non-programme areas. In the control areas, the proportion of households in self-employed activities and in petty trading/business was almost double that of the programme areas. With the control population housed mostly in the mainland *chars*, their overall socioeconomic condition is somewhat better. Though agricultural wage labour formed the bulk of the labour force even in the control areas, the other self-employed jobs included the more skilled (and better paying) motorized vehicle driver or mason. Approximately 5 per cent of the CLP households are in crop farming while another 5 per cent were in fishing, livestock and to a lesser extent, poultry. Our survey revealed that farmers grew most vegetables of the climber variety (such as gourds), which require very little soil space and can be easily trailed on to the tin roofs for fruition. The percentage of households under the livestock and poultry category in CLP areas is more popular than the control areas since cattle rearing is promoted in the CLP as part its asset transfer component. The proportion of salaried workers is very low in these areas while in the control areas, the proportion is somewhat higher at approximately 3 per cent, again a probable reflection of their better economic condition vis-à-vis the island *chars*. Those earning no income at all were mostly housewives. It may be pointed out that 10 per cent of the *char* households were women-headed households.

The most dominant occupation for women in the CLP areas who were mothers or caregivers of the index children was poultry and livestock farming. In these areas, approximately one-fifth of the mothers/caregivers were in a non-earning occupation, predominantly housewives. About 3-4 per cent of these women were either in crop farming or fishing, crop farming being primarily homestead farming. Interestingly for the households in the control group, the proportion of women engaged in poultry and livestock rearing was much lesser while the proportion of non-earning occupation (primarily housewives) was well beyond 50 per cent. As has already been mentioned earlier, this could be because not all households in the control group match perfectly with the programme areas, since the control households belonged mostly to the 'less-poor' mainland *chars*. A propensity score matching will eventually be done to identify all comparable households when the impact evaluation estimates are computed. Women's participation in wage work was much lower than men, and women were also significantly less likely than men to be engaged in self-employed nonfarm activities or in petty trading. Under petty trading/business, women were mostly in tailoring or making handicrafts for sale. Among the salaried workers, the women were chiefly NGO workers or housemaids. The p-values for differences in mean occupational outcomes between the programme areas and the control areas show several significant differences which are explainable.

Table 2.4. Baseline shares of household head and index child's mother/caregiver in different occupations by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Household head ^a						
Farming (crop) ^b	5.28	5.11	1.44	0.87	0.00	0.00
Fishing	3.15	3.54	1.17	0.76	0.02	0.04
Poultry and livestock	2.13	2.55	0.45	0.60	0.01	0.00
Daily wage labour	61.50	60.54	48.78	0.78	0.00	0.00
Salaried worker	1.11	1.40	3.43	0.52	0.00	0.01
Petty trader/business	5.62	6.84	11.09	0.39	0.00	0.01
Self-employed	11.75	11.37	22.45	0.83	0.00	0.00
Non-earning occupation	0.77	0.66	1.80	0.77	0.05	0.02
Index child's mother/caregiver						
Farming (crop) 2	2.39	3.38	1.17	0.27	0.10	0.01
Fishing	0.26	0.91	0.18	0.10	0.77	0.06
Poultry and livestock	75.13	72.49	39.13	0.52	0.00	0.00
Daily wage labour	1.62	1.15	1.17	0.35	0.45	0.97
Salaried worker	1.02	0.82	0.72	0.60	0.45	0.78
Petty trader/business	0.09	0.16	0.09	0.58	0.97	0.61
Self-employed	0.85	1.40	0.99	0.24	0.72	0.38
Non-earning occupation	18.91	20.59	56.72	0.68	0.00	0.00

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

^a Excludes women-headed households if the head is also the mother/caregiver of the index child.

^b Includes homestead farming.

In terms of comparability between (L) and (L+N), all occupational indicators compared are balanced between the two groups at the 5 per cent level. Findings suggest that baseline occupational status need not be controlled for in the eventual impact analysis of (L+N) over and above (L).

2.2.4 Dwelling conditions and access to basic amenities

Quality of housing and poverty have been found to be closely correlated in Bangladesh. Housing conditions in the *chars* are meagre. All dwellings have dirt floors, except for a tiny fraction in the (L+N) areas and the control areas (Table 2.5). Almost 100 per cent of the dwellings in all the three treatment arms have non-permanent walls. In the CLP locations slightly more than half of these non-permanent walls are made of corrugated iron sheets while the other half have more frail walls made of dry grass or jute sticks or even polythene sheets. In the control areas, the occurrence of the more durable and protective tin walls is significantly higher than the programme areas. Households predominantly have non-permanent roofs of corrugated iron sheets. Some dwellings have roofs of palm leaves, straw, cardboard or polythene but the occurrence of these is significantly less in the control areas. In terms of comparability between (L) and (L+N), all housing conditions compared are balanced between the two groups at the 5 per cent level, indicating that they need not be controlled for in the eventual impact analysis of (L+N) over and above (L). However, there are significant differences in housing quality

between the programs households and the comparison households as the p-values indicate. Since the control households belong largely to mainland *chars*, which are relatively less remote and less poverty-stricken, this could be expected. This implies that a very careful selection of the households which are appropriately comparable to the treatment households will have to be done for estimating impacts of the interventions.

A vast majority in the CLP areas have no access to electricity. In relative contrast are the control households, one-fourth of which have access to electricity. Being largely mainland *chars*, it appears that these households have been able to link themselves with the rural electrification network in the nearby well-connected locations. Slightly higher than one-third of the programme households use a sanitary latrine. The usage is reduced to barely 15 per cent in the control areas. Among those who do not have access to a sanitary latrine, about 6 per cent use no latrine at all in the CLP location while the figure is 10 per cent in the non-CLP areas. Providing access to a sanitary latrine and safe drinking water are among the benefits of the CLP's core package which probably explains the lower usage of a sanitary latrine among the mainland *char* households. Almost all households in the *chars* have access to a safe source of drinking water, predominantly tube wells, though the percentage for control areas is marginally less. However, we do not have information on the extent to which the tube well water is arsenic-free. In terms of comparability between (L) and (L+N), all amenities indicators compared are balanced between the two groups at the 5% level, suggesting that they need not be controlled for in the eventual impact analysis of (L+N) over and above (L). However the differences in access to amenities between the (L+N) and (L) areas on one hand and the control areas on the other hand are significant, suggesting the need for a careful selection of comparison villages prior to computing the nutrition intervention impact estimates.

Table 2.5. Baseline means of dwelling structure and access to amenities of households, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Dirt floor	99.83	100.00	98.83	0.16	0.02	0.00
Tin wall	53.75	54.70	77.73	0.75	0.00	0.00
Other non-permanent wall	46.08	45.14	22.00	0.76	0.00	0.00
Tin roof	95.14	95.72	98.38	0.63	0.00	0.00
Other non-permanent roof	4.43	4.12	1.53	0.79	0.00	0.00
Access to electricity	4.77	4.28	23.35	0.82	0.00	0.00
Access to sanitary latrine	34.75	35.83	15.33	0.80	0.00	0.00
Access to safe drinking water	99.15	99.75	98.29	0.11	0.17	0.01

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

2.2.5 Exposure to economic shocks, remittances, and transfers

In Bangladesh, remittances are generally associated with relatively better-off households who have some skills and can afford to migrate for work and better earnings. Table 2.6 shows that inward remittances in the *chars* are not very common, with 25-28 per cent of the CLP households receiving remittances from domestic as well as foreign sources. In the control areas, the percentage is higher at 31 though the differences are not significant. The average quantum of remittance is low – less than 2,000 taka per year

in the programme areas. The amount is higher in the control areas, and the difference with programme areas is significant. Approximately 10 per cent of the CLP households receive other transfers predominantly in the nature of donations and assistances. Other transfers also include dowry receipts but the number of such households is extremely small. Very few in the chars have the ability to give dowry and this is well understood and accepted by both families at the time of marriage. The control households appear to be significantly better off, both economically and socially, with a much lower incidence of other transfers, be it as donations/assistances or as dowry.

Table 2.6. Baseline means of household receipt of remittances/transfers and exposure to economic shocks, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Receipt of remittances/transfers in past 1 year						
Received remittance (home and abroad) (%)	24.70	28.17	31.38	0.32	0.07	0.37
Amount of remittance (taka)	1,702.86	1,929.90	2,872.96	0.59	0.03	0.09
Received other transfers (%)	8.94	9.97	1.89	0.68	0.00	0.00
Amount of other transfers (taka)	330.72	183.33	118.88	0.23	0.06	0.44
Incidence of shocks in past 5 years						
Death of main income earner	1.11	0.74	0.36	0.31	0.02	0.19
Death of other income earning member	0.85	1.15	0.99	0.52	0.73	0.72
Loss of employment of any member	0.51	0.00	0.45	0.01	0.84	0.05
Loss of home due to river erosion	10.90	12.44	4.69	0.61	0.02	0.01
Loss of crops/assets due to floods	14.57	13.67	2.43	0.71	0.00	0.00
Loss of livestock due to illness/ theft	7.24	8.07	2.61	0.53	0.00	0.00
Loss of crops/assets due to storms/drought/ theft	4.26	4.94	4.24	0.53	0.99	0.60
Eviction	1.62	0.74	0.18	0.09	0.00	0.07
Divorce/abandonment	0.85	0.41	0.27	0.15	0.05	0.55
Conflict/Dispute	1.87	0.91	1.62	0.07	0.68	0.15
Bankruptcy of business	0.26	0.16	1.89	0.62	0.00	0.00

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

The flat topography of the chars coupled with low elevation makes the char inhabitants very vulnerable to natural disasters. The most common economic shock in the CLP areas was flood-related, primarily losing crops, productive assets and consumption assets. Though floods are a systematic shock, the coping capacities differ for households, which results in differences in the nature and scale of losses. Close to 15

per cent of the CLP households experienced a loss of crops or property in the past 5 years due to floods. More than 10 per cent were affected by another natural disaster - riverbank erosion. Though a lesser percentage of households were affected by riverbank erosion, the consequence of this occurrence is debilitating for the family since it results in loss of farmland and homestead. With their main source of living gone, the displaced family transitions deeper into poverty. In the control areas, the occurrence of both floods as well as river erosion was markedly reduced, implying the relative insulation of the mainland chars from natural disaster. Moreover the relatively better economic status of the control households (by virtue of living in mainland chars), equips them with better coping techniques to minimise the losses resulting from these natural disasters. Other nature-related disasters such as storms and droughts were less common though households in all the three treatment arms were affected at some point of time in the past five years due to storms and droughts.

Economic shocks due to petty crimes such as theft of livestock, food stocks or assets also affect char households. Loss of livestock resulting from disease is not uncommon. Approximately 7-8 per cent of the CLP households lost their livestock either due to disease or theft. In the control areas, this percentage was significantly lesser at lower than 3 per cent. A small percentage of the CLP households faced economic losses due to eviction. Eviction in the chars is generally illegal eviction which is akin to a power game. Sometimes, land that had gone under water resurfaces and families start living and cultivating on the resurfaced land. This can cause discontent among locals who lived there previously, giving rise to violence and forced displacement. Other economic losses among the char households resulted from death of income earner, divorce/abandonment, conflict/dispute and losses in business, though the proportion of households affected by these were significantly lesser. Between the two CLP groups and the control households, there are some significant differences which can be expected, since the latter group is well connected to the mainland and better insulated against economic shocks.

In terms of comparability between (L) and (L+N), most indicators related to remittances/transfers or shocks are balanced between the two groups at the 5 per cent level. However, there is a statistically significant difference between the groups in terms of experiencing loss of employment, indicating that this baseline characteristic may be worth controlling for in the eventual impact analysis of (L+N) over and above (L).

2.2.6 Summary

The unique situation of CLP sample households living on *chars* is important to understand as context for the evaluation. In this section we explore their characteristics at baseline, after the start of the livelihoods interventions in programme areas but prior to the introduction of any direct nutrition interventions.

In terms of demographics, we find that the average programme household has about 4.4 members, with about 2 members of working age (between 15 to 64 years), a male household head aged about 34 years, and a dependency ratio of about 1.12. About 10 per cent of these programme households are female-headed. Control households tend to be on average slightly but significantly smaller, have younger heads of household, and have lower dependency ratios.

Educational attainment is low in the beneficiary and control sample, with about 1 to 3 years of schooling completed on average by adult men or adult women. In both programme and control areas, women (specifically, mothers of index children) tend to have higher educational attainment than men (specifically, fathers of index children), with higher rates reported among women of completion of any schooling and of primary school. Although schooling is low among control households as well, it is on average significantly higher than in programme households. A likely reason is that the control households were drawn largely from mainland *chars* and thus had better linkages to schools and other infrastructure than programme households drawn from island *chars*.

The most common occupation in both programme and control areas is daily wage labor (primarily in agriculture), representing the work of about 60 per cent of programme male heads and about 50 per cent of control male heads. The next most common occupations for male heads are self-employment (predominantly rickshaw pulling) and petty trading/business, with about double the share in control areas than in programme areas. About 70 per cent of index children's mothers in programme areas participated in poultry and livestock farming, while only about 40 per cent of control area mothers did, likely due to the promotion of these activities in CLP as part of its asset transfer programme. Meanwhile, only about 20 per cent of mothers in programme areas reported being in non-earning occupations, while about 55 per cent of mothers in control areas reported the same.

Dwelling conditions tended to be poor in both programme and control areas, with nearly all households having dirt floors, non-permanent walls, and non-permanent roofs. However, the quality of non-permanent walls and roofs tended to be on average more durable in control households than in programme households (e.g., corrugated iron sheet walls rather than dry grass, jute sticks, or polythene sheets; corrugated iron sheet roofs rather than palm leaves, straw, cardboard or polythene). Less than 5 per cent of programme households have access to electricity, while nearly 25 per cent of control households do. The pattern is reversed in terms of sanitary latrines, which are used by about 35 per cent of programme households and only about 15 per cent of control households, likely due to the CLP core package facilitating access to sanitary latrines. Nearly all households in both programme and control areas have access to safe drinking water via tubewells, although it is not known whether the tubewell water is arsenic-free.

Reports of economic shocks related to flooding and river erosion (and associated loss of the home, crops, or assets) are significantly higher among programme households than among control households. This pattern is likely due to the programme households being on island *chars* while control households tend to be on mainland *chars*, which are less at risk for these shocks. Inward remittances are fairly uncommon in both programme and control areas, with about 25-30 per cent of households reporting them, though control households tend to report slightly higher amounts received.

Overall, relevant to the evaluation design, the programme areas assigned to (L) and (L+N) appear balanced at the 5 per cent level in terms of most of these characteristics, suggesting that the randomisation was effective. However, there are a small number of household demographic and socioeconomic characteristics that appear statistically different between the two groups – head's education and any

household member's loss of employment – and may be important to control for in the eventual impact analysis of (L+N) over and above (L).

In terms of most characteristics, the control areas (C) appear significantly different than programme areas on average. These differences appear quite likely due to the households being located on mainland *chars*, which tend to be less poor and remote, have better linkages, and face less vulnerability to shocks than the island *chars* on which programme households are located. As a result, finding a subset of the (C) sample to use as a valid counterfactual in the CLP evaluation is likely to be quite challenging.

2.3 Livelihoods and participation in social programmes

2.3.1 CLP programme benefits received by beneficiary households

Given that the evaluation is concerned with the joint effect of direct nutrition and livelihood programmes, it is key to assess the type and extent of participation in livelihood programmes (both those under evaluation and others) accessed by the households in our sample. Most of the information in this section is not relevant for the control group (C) as by definition it does not receive services from the livelihood programmes which are part of the evaluation. For almost all of this section, then, the information will only pertain to (L+N) and (L) households.

Table 2.7 displays the types of services accessed by CLP beneficiaries for the (L+N) and (L) groups. The range of services offered by CLP is wide: 5 out of the potential 6 services are accessed by at least 86 per cent of households. Around 86 per cent of households received health and nutrition training as well as financial training and between 91 per cent and 99 per cent of households received livelihood maintenance stipend, asset maintenance cost stipend and agricultural livelihood training. Unsurprisingly given the rural focus of CLP, non-agricultural livelihood training is much less common (at around 6.5 per cent of households).

There are no significant differences at the 5 per cent level in terms of access to services between the (L+N) and (L) groups and the randomization has managed to achieve very good balance in terms of access to livelihood services.

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Livelihood Maintenance Stipend	0.95	0.97	0.38
Asset Maintenance Cost Stipend	0.99	0.99	0.69
Agricultural Livelihood Training	0.91	0.94	0.17
Non-agricultural Livelihood Training	0.07	0.06	0.87
Financial Training	0.87	0.86	0.81
Health and Nutrition Training	0.88	0.86	0.59

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only.

Looking more in-depth at the different services offered by CLP, Tables 2.8 to 2.13 display information on the frequency of access, time of first access, duration of access and monetary value of each of these services.

In Table 2.8 the information on livelihood maintenance stipend is displayed. We can see that households received the equivalent of 2,785 taka in the (L+N) group and 2,827 taka in the (L) group. This difference is not statistically significant. At the time of the interview, households had last received a stipend about 4 months ago, and first received a stipend about 14 months ago; for an average duration of access to livelihood maintenance stipends of 10.44 months in the (L+N) group and 10.09 for the (L) group. None of the above figures is statistically different at the 5 per cent level across the two groups.

Table 2.8. Baseline means of monetary value of livelihood maintenance stipend and frequency, timing and duration of access to livelihood maintenance stipend, by intervention arm—CLP

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Monetary value of service received	2,784.77	2,827.90	0.76
Number of times received the service	7.92	7.88	0.91
Number of months since first receiving the service	14.50	13.79	0.49
Number of months since last receiving the service	4.06	3.70	0.53
Number of months received the service in total	10.44	10.09	0.58

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only. The number of months are calculated from the date of interview.

Information on asset maintenance cost stipend is shown in Table 2.9. Households first received asset maintenance stipends at the same time than livelihood maintenance stipends (i.e., 14 months ago) but the last stipend was received 7 months ago, so further back in time than for the livelihood stipends. The monetary value of the stipends is also lower than for the livelihood related ones: 1,770 taka for the (L+N) households and 1,664 for the (L) households. This difference, like the ones related to timing, are statistically insignificant at the 5 per cent level.

Table 2.9. Baseline means of monetary value of asset maintenance cost stipend and frequency, timing and duration of access to asset maintenance cost stipend, by intervention arm—CLP

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Monetary value of service received	1,769.85	1,663.58	0.40
Number of times received the service	5.91	5.70	0.49
Number of months since first receiving the service	14.78	13.81	0.35
Number of months since last receiving the service	7.24	6.56	0.45
Number of months received the service in total	7.54	7.25	0.52

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only. The number of months are calculated from the dates of interview.

CLP beneficiaries also received agricultural livelihood trainings (Table 2.10). Unlike for the first two services, there is no information on frequency of access to agricultural training. On average, households received agricultural training for 8 months, starting more than 13 months ago. In keeping with the nature

of this service, the monetary value of the training is low, at about 530 taka. Importantly, there is no statistical difference at the 5 per cent level between (L+N) and (L) households on all of the items.

Table 2.10. Baseline means of monetary value of agricultural training and frequency, timing and duration of access to agricultural training, by intervention arm—CLP

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Monetary value of service received	502.05	561.20	0.23
Number of months since first receiving the service	13.74	13.26	0.65
Number of months since last receiving the service	5.37	5.34	0.97
Number of months received the service in total	8.37	7.93	0.49

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only. The number of months are calculated from the dates of interview.

Nonagricultural livelihood trainings are much less common, but they still were received by 6.5 per cent of CLP beneficiaries. Table 2.11 provides further details for this service. Like for the agricultural trainings, the monetary value is low: 209 taka for the (L+N) group and 447 taka for the (L) only group. This difference is not statistically significant given the small sample size available for this service. Households have been receiving training since more than 18 months for the (L+N) group and more than 14 months for the (L) group, with the difference not statistically significant. However, while the (L+N) households last received training 9.27 months ago on average, the (L) households did so 5.14 months ago only, a difference significant at the 6 per cent level. Given that non-agricultural trainings are not very common among CLP beneficiaries, and that the difference between (L+N) and (L) groups only arises for the time of last training, and not any of the other item, we can still conclude that the randomization achieved fairly good balance between the treatment arms.

Table 2.11. Baseline means of monetary value of non-agricultural training and frequency timing and duration of access to non-agricultural training, by intervention arm—CLP

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Monetary value of service received	208.08	447.53	0.47
Number of months since first receiving the service	18.46	14.62	0.28
Number of months since last receiving the service	9.27	5.14	0.06
Number of months received the service in total	9.19	9.49	0.85

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only. The number of months are calculated from the dates of interview.

According to Table 2.12, financial training was first offered to CLP beneficiaries 12 months ago, and households benefitted from it for an average of almost 7 months at the time of the interview. The monetary value of the training, about 430 taka, is unsurprisingly low. None of the above is statistically different at the 5 per cent level across the treatment arms.

Finally, Table 2.13 shows information about health and nutrition training. Households have benefitted from such training for just less than 7 months in total at the time of interview, with the last training happening just 6 months ago. The monetary value of the training is 370 taka, and for none of these figures do we observe a significant difference at the 5 per cent level between (L+N) and (L) households.

Table 2.12. Baseline means of monetary value of financial training and frequency timing and duration of access to financial training, by intervention arm—CLP

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Monetary value of service received	403.19	458.67	0.58
Number of months since first receiving the service	12.16	11.97	0.84
Number of months since last receiving the service	5.17	5.23	0.94
Number of months received the service in total	6.99	6.74	0.69

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only. The number of months are calculated from the dates of interview.

Table 2.13. Baseline means of monetary value of financial training and frequency timing and duration of access to health and nutrition training, by intervention arm—CLP

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Monetary value of service received	373.81	363.22	0.75
Number of months since first receiving the service	13.88	13.20	0.48
Number of months since last receiving the service	5.93	5.50	0.94
Number of months received the service in total	7.95	7.78	0.69

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only. The number of months are calculated from the dates of interview.

CLP beneficiaries may also receive assets (livestock and other productive assets) through the program. Table 2.14 shows the percentage of households that receive particular types of assets. The table excludes sewing machine, rickshaw, boat, fishing nets and land or pond share for which ownership is either nil or negligible. Almost 60 per cent of households received a heifer, 24 per cent a beef cattle and 15 per cent a dairy cow. There are no significant differences across the treatment arms. 9 per cent of (L+N) households and 6 per cent of (L) households received a goat (difference is significant at the 7 per cent level), and less than 5 per cent of all households received sheep and chickens/poultry. In total, 30 per cent of households received another type of asset, with no notable difference between the treatment arms. Overall, the randomization achieved balance at the 5 per cent level on assets transfer.

Table 2.14. Baseline means of assets transfer, by intervention arm—CLP

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Heifer	0.59	0.59	0.88
Beef cattle	0.24	0.23	0.73
Dairy cow	0.14	0.16	0.56
Sheep	0.04	0.05	0.33
Goat	0.09	0.06	0.07
Chicken, duck, goose and other poultry	0.05	0.03	0.09
Other	0.30	0.29	0.80

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only.

Going into the details for assets transfers, Table 2.15 shows the number of assets received; Table 2.16, their monetary value; and Table 2.17, the current stock of assets owned by the household. For this analysis, only assets received by at least 5 per cent of households are considered. In Table 2.15 we can see that for all assets except chicken, duck, goose and other poultry, the average number of assets received is just 1; and that holds true for both treatment arms. For chicken/poultry, the average number of animals received is 4.3 for the (L+N) group and 3.7 for the (L) group, and this difference is not statistically significant. For the “other” category, the number of assets received is 5.21 for (L+N) households and 4.3 for (L) households, and this difference is not statistically significant at the 5 per cent level.

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Heifer	1.00	1.01	0.44
Beef cattle	1.00	1.00	0.98
Dairy cow	1.02	1.01	0.48
Sheep	1.02	1.11	0.20
Goat	1.04	1.01	0.33
Chicken, duck, goose and other poultry	4.31	3.66	0.38
Other	5.21	4.33	0.56

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only.

Turning to the monetary value of the assets transferred, we can see in Table 2.16 that the value of heifers, beef cattle and dairy cows transferred is around 15,700 taka, for both (L+N) and (L) households. The value of sheep and goats reaches roughly only a tenth of that figure while that of chicken, duck, goose and other poultry and “other” is comprised between 700 and 1,000 taka. The only significant difference at the 5 per cent level between the treatment arms is for the value of goats, which is 1,540 taka for (L+N) households and only 1,423 taka for (L) households. Although this difference in magnitude is quantitatively small, the baseline value of assets received could be controlled for in the eventual impact analysis to account for it.

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Heifer	15,619.98	15,671.69	0.45
Beef cattle	15,784.04	15,801.71	0.88
Dairy cow	15,684.98	15,687.65	0.98
Sheep	1,599.55	1,717.02	0.34
Goat	1,540.28	1,423.78	0.03
Chicken, duck, goose, and other poultry	886.36	702.19	0.19
Other	988.50	901.59	0.65

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only.

Finally the survey informs us on the current household ownership of these assets. The results are in Table 2.17. We can see that these figures are very close to those of Table 2.15 on number of assets transferred

by CLP. This indicates that CLP beneficiaries were able to keep these assets. There are no significant differences between (L+N) and (L) groups.

Table 2.17. Baseline means of current ownership of assets received, by intervention arm—CLP

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Heifer	1.08	1.06	0.78
Beef cattle	1.01	1.01	1.00
Dairy cow	1.09	1.05	0.71
Sheep	0.82	0.85	0.86
Goat	0.73	0.72	0.90
Chicken, duck, goose, and other poultry	4.07	2.63	0.17
Other	2.36	2.47	0.91

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only.

In sum, the randomization was very successful in balancing the characteristics of assets transfers across the two groups so that the type of assets transferred, their numbers, and their monetary value are similar in (L+N) and (L) groups. The current ownership of these assets is similarly balanced at the 5 per cent level.

CLP may offer other types of support than the 6 services and the asset transfers shown in previous tables. Table 2.18 reveals that more than 90 per cent of beneficiaries report that they received support in (1) mobilizing their community to advocate its needs, (2) mobilizing their community to establish savings and credit groups, and (3) improving access to health facilities percentage of households that receive. The fourth type of community action, namely support to improve access to water/waste sanitation while less common, has still been received by half of CLP beneficiaries. In addition, two additional household services are reported: 90 per cent of respondents or their neighbours were given a plinth to raise their homestead, and about 50 per cent received a direct microcredit service. For all these supports, there is no significant difference at the 5 per cent level between the (L+N) and (L) groups.

Table 2.18. Baseline means of other supports received, by intervention arm—CLP

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Plinth (to household or neighbor) provided to raise homestead	0.89	0.90	0.83
Direct microcredit service	0.50	0.46	0.51
Support to improve housing conditions	0.72	0.76	0.34
Support to improve access to water/waste sanitation	0.49	0.50	0.79
Support to improve access to health facilities	0.93	0.91	0.45
Support in mobilizing community to establish savings and credit groups	0.95	0.97	0.10
Support in mobilizing community to advocate for its needs	0.90	0.93	0.16

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only.

2.3.2 Other social programme benefits received by sample households

Finally, households in Bangladesh can take part in a myriad of welfare schemes and safety net programmes offered by the government or other actors, which may have independent effects on nutrition. For the evaluation of to be credible, we must then make sure that the access to these other programmes does not systematically vary across the treatment arms. Table 2.19 summarizes this information for the schemes for which at least 5 per cent of households take part in any treatment arm. Unlike for the information on participation in programmes we presented earlier, the survey question about these schemes includes the (C) group.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Stipend for primary students	0.43	0.44	0.52	0.74	0.02	0.03
School feeding program	0.39	0.40	0.32	0.82	0.23	0.18
Stipend for secondary and higher secondary/female student	0.03	0.03	0.05	0.83	0.10	0.14
Old age allowance	0.02	0.01	0.05	0.17	0.05	0.01
General relief activities	0.07	0.07	0.06	0.91	0.57	0.52
Vulnerable group feeding (VGF)	0.09	0.08	0.29	0.63	0.00	0.00
Shouhardo program (CARE)	0.01	0.02	0.10	0.26	0.02	0.04
Other	0.39	0.42	0.00	0.66	0.00	0.00
Total number of programmes household participates in	1.55	1.63	1.51	0.10	0.60	0.09

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

There are 7 programmes fulfilling the above requirement, with the two most common being by large margin stipends for primary students and school feeding programmes. The former are accessed by 43 per cent of (L+N), 44 per cent of (L), and 52 per cent of (C) households. The differences between both (L+N) and (C), on the one hand, and (L) and (C) on the other hand, are statistically significant. The latter are accessed by 39 per cent of (L+N), 40 per cent of (L) and 32 per cent of (C), with none of the differences being significant. The third most common program, the Vulnerable Group Feeding (VGF) exhibits sharp variations in terms of access between (L+N) and (L) households on the one hand (9 per cent and 8 per cent, respectively), and (C) households on the other (29 per cent). This indicates a large degree of substitution between CLP and VGF programmes that will need to be addressed in the analysis. The same is true for the Shouhardo Program (CARE), which is virtually non-existent in CLP areas, but reaches 10 per cent of control households. More surprisingly, even the Old Age Allowance is more common among control households (5 per cent) than among CLP beneficiaries (1 per cent). The other schemes (i.e., stipend for secondary and higher secondary students and General Relief Activities) are equally present in all treatment arms and reach about 4 and 7 per cent of households, respectively. It is worth noting that 40 per cent of (L+N) and (L) beneficiaries also access other schemes, but that the information was apparently not collected for control households (hence the mean of 0). Finally, (L+N) households access on average 1.55 schemes, against 1.63 for (L) ones and 1.51 among control households. The difference between the latter two is marginally significant. Overall, the randomization was successful in balancing at the 5 per

cent level the access to other safety net programmes between (L+N) and (L) households, but there are meaningful differences between these two groups on the one hand, and control households on the other hand. (C) households tend to benefit from different programmes that may or may not prove close substitutes for CLP.

2.3.3 Summary

Given that this study aims to explore synergies between direct nutrition and livelihood programmes, it is useful to understand the type and extent of sample households' participation in livelihood programmes. In this section, we review the baseline quantitative information on benefits they receive both from the CLP livelihoods programme (which by definition is relevant only to (L+N) and (L) households, not (C) households) and other social programmes.

In terms of CLP benefits, we find that (L+N) and (L) households receive a wide range of services. These include health and nutrition training, financial training, receipt of a livelihood maintenance stipend, receipt of an asset maintenance cost stipend, agricultural livelihood training, and non-agricultural livelihood training. More than 86 per cent of households report receiving all of the first five services. Unsurprisingly given the rural focus of CLP, only around 6.5 per cent of households report receiving non-agricultural livelihood training. We also find that the monetary value received as part of these services is substantial (for example, households report having received about 2,800 taka from the livelihood maintenance stipend) and the duration of receiving services is high (with the number of months received reported to be about 10 months for each). All of these factors are statistically balanced between the (L+N) and (L) groups at the 5 per cent level.

We also find that CLP provides substantial asset transfers. These include livestock (such as heifers, beef cattle, dairy cows, sheep, goats, poultry) as well as other assets. The value of these is reported to be quite high (for example, the heifers, beef cattle, and dairy cows are reported to be worth about 16,000 taka). Moreover, based on current household ownership of assets, programme households appear to keep these assets rather than sell them off. Again these characteristics are statistically balanced between the (L+N) and (L) groups at the 5 per cent level. The only exception is a quantitatively small difference in the value of goats received from the programme, significant at the 3 per cent level, which could be controlled for in the eventual impact analysis.

CLP also provides several other forms of support. More than 90 per cent of beneficiaries report that they received support in (i) mobilizing their community to advocate its needs, (ii) mobilizing their community to establish savings and credit groups, and (iii) improving access to health facilities percentage of households that receive. About 50 per cent report receiving support to improve access to water/waste sanitation. In addition, 90 per cent of respondents or their neighbors were given a plinth to raise their homestead, and about 50 per cent reported receiving a direct microcredit service. These characteristics are again statistically balanced between the (L+N) and (L) groups.

Finally, we consider other non-CLP social programmes received by sample households, including those in the (C) group. The most common is a stipend for primary school students, received by about 43 per cent of programme households and about 52 per cent of control households. The next most common is the school feeding programme, received by 32-40 per cent of all three intervention arms. Other programmes appear to be accessed significantly more by the (C) group than the (L) or (L+N) group. For example, the Vulnerable Group Feeding (VGF) is accessed by 29 per cent of the (C) households, but only about 8-9 per cent of (L+N) and (L) households. Similarly, the Shouhardo Program (CARE) reaches about 10 per cent of control households but is virtually non-existent among (L) and (L+N) households. While the (L) and (L+N) are well balanced in terms of all of these characteristics, suggesting that randomisation was effective, the differences between (C) households and the (L) and (L+N) households are statistically significant. In particular, it appears that some alternate programmes may serve as substitutes for CLP in the control areas.

Overall, the baseline analysis indicates that CLP benefits to (L) and (L+N) households take numerous forms (including trainings, stipends, asset transfers, and other support), are very large in monetary value, and are provided over extended durations. These benefits are statistically balanced across the (L) and (L+N) groups. Sample households in all three intervention arms also receive other social programmes, which tend to be well balanced across the (L) and (L+N) groups, but show statistically different patterns among the (C) group. Given that (C) households tend to benefit from alternate programmes that may prove close substitutes for CLP, it may be challenging to use the (C) group as a counterfactual in the evaluation.

2.4 Assets

Broadly defined to encompass assets beyond material assets, asset ownership is of crucial importance in any poverty reduction strategy. It is generally recommended that a wide definition of assets be used in the context of poverty reduction strategies. Assets are considered not simply resources that people use to build livelihoods but are identified as the basis of agents' power to act to reproduce, challenge or change the rules that govern the control and use of those resources (Moser 2007). In this section, we analyse the ownership of physical assets and financial assets.

2.4.1 Physical assets

Table 2.20 shows the average quantity of a range of consumer durables reported owned by CLP households at the time of interview. Consumer durable assets for cooking, cleaning and sleeping arrangements are most numerous for CLP households. Overall, the CLP households have approximately 10 consumer durable assets in the household, with the largest proportion of consumer durables serving cooking and sleeping needs. The average quantity of metal pots in a household is 4.76 for the (L+N) group, 4.75 for the (L) group and 4.90 for the (C) group. The average quantity number of Bed/Khat/Chowki in a household is approximately 1.30 for the (L+N) group, 1.34 for the (L) group and 1.38 for the (C) group. The (L) and eventual (L+N) households show no meaningful differences at the 5 per cent level in means of consumer durables. However, there are significant differences in means on the one hand for (C) households and on the other hand for (L) and (L+N) households for the Armoire/Cabinet/Alna, Table/chair Electric, Fan and total number of consumer durables.

Table 2.20. Baseline means of quantity of consumer durables currently owned by the household, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Bicycle	0.06	0.08	0.15	0.19	0.00	0.00
Trunk/Suitcase	0.68	0.73	0.68	0.17	0.92	0.13
Buckets/Pots	0.93	0.91	0.98	0.68	0.29	0.13
Metal Cooking Pots	4.76	4.75	4.90	0.97	0.46	0.44
Bed/Khat/Chowki	1.30	1.34	1.38	0.31	0.07	0.33
Armoire/Cabinet/Alna	0.44	0.41	0.63	0.45	0.00	0.00
Table/chair	0.98	0.96	1.22	0.70	0.00	0.00
Electric fan	0.02	0.03	0.16	0.51	0.00	0.00
Wall clock/watch	0.05	0.05	0.07	0.92	0.07	0.08
Television (B/W)	0.01	0.01	0.02	0.91	0.03	0.04
Total assets	9.26	9.29	10.26	0.92	0.00	0.00

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Table 2.21 shows the average quantity of a range of productive assets reported owned by CLP households at the time of interview. The types of assets owned by the CLP households appear to concern carpentry, agricultural activities and fishing. Control households tend to possess less boats, dhakis, fishing nets, spades, solar energy panels, ploughs and yokes for animals, hoes and winnowers than both (L+N) and (L) households, but tend to possess more vans, saws, and other light machinery. Unsurprisingly then, the total productive assets owned (excluding cash) is lower for (C) households than for CLP beneficiaries. The magnitudes of these differences are not necessarily meaningful, given low rates of ownership. This is notably true for vans, boats, dhakis, saws, solar energy panels, ploughs and yokes for animals. The most meaningful differences are observed for fishing nets, spades, hoes, winnowers, other light machinery and for the total of assets owned. For all of these, save other light machinery, ownership is lower for control households than for CLP beneficiaries. However, the randomization achieves a good balance between the (L+N) and (L) groups, showing no statistically significant differences at the 5 per cent level.

Table 2.22 shows the average quantity of livestock assets reported owned by CLP households at the time of interview. The (L) and eventual (L+N) households show no meaningful differences in means of livestock assets; however, there are significant differences in means between (C) on the one hand and (L+N) and LC' households on the other hand. Control households own significantly fewer bulls/oxen (0.06 against 0.17 for CLP beneficiaries), milk cows (0.05 against 0.22 for CLP beneficiaries), chickens (2.06 against 2.85 for (L+N) households and 2.74 for (L) households), chicks (0.01 against 0.11 and 0.14 for (L+N) and (L) groups, respectively) and ducks (0.21 against 0.49 and 0.55 for (L+N) and (L) households, respectively) and sheep (0.01 against 0.08 for (L+N) and 0.04 for (L)). Overall, we can say that randomization achieves balance at the 5 per cent level between the treatment arms (L+N) households and (L) households but that there are significant and meaningful differences between (L+N) and (L) households on the one hand and (C) households on the other hand, that will need to be addressed in future analyses.

Table 2.21. Baseline means of quantity of productive assets currently owned by the household, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Van (tricycle van)	0.01	0.02	0.05	0.33	0.00	0.00
Boat	0.02	0.03	0.00	0.22	0.01	0.00
Mobile phone set	0.56	0.59	0.69	0.35	0.00	0.00
Dheki	0.03	0.02	0.01	0.81	0.01	0.01
Randa	0.02	0.01	0.01	0.08	0.37	0.32
Saw	0.02	0.02	0.04	0.98	0.08	0.05
Hammer	0.05	0.07	0.08	0.49	0.33	0.59
Fishing net	0.30	0.34	0.13	0.50	0.00	0.00
Spade (Kodal)	0.55	0.45	0.31	0.38	0.05	0.00
Axe(Kural)	0.07	0.09	0.09	0.17	0.16	0.94
Shabol	0.10	0.10	0.08	0.89	0.09	0.12
Daa	0.70	0.69	0.73	0.94	0.33	0.31
Cash in hand	416.85	483.82	397.53	0.35	0.78	0.32
Solar energy panel	0.06	0.08	0.02	0.20	0.00	0.00
Plough and yoke for animals	0.04	0.05	0.00	0.76	0.00	0.00
Hoe	0.72	0.73	0.60	0.75	0.00	0.00
Spade/shovel	0.02	0.02	0.01	0.93	0.14	0.18
Pick axe	0.01	0.01	0.01	0.44	0.83	0.54
Winnower	0.92	0.92	0.64	0.85	0.00	0.00
Other light machinery	0.01	0.02	0.10	0.36	0.02	0.05
Hand tube well	0.46	0.44	0.51	0.69	0.36	0.26
Masons equipment	0.02	0.03	0.12	0.73	0.09	0.11
Total assets, including cash	421.59	488.58	401.84	0.35	0.78	0.31
Total assets, excluding cash	4.74	4.76	4.31	0.89	0.04	0.02

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Table 2.22. Baseline means of quantity of livestock assets currently owned by the household, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Bulls/oxen	0.17	0.17	0.06	1.00	0.00	0.00
Milk Cow	0.21	0.23	0.05	0.60	0.00	0.00
Goat	0.14	0.14	0.13	0.97	0.80	0.79
Sheep	0.08	0.04	0.01	0.28	0.02	0.01
Chicken	2.85	2.74	2.06	0.67	0.00	0.00
Chicks (1 day old)	0.11	0.14	0.01	0.50	0.01	0.00
Duck	0.49	0.55	0.21	0.58	0.00	0.00
Other birds (Specify)	0.03	0.04	0.00	0.79	0.20	0.08
Total assets	4.09	4.07	2.52	0.95	0.00	0.00

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

2.4.2 Financial assets

Table 2.23 shows outcomes related to financial assets. In the (L+N) and (L) groups, most households have had savings in the past year (95 per cent of (L+N) and 96 per cent of (L)) and most households currently have savings (94 per cent for (L+N) and 95 per cent for (L)) while for the (C) group only 69 per cent had saving last year and 49 per cent currently have savings. The differences in the means between the (C) group on the one hand and both the (L) and the (L+N) group on the other hand are strongly significant. The average total amount currently saved differs only by approximately 300 taka between the (L+N) and the (L) group and 700 taka between the (L+N) group and the (C) group and close to 900 taka between the (L) group and the (C) group. This trend is the same for “frequency of savings”, “outstanding loan amount” and “charity and other in kind assistance”. Most notably, (C) households have on average higher outstanding loans than (L+N) and (L) groups with strongly meaningful differences and have higher outstanding amounts. Overall, we can conclude that randomization achieves a good balance between the treatment arms (L+N) households and (L) households, with no significant differences at the 5 per cent level. However we cannot conclude the same for (L+N) and (L) households on the one hand and (C) households on the other hand due to the significant differences in means. Households in the (C) group appear to have different financial portfolios from those in the (L+N) and (L) groups, which will need to be addressed in future analyses.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Have any adult in the household had any savings in the past 1 year?	0.95	0.96	0.69	0.63	0.00	0.00
Does any adult in the household currently have any savings?	0.94	0.95	0.49	0.96	0.00	0.00
Total amount currently saved	3,608.00	3,907.79	2,960.91	0.42	0.11	0.02
How frequently do you save?	3.48	3.52	2.83	0.65	0.00	0.00
Any loan in household?	0.95	0.92	0.93	0.19	0.37	0.67
Current loan in household	0.68	0.65	0.62	0.36	0.13	0.51
Loan amount	4,987.80	4,996.26	13,102.03	0.99	0.00	0.00
Interest rate	44.15	53.33	34.62	0.14	0.04	0.00
outstanding amount	4,522.24	4,476.44	10,730.17	0.92	0.00	0.00
Remittances received from relatives (cash and in-kind from outside the country)	103.31	10.51	246.35	0.21	0.46	0.19
Remittances received from relatives (cash and in-kind from within the country)	1,754.53	2,079.32	3,176.80	0.47	0.04	0.12
Charity and other assistance (in cash)	189.18	152.31	77.54	0.73	0.22	0.31
Charity and other assistance (in kind)	21.37	20.64	2.46	0.92	0.00	0.00
Dowry received (in cash)	97.50	21.32	49.88	0.20	0.49	0.53
Dowry received (in kind)	11.25	1.83	0.00	0.40	0.31	0.32

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

2.4.3 Summary

Asset ownership is useful to explore in the context of this evaluation, both because the patterns in assets provide useful context on households' situation and because assets play an important role in livelihoods strategies. Ownership of assets may affect households' ability to participate in various livelihoods activities (for example, ownership of livestock allowing livestock rearing) and may also be affected by households' livelihoods through re-investment of generated income (for example, through purchases of consumer durables). Assets may additionally help to shield households from shocks (for example, through savings or loans available at low interest). In this section, we assess quantitative baseline information on households' physical assets (consumer durables, productive assets, and livestock) as well as financial assets.

We find that CLP sample households tend to own few physical assets. In terms of consumer durables, the most commonly owned are very basic (such as cooking pots, beds, and tables/chairs). The (L+N) and (L) groups show no statistically significant differences at the 5 per cent level. Although the (C) group tends to have low ownership of consumer durables as well, it nonetheless tends to have significantly higher ownership of certain durables (such as bicycles, cabinets, and tables/chairs) than the (L+N) and (L) groups.

Average ownership of productive assets is low as well. The most commonly owned are mobile phones, fishing nets, agricultural implements (spades, hoes, daas, winnowers), and cash. The (L+N) and (L) groups are well balanced in terms of these characteristics. Although the (C) group tends to have low ownership of productive assets as well, it has significantly higher ownership of certain productive assets (such as vans and mobile phones) and significantly lower ownership of others (such as fishing nets and agricultural implements) than the (L+N) and (L) groups. These differences are consistent with the (C) groups primarily being on mainland chars, while the (L+N) and (L) groups are on fertile island chars.

We also see low ownership of livestock assets. The most commonly owned livestock animals in CLP beneficiary and control group households are chickens. The (L+N) and (L) groups again show no statistically significant differences at the 5 per cent level. However, the (C) group tends to own significantly fewer chickens (about 2 per household, compared with about 3 per household in (L) and (L+N) groups). Also, although ownership of other animals (such as bulls/oxen, milk cows, sheep, and ducks) is very low even among CLP beneficiaries, it is significantly lower among the control group. These differences are consistent with the CLP programme providing transfers of livestock assets to its beneficiary households as part of its livelihoods activities.

Finally, in terms of financial assets, we see that CLP beneficiary households have high rates of savings and lending, and high average reports of charity received in kind. The (L+N) and (L) households are again well balanced in terms of these characteristics at the 5 per cent level. However, the CLP beneficiary households have significantly more savings, smaller outstanding loan amounts, lower interest rates, and greater charity received in-kind than the control group households. These differences are again consistent with the CLP programme facilitating financial services such as savings groups and microcredit to its beneficiaries.

Overall, the analysis suggests that randomization effectively achieves balance between the (L+N) and (L) households, but that there are many significant differences between (C) households on one hand and (L+N) and (L) households on the other hand. Although asset ownership is low among all, and although many of the differences in livestock and financial assets are explained simply by the benefits provided by CLP to (L) and (L+N) households, other differences point to fundamental underlying distinctions between the environments of the control group and the beneficiary groups. These underlying differences suggest that it may be challenging to find a subset of the (C) group that can serve as a reasonable counterfactual in the evaluation.

2.5 Food consumption

The quantity and quality of food consumed within a household, as well as who within the household consumes these foods, are important determinants of household members' nutritional status. In this section, we explore the diversity of foods that were consumed in the CLP sample at the time of the baseline survey. Assessing diversity of diets is a fairly simple but meaningful way to capture the quantity and quality of diets (Hoddinott and Yohannes, 2002). We examine baseline dietary diversity measures for households as a whole, as well as by specific household members of particular interest: young children ages 6-24 months, mothers of young children, fathers of young children, and adolescent girls.

Food consumption is of particular interest in this evaluation because it serves as a pathway through which the livelihoods and direct nutrition interventions may affect nutrition outcomes. Livelihoods interventions may increase household income, allowing households to consume a more diverse and nutritious diet. Direct nutrition interventions may increase the knowledge of household members regarding which types of foods are important to consume. For the purposes of the evaluation, it is therefore useful to learn from the baseline data both how diverse diets were in each intervention arm prior to the start of direct nutrition interventions and how similar diets were across intervention arms.

As described in Section 1.2.3, the baseline survey included detailed questions on food consumption in each intervention arm. Information was collected on household consumption of 321 food types in the past 7 days prior to the survey. Information was also collected regarding the dietary diversity during the previous day of four specific household members: the index child, the index child's mother or primary female caregiver (if in the household), the index child's father or primary male caregiver (if in the household), and the oldest adolescent girl aged 11-19 years (if any in the household). As also noted in Section 1.2.3, all households in all intervention arms were interviewed between September-November 2013. Therefore, while there may be seasonal factors that affect dietary intake, these factors should affect all intervention arms similarly and should not bias the comparison across arms.

Dietary diversity was measured based on the following categorizations of foods:

CEREAL: Rice, bread made of wheat, puffed rice, pressed rice, noodles, or any other foods made of rice, wheat, maize/corn, or other locally available grains

VITAMIN A RICH VEGETABLES AND TUBERS: Pumpkin, carrots, sweet potatoes that are orange and yellow inside

WHITE TUBERS AND ROOTS OR OTHER STARCHY FOODS: Potatoes, white yams, white sweet potato (not orange inside), potato crisps or other foods made from roots (not orange or yellow roots)

DARK GREEN LEAFY VEGETABLES: Dark green leafy vegetables, including spinach, red amaranth leaves, green amaranth, puishak, laushak, kumrashak, kolmishak, mustard leaves, yam leaves, koloishak (pea leaves), methishak (amaranth leaves), dhekishak, demishak, etc.

OTHER VEGETABLES: Other vegetables (e.g., squash, eggplant, green papaya, cauliflower, cabbage, onion, radish, sheem/boboti, etc.)

VITAMIN A RICH FRUITS: Ripe mangoes, ripe papaya/pawpaw

OTHER FRUITS: Other fruits (e.g., banana, apples, guava, oranges, other citrus fruits, pineapple, shakalu, watermelon, olives, grapes, jambura (grapefruit), berries, kamranga, tamarind, plum, etc.)

MEAT: Any beef, goat, lamb, chicken, duck, or other birds, liver, kidney, heart, or other organ meats

EGGS: Eggs of different birds – chicken, duck, turkey etc.; with yolk or without yolk

FISH: Big/small fresh or dried fish or shellfish (e.g., prawn, crab, etc.)

BEANS, PEAS, OR LENTILS: Any foods made from beans, peas, lentils, other pulses, soybeans, peas

DAIRY: Milk, cheese, yogurt, or other milk products (excluding breast milk)

The key indicators explored in this section are whether the household or individual consumed each of these 12 food groups during the relevant reference period, as well as how many total out of the 12 food groups the household or individual consumed.

While we grouped the food types into food group categories for the household, questions about the food groups themselves were asked for individuals. In particular, for the household, the survey asked distinctly whether each of 321 food types was consumed by the household in the past 7 days. These responses were then mapped to the 12 listed food groups in the analysis stage. Meanwhile due to time constraints, for the four specific household members, the survey asked simply whether the index child / index child's mother / index child's father / adolescent girl consumed any of each of the 12 listed food groups the previous day.

Therefore, two dimensions of 'discrepancy' might appear between the reported dietary diversity at the household level and the reported dietary diversity at the individual level. First, the household indicators are likely to be more precise, since they were elicited in detail and were categorized systematically in analysis, while the individual-level indicators were elicited in aggregate and respondents may have inaccurately categorized food items into the food groups. Second, it is to be expected that not all food groups consumed in the past 7 days would necessarily have been consumed in just the previous day. The shares of households reporting consumption of a particular food group over the past 7 days are therefore likely to be larger than the shares of individuals in the household reporting consumption of that same food group in the previous day. Nonetheless, taken together, the patterns in the household-level and individual-level indicators are likely to give a meaningful picture of what was eaten in the household and by who.

2.5.1 Dietary diversity at the household level

The analysis starts at the household level. Table 2.24 shows dietary diversity in household food consumption over the seven days preceding the survey. There are several interesting observations. First, there are clear patterns in the diet. In all three intervention arms, all CLP sample households (100 per cent) report consuming cereals in the past 7 days. This observation is not surprising, since rice is the primary staple food in Bangladesh. A large majority of households in all intervention arms also report consuming white tubers/roots (about 90 per cent, likely to be white potatoes), green leafy vegetables (about 87 per cent), vitamin A-rich fruits (nearly 100 per cent), fish (about 89 per cent), and dairy (about 70 per cent). However, reported consumption of other produce is relatively low (about 40 per cent for vitamin A-rich vegetables, 30 per cent for other vegetables, and 5 per cent for other fruits). Reported consumption of proteins other than fish is also fairly low (about 48 per cent for meat, about 26 to 37 per cent for eggs, about 30 per cent for beans/peas/lentils). Overall, households in all three intervention arms report consuming about 7 of the 12 food groups in the past 7 days. While most households do not report having consumed all of these food groups in the past 7 days, there appears to be reasonable diversity in the diet.

Second, the (L) and eventual (L+N) households show no meaningful differences in average consumption of these food groups in the past 7 days. The p-values for the mean difference between the (L) and (L+N) groups exceed 0.10 for all indicators except the consumption of vitamin A-rich fruits, and for this food group, the magnitude of the difference is a negligible 1 per cent (99 per cent vs. 100 per cent). These patterns indicate that the randomisation successfully balanced baseline dietary patterns at the household level between (L) and (L+N).

Table 2.24. Baseline means of dietary diversity outcomes over the past 7 days for households, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Consumed cereal	1.00	1.00	1.00	0.15	0.95	0.15
Consumed vitamin A-rich vegetables	0.44	0.41	0.35	0.43	0.01	0.05
Consumed white tubers/roots	0.93	0.91	0.95	0.16	0.24	0.01
Consumed green leafy vegetables	0.87	0.88	0.87	0.53	0.76	0.39
Consumed other vegetables	0.34	0.33	0.31	0.66	0.31	0.52
Consumed vitamin A-rich fruits	0.99	1.00	1.00	0.01	0.16	0.15
Consumed other fruits	0.07	0.05	0.03	0.21	0.00	0.01
Consumed meat	0.48	0.49	0.53	0.75	0.25	0.35
Consumed eggs	0.26	0.24	0.37	0.51	0.00	0.00
Consumed fish	0.89	0.89	0.86	0.86	0.14	0.20
Consumed beans peas lentils	0.29	0.32	0.29	0.39	0.88	0.47
Consumed dairy	0.70	0.72	0.71	0.38	0.72	0.63
Number of groups (of 12)	7.26	7.24	7.26	0.83	1.00	0.83

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Third, the (C) group is quite similar to the (L) and (L+N) groups in terms of means and p-values, except for consumption of eggs. The difference between the share of (C) households that consume eggs in the past 7 days (37 per cent) relative to the share in the (L) or (L+N) households (26 per cent and 24 per cent, respectively) is highly statistically significant, and the magnitude of the difference is also considerable (more than 10 per cent). The difference could possibly reflect greater feasibility of poultry raising in the control areas, which in turn could reflect a different agricultural environment. Therefore, while the (C) group is quite similar to the (L) and (L+N) groups in terms of household food consumption patterns, there nonetheless appear to be potentially meaningful differences.

2.5.2 Dietary diversity among young children

The analysis then turns to exploring dietary diversity patterns within the household. Table 2.25 shows summary statistics on dietary diversity among index children aged 6-24 months during the day preceding the survey. Here, the age range of index children is restricted to 6 months or older, because 6 months is the age at which the start of complementary feeding is recommended. Given that the recommendation for children younger than 6 months is to be exclusively breastfed (meaning that they would consume zero of these food groups), including these children in the statistics would complicate the interpretation of the summary statistics. Including only children aged 6-24 months allows interpreting a greater number of food groups consumed to be unambiguously better, since the recommendation is for children to start consuming a diverse diet as soon as solid or semi-solid foods are introduced at 6 months.

There are again a number of notable observations. First, the pattern of food groups most commonly consumed by index children age 6-24 months appears somewhat different than the pattern for households as a whole. As described above it is expected that shares reporting consumption over the last 1 day would be lower than shares reporting consumption over the last 7 days, and categorizations of some food items may be slightly consistent. However, there appear to be meaningful differences. In particular, similar to the household level, a large majority of index children are reported to have consumed cereal (about 90 per cent), and a majority are also reported to consume white tubers/roots (about 60 per cent). A fairly large share is also reported to consume “other vegetables” (about 70 per cent), which given the pattern at the household level might in fact include some vitamin A-rich vegetables due to respondent miscategorization. However, the reported consumption of green leafy vegetables (which are less likely to be miscategorized), vitamin A-rich fruits, and fish appear fairly low relative to the shares reported at the household level.

Overall, the pattern suggests that children in the age range of 6-24 months might typically eat rice, white potatoes, and vegetables (that are not leafy greens but might be vitamin A rich). Consumption of protein appears less frequent. About 35 per cent of young children are reported to have consumed fish in the previous day, which could reflect either that most children in this age range do not eat fish or that fish is typically only eaten a few days a week rather than daily by children in this age range. Only about 16 per cent of young children are reported to have consumed beans/peas/lentils in the previous day, as well. Consumption of dairy also appears not to be regular in children’s diet. About 21 per cent of young children are reported to have consumed dairy in the previous day, which could again reflect either that most children in this age range do not consume dairy or that dairy is typically only consumed 1-2 days a

week rather than daily by children in this age range. The overall number of food groups consumed in all three intervention arms is about 3.

A second important observation is that, as at the household level, the (L) and (L+N) groups are well balanced at the 5 per cent level in terms of index children's dietary diversity. The p-values for all mean differences between the two groups in fact exceed 0.10, and the magnitudes of the differences are quite small.

Table 2.25. Baseline means of dietary diversity outcomes the previous day for Index Child aged 6-24 months, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Consumed cereal	0.89	0.91	0.90	0.34	0.57	0.69
Consumed vitamin A-rich vegetables	0.08	0.10	0.01	0.45	0.00	0.00
Consumed white tubers/roots	0.59	0.56	0.60	0.39	0.68	0.24
Consumed green leafy vegetables	0.36	0.35	0.32	0.79	0.21	0.35
Consumed other vegetables	0.72	0.71	0.74	0.64	0.63	0.36
Consumed vitamin A-rich fruits	0.03	0.02	0.02	0.70	0.12	0.15
Consumed other fruits	0.20	0.23	0.17	0.27	0.31	0.02
Consumed meat	0.06	0.06	0.06	0.74	0.67	0.96
Consumed eggs	0.13	0.12	0.10	0.62	0.06	0.15
Consumed fish	0.34	0.35	0.28	0.67	0.06	0.02
Consumed beans peas lentils	0.16	0.16	0.15	0.99	0.39	0.43
Consumed dairy	0.22	0.21	0.21	0.78	0.71	0.90
Number of groups (of 12)	3.77	3.78	3.55	0.93	0.07	0.06

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Third, again mirroring the household level, the (C) group appears similar to the (L) and (L+N) groups in terms of index children's dietary diversity, but there are statistically significant differences. In particular, the consumption of vitamin A-rich fruit and of fish appear to be significantly lower in the (C) group than in the beneficiary groups, and the number of total food groups consumed is also slightly lower. These patterns suggest that the randomisation succeeded in balancing the baseline dietary diversity of index children 6-24 months between the (L) and (L+N) groups, but that the (C) group exhibits potentially meaningful differences.

2.5.3 Dietary diversity among mothers of young children

Next, the analysis turns to dietary diversity patterns of the mothers of all index children (including mothers of children 0-5 months). Table 2.26 shows summary statistics for dietary diversity among mothers during the day preceding the survey.

Several observations are again worth noting. First, the pattern of food groups most commonly consumed by mothers appear similar but slightly different to the patterns for index children age 6-24 months. Like index children, nearly all mothers are reported to have consumed cereal (about 100 per cent), a majority

are reported to consume white tubers/roots (about 75 per cent), and most are reported to consume other vegetables (about 93 per cent, which again might include vitamin A-rich vegetables due to respondent miscategorisation). However, the shares of mothers reporting consumption of green leafy vegetables (about 45 per cent), fish (about 50 per cent), and beans/peas/lentils (23 per cent) are considerably higher than the shares of index children 6-24 months (about 35 per cent for green leafy vegetables and fish, about 16 per cent for beans/peas/lentils). Meanwhile the share reporting consumption of dairy (about 12 per cent) is considerably lower than the share of index children 6-24 months (about 21 per cent). The total number of food groups consumed in each intervention arm is reported to be about 4.

Table 2.26. Baseline means of dietary diversity outcomes the previous day for mothers of Index Children, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Consumed cereal	1.00	0.99	1.00	0.16	0.94	0.19
Consumed vitamin A-rich vegetables	0.13	0.13	0.02	0.96	0.00	0.00
Consumed white tubers/roots	0.75	0.73	0.77	0.48	0.36	0.12
Consumed green leafy veg	0.47	0.46	0.44	0.86	0.35	0.46
Consumed other vegetables	0.93	0.93	0.95	0.64	0.28	0.08
Consumed vitamin A-rich fruits	0.03	0.03	0.01	0.90	0.01	0.00
Consumed other fruits	0.13	0.15	0.12	0.55	0.70	0.31
Consumed meat	0.08	0.07	0.08	0.84	0.95	0.79
Consumed eggs	0.10	0.08	0.07	0.43	0.04	0.21
Consumed fish	0.48	0.50	0.44	0.52	0.31	0.10
Consumed beans peas lentils	0.23	0.23	0.20	0.82	0.25	0.33
Consumed dairy	0.13	0.12	0.08	0.62	0.01	0.03
Number of groups (of 12)	4.45	4.42	4.19	0.75	0.00	0.00

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Overall, the pattern suggests that mothers of young children tend to consume mostly rice, potatoes, and vegetables (possibly vitamin A rich) like their children, but that they also tend to more frequently consume green leafy vegetables, fish, and beans/peas/lentils. On the other hand, they tend to less frequently consume dairy.

A second observation is that, as at the household and index child level, the (L) and (L+N) groups are well balanced at the 5 per cent level in terms of mothers' dietary diversity. The p-values for all mean differences between the two groups in fact exceed 0.10, and the magnitudes of the differences are quite small.

Third, again as at the household and index child level, the (C) group appears similar to the (L) and (L+N) groups in terms of mothers' dietary diversity, but there are statistically significant differences. These patterns suggest that the randomisation succeeded in balancing the baseline dietary diversity of mothers between the (L) and (L+N) groups, but that the (C) group exhibits potentially meaningful differences.

2.5.4 Dietary diversity among fathers of young children

The analysis then proceeds to dietary diversity patterns of the fathers of all index children (including fathers of children 0-5 months). Table 2.27 shows summary statistics for dietary diversity among fathers during the day preceding the survey.

Again there are several observations to note. First, the pattern of food groups most commonly consumed by fathers is very similar to the pattern for mothers, if with slightly smaller shares reported than among mothers. The statistics indicate that, like mothers, fathers of young children tend to consume mostly rice, potatoes, and vegetables (possibly vitamin A rich) like their children, but that they also tend to more frequently consume green leafy vegetables, fish, and beans/peas/lentils and to less frequently consume dairy. These patterns suggest that there is no clear gender bias in terms of individual dietary diversity. While it is possible that men consume a greater quantity of some foods than women do, they appear not to consume fundamentally different (or ‘higher quality’) types.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Consumed cereal	0.93	0.94	0.95	0.67	0.19	0.37
Consumed vitamin A-rich vegetables	0.13	0.13	0.02	0.85	0.00	0.00
Consumed white tubers/roots	0.71	0.69	0.73	0.48	0.45	0.16
Consumed green leafy veg	0.44	0.44	0.42	0.87	0.32	0.43
Consumed other vegetables	0.87	0.87	0.90	0.90	0.07	0.07
Consumed vitamin A-rich fruits	0.03	0.03	0.01	0.88	0.01	0.00
Consumed other fruits	0.12	0.14	0.10	0.49	0.23	0.06
Consumed meat	0.08	0.07	0.08	0.57	0.80	0.41
Consumed eggs	0.09	0.09	0.07	0.61	0.03	0.10
Consumed fish	0.46	0.48	0.42	0.38	0.32	0.06
Consumed beans peas lentils	0.22	0.22	0.20	0.94	0.33	0.25
Consumed dairy	0.12	0.11	0.07	0.70	0.01	0.01
Number of groups (of 12)	4.21	4.21	3.98	0.98	0.01	0.01

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Second, as in the previous breakdowns, the (L) and (L+N) groups are well balanced at the 5 per cent level in terms of fathers’ dietary diversity. The p-values for all mean differences between the two groups in fact exceed 0.10, and the magnitudes of the differences are quite small.

Third, again as in the previous breakdowns, the (C) group appears similar to the (L) and (L+N) groups in terms of fathers’ dietary diversity, but there are statistically significant differences. These patterns suggest that the randomisation succeeded in balancing the baseline dietary diversity of fathers between the (L) and (L+N) groups, but that the (C) group exhibits potentially meaningful differences.

2.5.5 Dietary diversity among adolescent girls

The analysis finally turns to dietary diversity patterns of adolescent girls (in particular, the oldest girl aged 11-19 in the household, if any). Table 2.28 shows summary statistics for dietary diversity among adolescent girls during the day preceding the survey.

There are again several notable observations. First, the pattern of food groups most commonly consumed by adolescent girls is very similar to the patterns for fathers and mothers of index children, if with slightly smaller shares reported than among fathers and mothers. The statistics indicate that, like mothers and fathers of young children, adolescents tend to consume mostly rice, potatoes, and vegetables (possibly vitamin A rich) like young children, but that they also tend to more frequently consume green leafy vegetables, fish, and beans/peas/lentils and to less frequently consume dairy. The patterns indicate again that there is no apparent ‘favoritism’ among adults in terms of individual dietary diversity. While it is possible that men consume a greater quantity of some foods than women or adolescent girls do, they appear not to consume fundamentally different (or ‘higher quality’) types.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Consumed cereal	0.84	0.84	0.85	0.86	0.87	0.72
Consumed vitamin A-rich vegetables	0.12	0.16	0.08	0.41	0.36	0.08
Consumed white tubers/roots	0.68	0.64	0.64	0.56	0.57	0.99
Consumed green leafy veg	0.45	0.46	0.39	0.89	0.34	0.26
Consumed other vegetables	0.80	0.80	0.80	0.98	0.96	0.98
Consumed vitamin A-rich fruits	0.03	0.03	0.00	0.92	0.04	0.04
Consumed other fruits	0.13	0.11	0.11	0.74	0.76	0.98
Consumed meat	0.12	0.04	0.10	0.02	0.58	0.09
Consumed eggs	0.08	0.05	0.07	0.35	0.74	0.53
Consumed fish	0.37	0.48	0.38	0.09	0.95	0.09
Consumed beans peas lentils	0.22	0.20	0.19	0.63	0.51	0.88
Consumed dairy	0.13	0.10	0.09	0.59	0.47	0.84
Number of groups (of 12)	4.42	4.13	4.03	0.21	0.06	0.62

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Second, the (L) and (L+N) groups are balanced at the 5 per cent level in terms of most dimensions of adolescent girls’ dietary diversity. The p-values for nearly all mean differences between the two groups exceed 0.10, and the magnitudes of nearly all differences are quite small. The exception is a quantitatively small difference in the share of adolescent girls who consumed meat (12 per cent vs. 4 per cent), significant at the 2 per cent level, which could be controlled for in the eventual impact analysis.

Third, unlike the previous breakdowns, the (C) group also appears quite similar to the (L) and (L+N) groups in terms of adolescent girls’ dietary diversity, with few statistically significant differences. These patterns suggest that the randomisation succeeded in balancing the baseline dietary diversity of adolescent girls between the (L) and (L+N) groups, and that the (C) group also exhibits few meaningful differences.

2.5.6 Summary

The types of food consumed within a household, and who in the household consumes which foods, are important factors for household members' nutritional status. Dietary diversity measures are a useful way of capturing the quality of diets. They are of particular interest in this evaluation since food consumption serves as a key pathway through which the livelihoods and direct nutrition interventions may affect nutrition outcomes. In this section, we explore the diversity of foods that were consumed in the CLP sample at the time of the baseline survey. We examine baseline dietary diversity measures for households as a whole, as well as by specific household members of particular interest: young children ages 6-24 months, mothers of young children, fathers of young children, and adolescent girls.

Overall, the analysis of baseline indicators on household and individual dietary diversity in the CLP sample indicates that diets for young children age 6-24 months, mothers of young children, fathers of young children, and adolescent girls in the household are likely to be mainly rice, potatoes, and vegetables (possibly vitamin A rich). However, mothers, fathers, and adolescent girls appear to more frequently consume green leafy vegetables, fish, and beans/peas/lentils and to less frequently consume dairy than young children do. In particular, although dairy appears not to be consumed very regularly even by young children, it does appear to be consumed more by them than by other household members.

There are no striking differences in the patterns between mothers, fathers, and adolescent girls, although the shares consuming various food groups appear to be slightly larger for mothers than for fathers and adolescent girls, and slightly larger for fathers than for adolescent girls as well. As a whole, however, it appears that there is no clear 'favoritism' among adults in terms of individual dietary diversity. While it is possible that men consume a greater quantity of some foods than women or adolescent girls do, they appear not to consume fundamentally different (or 'higher quality') types.

Relevant to the evaluation design, in nearly all cases, the (L) and (L+N) groups appear to be balanced at the 5 per cent level, suggesting that the randomisation succeeded in balancing baseline dietary diversity. The exception is a small difference between the two groups in the share of adolescent girls who consumed meat, significant at the 2 per cent level, which could be controlled for in the eventual impact analysis. The (C) group also tends to be fairly similar to the (L) and (L+N) groups but in most cases exhibits some potentially meaningful differences, suggesting that a subset would need to be carefully chosen to serve as a counterfactual.

2.6 Anthropometry

In this section, we review baseline quantitative information on measures of anthropometry. Anthropometric measures are considered the best indicators of young children's nutritional status and are the key outcomes studied in this evaluation. Children's nutritional status is strongly determined by their nutritional environment in the first thousand days of life starting with conception, which in turn is affected by their mothers' nutritional status. This section therefore focuses on several measures of

nutritional status for young children (height-for-age, weight for age, weight-for-height), as well as a measure of nutritional status for their mothers (body mass index).

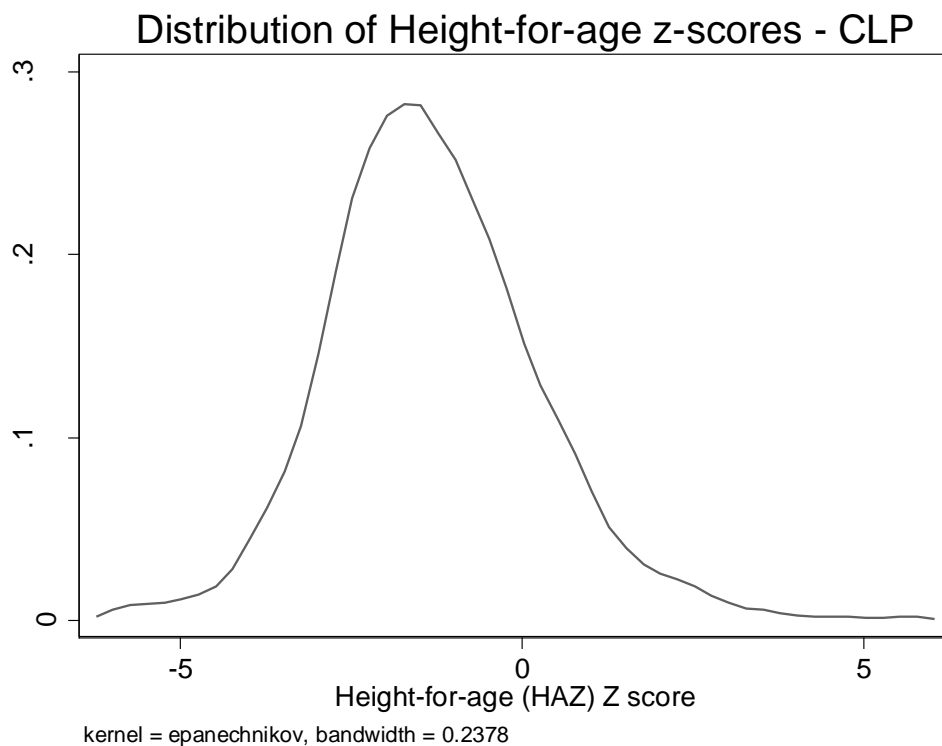
2.6.1 Children's height-for-age

In terms of long-term nutritional status, the most important anthropometric indicator for children is height-for-age. Height-for-age captures the history of a child's nutritional environment from conception to about two years of age, including both dietary intake and exposure to infection. Height-for-age has also been shown to be a very strong predictor of a range of adult outcomes including educational and labour market indicators (Hoddinott et al. 2013). Malnutrition as indicated by low height-for-age is therefore understood to more broadly reflect impaired early development. While there are serious and long-term adverse implications for growth failure, the critical window for affecting height-for-age is in the first thousand days of life. Evidence shows that nutritional interventions may be able to improve height-for-age when they are targeted to children ages 0-2 years and/or pregnant and lactating mothers, but have very limited remediating effects at later ages. Therefore, the window of opportunity for intervention is in precisely the age range that is targeted by this evaluation's nutrition component. Evidence also indicates however that effects on height-for-age require intensive intervention over a fairly long duration. The potential for impacts on height-for-age will therefore depend on the extent to which programme components translate to meaningful changes in household behaviour that improve diet and/or reduce infection over an extended period during the critical window (e.g., increasing exclusive breastfeeding from birth to the time a child is 6 months old).

The baseline survey recorded height measurements of all children aged 0-5 years old (recumbent length, for those aged 0-2 years). To norm these height measurements against a reference population of the same age and sex, Z-scores were constructed using the 2006 WHO child growth standards. The height-for-age Z-score (HAZ) indicates how many standard deviations the height is above or below the median height for the reference population of the same age and sex. A child with height-for-age Z-score more than two standard deviations below the reference median (i.e., $HAZ < -2$) is characterised as 'stunted.' A child with height-for-age Z-score more than two standard deviations below the reference median (i.e., $HAZ < -3$) is characterised as 'severely stunted.'

To begin, Figure 2.1 shows the distribution of the height-for-age Z-score in the overall CLP baseline sample. The distribution peaks below zero, indicating that sample children tend to be below the reference population's median height, given their age and sex.

Figure 2.1. Baseline distribution of height-for-age Z-scores, for children age 0-5 years—CLP



Next, we examine summary statistics for the height-for-age Z-score, the incidence of stunting, and the incidence of severe stunting. We compare children aged 0-5 years old in households who received both the livelihoods and nutrition interventions (L+N), in households who received the livelihoods intervention only (L), and in households who received neither intervention – the control group (C).

Table 2.29 shows that the average height-for-age Z-score is approximately 1.3 standard deviations below the reference median height. More than 30 per cent of children in the sample are stunted, and approximately 10 per cent of children are severely stunted. There are no statistically significant differences in these means across the three intervention arms at the 5 per cent level.

Table 2.29. Baseline means of height-for-age outcomes for children aged 0-5 years, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Height-for-age (HAZ) Z-score	-1.33	-1.30	-1.28	0.64	0.50	0.82
Proportion of children stunted (HAZ<-2 sd)	0.35	0.32	0.32	0.12	0.14	0.98
Proportion of children severely stunted (HAZ<-3 sd)	0.12	0.11	0.10	0.31	0.29	0.89

2.6.2 Children's weight-for-age

Children's weight can be considered a measure of short-term nutritional status. Unlike height, weight can be changed relatively quickly through changes in the nutrition environment. Weight can also be affected over a wider range of ages than height can be. For example, if a child's nutrition environment improves after the first thousand days, even though the child's height-for-age trajectory is unlikely to improve meaningfully, it is possible for the child's weight to improve.

The baseline survey recorded weight measurements of all children aged 0-5 years old. As with height, to norm these weight measurements against a reference population of the same age and sex, Z-scores were constructed using the 2006 WHO child growth standards. The weight-for-age Z-score (WAZ) indicates how many standard deviations the weight is above or below the median weight for the reference population of the same age and sex. A child with weight-for-age Z-score more than two standard deviations below the reference median (i.e., $WAZ < -2$) is characterised as 'underweight.' A child with weight-for-age Z-score more than three standard deviations below the reference median (i.e., $WAZ < -3$) is characterised as 'severely underweight.'

To begin, Figure 2.2 shows the distribution of the weight-for-age Z-score in the overall CLP baseline sample. The distribution peaks below zero, indicating that children tend to be below the reference population's median weight, given their age and sex.

Figure 2.2. Baseline distribution of weight-for-age Z-scores, for children age 0-5 years—CLP



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Table 2.30 then reports summary statistics on the weight-for-age Z-score, the proportion of children aged 0-5 who are underweight, and the proportion of children aged 0-5 who are severely underweight, in each of the three intervention arms in the CLP sample. The average weight-for-age Z-score is approximately 1.3 to 1.4 standard deviations below the reference median weight. Approximately 30 per cent of children are underweight, and approximately 7 per cent of children are severely underweight. The (L+N) and (L) groups are well balanced on all of these measures at the 5 per cent level. There are also no significant differences between the (L) and (C) groups. However, there are statistically significant differences between the (L+N) group and the control group (C) for all three measures, with the (C) group showing slightly better average outcomes.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Weight-for-age (WAZ) Z-score	-1.41	-1.39	-1.31	0.67	0.07	0.16
Proportion of children underweight (WAZ <-2 sd)	0.31	0.29	0.27	0.27	0.03	0.24
Proportion of children severely underweight (WAZ<-3 sd)	0.08	0.07	0.06	0.44	0.03	0.13

2.6.3 Children's weight-for-height

An alternative measure to capture a child's weight relative to the reference population is the child's weight-for-height. Because a child's weight naturally depends on the child's height, the weight-for-height measure can be more straightforward to interpret than the weight for age measure. In particular, the weight-for-height measure allows distinguishing low weight-for-age that is partially driven by low height-for-age from low weight-for-age given height.

As with height-for-age Z-scores and weight-for-age Z-scores, weight-for-height Z-scores (WHZ) were constructed using the 2006 WHO child growth standards. A child with weight-for-height Z-score more than two standard deviations below the reference median (i.e., WHZ <-2) is characterised as 'wasted.' A child with weight-for-height Z-score more than three standard deviations below the reference median (i.e., WHZ <-3) is characterised as 'severely wasted.'

To begin, Figure 2.3 shows the distribution of the weight-for-height Z-score in the overall CLP baseline sample. The distribution peaks below zero, indicating that sample children tend to fall below the reference median.

Figure 2.3. Baseline distribution of weight-for-height Z-scores, for children age 0-5 years—CLP

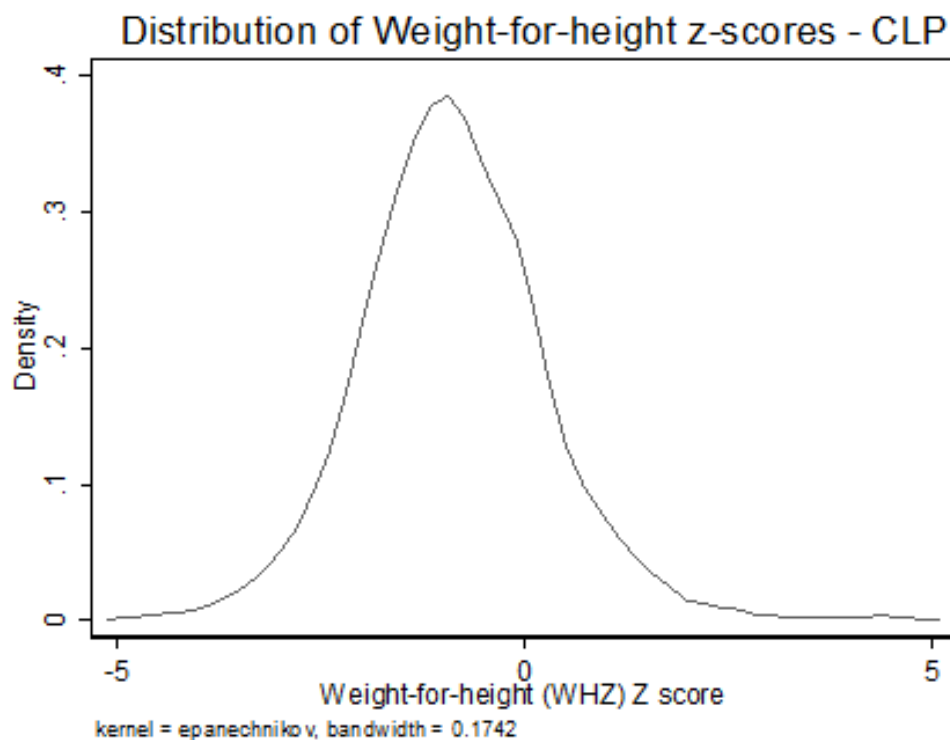


Table 2.31 then reports summary statistics on the weight-for-height Z-score, the proportion of children aged 0-5 who are wasted, and the proportion of children aged 0-5 who are severely wasted in each of the three intervention arms in the CLP sample. The average weight-for-height Z-score is approximately 0.8 to 0.9 standard deviations below the median. In the weight-for-height Z-score, the (L) and (L+N) groups are well balanced at the 5 per cent level, but there are statistically significant differences between these two groups and the (C) group. Approximately 15 per cent of children are wasted, and approximately 3 per cent of children are severely wasted. The only differences between groups are for the weight-for-height measure, between the (L+N) and (C) groups, and between the (L) and (C) groups.

Table 2.31. Baseline means of weight-for-height outcomes for children aged 0-5 years, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Weight-for-height (WHZ) Z-score	-0.92	-0.91	-0.80	0.84	0.01	0.02
Proportion of children wasted (WHZ <-2 sd)	0.15	0.15	0.13	0.76	0.17	0.28
Proportion of children severely wasted (WHZ <-3 sd)	0.02	0.03	0.04	0.26	0.12	0.46

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

2.6.4 Women's body mass index

We then turn to nutritional status of women. Women's nutritional status, in addition to its intrinsic importance, is also a key determinant of children's nutritional status while in utero and during lactation. To construct a measure of women's nutritional status, we calculate their body mass index.

The baseline survey recorded height and weight measurements for the mother of the designated 'index child' aged 0-24 months in each sampled household. A measure of body mass index (BMI) is constructed as follows:

$$\text{BMI} = \frac{\text{weight in kilograms}}{(\text{height in meters})^2}$$

Per convention, pregnant women are excluded from the calculation of BMI, since their weight is affected by pregnancy. Following WHO cut-offs, BMI values between 18.5 and 25 are characterised as 'normal.' Women with BMI values under 18.5 are considered underweight, and women with BMI values above 25 are considered overweight.

Figure 2.4 shows the distribution of BMI for mothers of the index children who are not pregnant in the CLP sample. A large proportion of women have BMI below 18.5.

Figure 2.4. Baseline distribution of body mass index, for mothers of index children—CLP

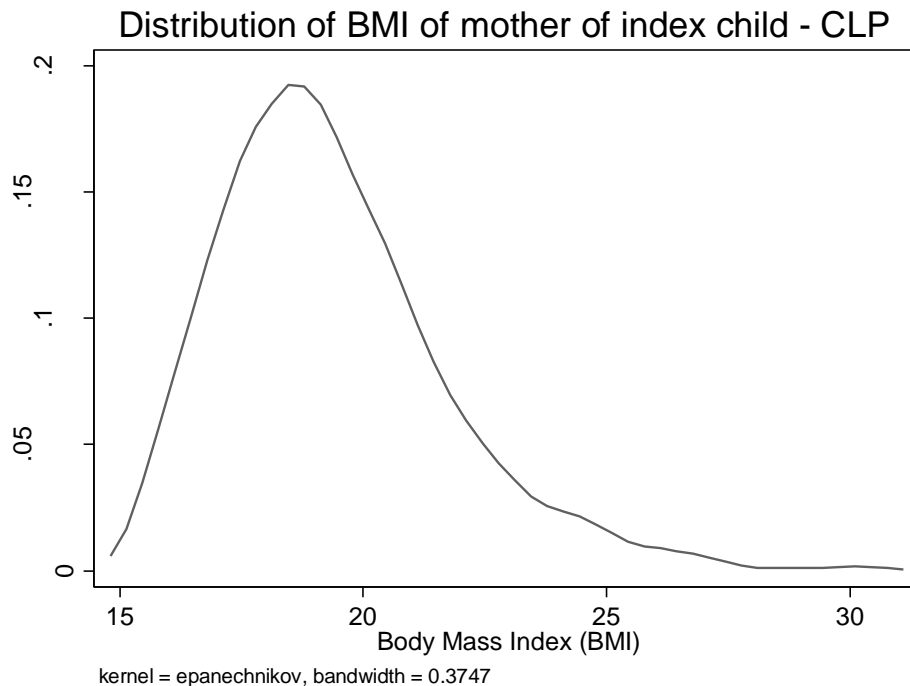


Table 2.32 reports the mean BMI for mothers of index children, as well as the proportions that are underweight or overweight, for each of the three groups in the CLP sample. The average BMI for mothers of the index children in the sample is just above 19. This lies toward the lower end of the ‘normal’ range. Approximately 40 per cent of mothers are underweight (BMI less than 18.5), and approximately 2 per cent are overweight (BMI greater than 25). There are no statistically significant differences in means across any of the three intervention arms at the 5 per cent level.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Body Mass Index (BMI)	19.33	19.34	19.46	0.92	0.30	0.33
Proportion underweight (BMI<18.5)	0.40	0.40	0.38	0.95	0.40	0.42
Proportion overweight (BMI>25)	0.02	0.02	0.03	0.89	0.58	0.49

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

2.6.5 Summary

Child nutritional status is the key outcome we study in this evaluation. Anthropometric measures are our primary indicators for nutritional status. Given that children’s nutritional status is strongly determined by their nutritional environment in the first thousand days of life starting with conception, which in turn is affected by their mothers’ nutritional status, this section focuses on several measures of nutritional status for young children as well as a measure of nutritional status for their mothers.

Children’s height-for-age is the most important anthropometric indicator of their long-term nutritional status. Height-for-age captures the history of a child’s nutritional environment from conception to about two years of age, and affecting its trajectory tends to require intensive early intervention. Growth failure in terms of height-for-age has been shown to have life-long adverse consequences. We use Z-scores to norm height-for-age and sex, based on the WHO 2006 reference population. In the CLP sample of children aged 0-5 years, we find that the average height-for-age Z-score (HAZ) is approximately 1.3 standard deviations below the reference median. More than 30 per cent of children in the sample are stunted (HAZ<-2), and approximately 10 per cent of children are severely stunted (HAZ<-3). There are no statistically significant differences in these summary statistics across the (L+N), (L), and (C) intervention arms.

Whereas height trajectory captures the long term, children’s weight captures short-term nutritional status. We examine two measures of weight for children aged 0-5 years, normed using the WHO 2006 reference population: the weight-for-age Z-score and the weight-for-height Z-score. We find that, in the CLP sample, the average weight-for-age Z-score (WAZ) is approximately 1.3 to 1.4 standard deviations below the reference median, approximately 30 per cent of children are underweight (WAZ<-2), and approximately 7 per cent of children are severely underweight (WAZ<-3). The (L+N) and (L) groups are well balanced in terms of weight for age, but there are statistically significant differences between the (L+N) group and the (C) group in this measure.

The alternative weight-for-height measure allows distinguishing low weight-for-age that is partially driven by low height-for-age from low weight-for-age given height. We find that, in the CLP sample, the average weight-for-height Z-score is approximately 0.8 to 0.9 standard deviations below the reference median, approximately 15 per cent of children are wasted ($WHZ < -2$), and approximately 3 per cent of children are severely wasted ($WHZ < -3$). All of these are well balanced between the (L) and (L+N) groups. There are statistically significant differences in mean WHZ between the (C) group and the (L+N) and (L) groups, although differences are not significant in terms of wasting prevalence.

We capture nutritional status for mothers of young children using their body mass index (BMI). Excluding pregnant women per convention, the mean BMI among mothers of index children in the CLP sample is about 19.35, which falls toward the bottom of the BMI range characterised as ‘normal’ by WHO (18.5 to 25). About 40 per cent of the sample is considered underweight, while only about 2 per cent is considered overweight. There are no statistically significant differences in means across any of the three intervention arms.

Overall, the baseline anthropometric indicators reflect that, in the CLP sample, there are high rates of undernutrition among young children aged 0-5 years. The indicators suggest that there are considerable deficiencies in children’s nutritional environment in the first thousand days of life, given that a large proportion of children are stunted. The baseline indicators also suggest that poor nutritional status among mothers of these young children may play a role, since a large proportion of sample mothers are underweight.

Relevant to the evaluation, these statistics suggest that the study’s nutrition intervention may have potential to impact nutrition outcomes, given that its components are targeted at children in the first thousand days of life and their mothers. The (L) and (L+N) intervention arms are moreover well balanced at baseline across anthropometric indicators at the 5 per cent level, suggesting that any relative impacts estimated between these two arms at endline can be well identified as causal. However, the (C) intervention arm shows significant differences from the (L+N) and (L) arms at baseline, indicating that it may be challenging to find a subset in the CLP control group that can serve as a reasonable counterfactual in the evaluation.

2.7 Women’s autonomy

Research has shown that women having greater intra-household bargaining power is associated with better child outcomes in terms of nutrition, health, and education (Schmidt 2012; Quisumbing and Maluccio 2003). Some evidence has also suggested that women’s low status in South Asia may partially explain why rapid economic growth has not translated to large reductions in child malnutrition (e.g., Smith et al. 2002; Ramalingaswami, Jonsson, and Rohde 1996). This section examines baseline trends related to women’s status across several areas: women’s earning and spending decisions, reproductive decisions, domestic violence, financial literacy, women’s financial preferences, and women’s control and agency.

2.7.1 Women's earning and spending decisions

Sociocultural norms in Bangladesh tend to stigmatize women's work outside the home. We begin our analysis by summarizing baseline indicators of women's employment status.

Table 2.33 shows outcomes related to women's work experience. Although 90-92 per cent of women in the (L) and (L+N) groups report they are working, only 53 per cent of women in the (C) treatment group report they are working. The differences in means between (C) households and (L) and (L+N) households are highly significant.

Working women were asked whose decision it was that they work. The most common response was "self and husband", given in 77 per cent of (L+N) households, 80 per cent of (L) households and 66 per cent of (C) households. The second most common response was "self", given in 17 per cent of (L+N) households, 13 per cent of (L) households and 31 per cent of (C) households. The probability of a husband or another person making the decision for the woman to work occurred in less than 6 per cent of cases across the treatment arms. For the most common responses, "self and husband" and "self", there are no significant differences between (L+N) and (L) households; however the differences between (L+N) and (C) and between (L) and (C) are statistically significant.

Women who reported working were also asked where they worked, whether it was inside the house or outside the house. Most reported doing so "inside the house" (63 per cent of (L+N), 65 per cent of (L) and 82 per cent of (C) households), followed by both "inside and outside the house" (35 per cent of (L+N), 33 per cent of (L) and 16 per cent of C). The differences between the means of the (L+N) and (L) group are not significant whereas the differences in means between the (C) group, on the one hand, and the (L+N) and (L) group on the other hand, are strongly significant.

Finally, women who worked were asked whether there were any objections to them working and how any money earned was spent. Few women in any of the intervention arms reported objections to them working (4 per cent of (L+N) and 3 per cent of (L) and (C) groups). In terms of use of their earnings, the most common use was to provide the earnings partly to the husband or family (49 per cent of (L+N) and (L) groups and 47 per cent of (C) groups). The least common use was for the woman to keep the money for herself (19 per cent of (L+N) and (L) groups and 25 per cent (C) groups). In 32 per cent of cases in (L+N) and (L) groups and 28 per cent of (C) groups, the woman reported giving all the money to her husband or another family member.

Overall, the randomization was successful in balancing nearly all characteristics related to women's work across (L+N) and (L) households, with only a small difference in the share of women who themselves took the decision to work (17 per cent vs. 13 per cent), significant at the 2 per cent level. This baseline difference could be controlled for in the eventual impact analysis.

However there are meaningful differences between these two groups on the one hand, and control households on the other hand. The most notable of these is the proportion of woman working, which is about 37 percentage points lower for the control group. Thus, without adjustments, households in the (C) group may not serve as a valid counterfactual for CLP households.

Table 2.33. Baseline means of work experience outcomes for working women—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Are you now doing any work or business that brings in additional food or cash?	0.92	0.90	0.53	0.53	0.00	0.00
If yes, who took that decision?						
Yourself	0.17	0.13	0.31	0.02	0.00	0.00
Your husband	0.06	0.06	0.03	0.75	0.08	0.03
Self and husband	0.77	0.80	0.66	0.15	0.00	0.00
Someone else	0.00	0.01	0.00	0.27	0.10	0.02
If yes, where do you work to earn income?						
Inside the house	0.63	0.65	0.82	0.73	0.00	0.00
Outside the house	0.02	0.02	0.02	0.52	0.63	0.96
Both inside and outside the house	0.35	0.33	0.16	0.67	0.00	0.00
At first your husband or other household member prevented you from working?	0.04	0.03	0.03	0.72	0.59	0.86
What do you do with the money you earn?						
Give all money earned to your husband / other family member	0.32	0.32	0.28	0.92	0.24	0.30
Give some money to your husband / other family member	0.49	0.49	0.47	0.97	0.55	0.59
Keep all the money yourself	0.19	0.19	0.25	0.84	0.06	0.09

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Table 2.34 shows information on reasons given for not working, among women who reported that they did not work. The most common response for why a woman is not working in the CLP sample is that she has to take care of children or perform household work (79 per cent of (L+N) households, 87 per cent of (L) households and 83 per cent of (C) households). The differences are not significant across (L+N) and (L) at the 5 per cent level. Although there are some statistically significant differences between the intervention groups and the control group, the magnitudes of these differences are small.

Table 2.35 shows baseline means related to spending decisions. Women were asked who decides how to spend the money she earns, as well as how to spend money on six different categories: (1) food, (2) housing, (3) healthcare, (4) education and (5) clothing. The most common response is “self and husband” at above 59 per cent for all except the question concerning education; education nevertheless has “self and husband” as the most common response with a range of 32 per cent to 38 per cent across the three treatment arms. In nearly all cases, the difference between means is not significant for the (L+N) and (L) households; there are quantitatively small differences in the share of women reporting that they themselves decide how to spend money on education and clothing (at the 1 per cent level and 3 per cent level, respectively) which could be controlled for in the eventual impact analysis. In all but one case, the differences are not statistically significant between the (C) group and the (L) and (L+N) groups. The exception is the question on “who usually decides on how to spend the money you earn?” for which (C) women are almost twice as likely answer “self”.

Table 2.34. Baseline means of work experience outcomes for non-working women outcomes, by intervention arm—CLP

Why don't you work?	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Husband won't allow	0.05	0.02	0.01	0.29	0.15	0.45
Society doesn't like it	0.00	0.00	0.00		0.31	0.31
Take care of children/household work	0.79	0.87	0.83	0.16	0.46	0.33
I don't want to	0.02	0.00	0.02	0.16	0.83	0.01
I don't need to	0.02	0.04	0.01	0.38	0.50	0.13
Am unable to work	0.00	0.03	0.02	0.07	0.02	0.49
Lack of demand for the work that I have skill to do	0.05	0.03	0.06	0.44	0.72	0.12
Other	0.06	0.02	0.06	0.08	0.80	0.04

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Women were also asked directly whether they controlled money for spending on food at the market, clothes for themselves, medicine for themselves, and cosmetics for themselves. For all, the proportion of positive responses for each question range from 37 per cent (for food from the market) to 51 per cent (for cosmetics for self) without significant difference in means across the intervention arms.

Overall, given that few differences between the means of (L+N) and (L) are statistically significant, the randomization appears to have balanced outcomes related to spending decisions fairly well. Control group women tend to be very similar to their (L+N) and (L) counterparts as well, with the notable exception of who decides how to spend the money that women earn.

Table 2.36 shows the baseline means on outcomes related to women's NGO loans. Women were asked if a loan had been taken up by the household. A loan was reported taken up by 20 per cent of the (L+N) households, 20 per cent of the (L) households and 37 per cent of the (C) households. The 17 percentage points difference in means between the (C) group on the one hand and the (L) and (L+N) group on the other hand is highly significant.

Women were also asked who decided to take the loan and who made decisions on how to spend the money borrowed. As with nearly all the previous questions on decisionmaking, the most frequent response was that the decision had been made jointly "self and husband." This response was given by about 81-83 per cent of women in all three intervention arms, with no significant differences.

None of the differences between the means of (L+N) and (L) treatment arms are significant at the 5 per cent level, indicating that randomization was successful in balancing these characteristics across the (L+N) and (L) households. There is a significant difference in means across the (C) households on the one hand and the (L+N) and (L) households on the other hand in terms of taking a loan, which may need to be addressed in future analyses.

Table 2.35. Baseline means of spending decision outcomes, by intervention

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Who usually decides how to spend the money you earn?						
Yourself	0.12	0.12	0.22	0.62	0.00	0.00
Your husband	0.12	0.11	0.09	0.74	0.11	0.18
Self and husband	0.75	0.76	0.69	0.52	0.09	0.02
Someone else	0.01	0.01	0.00	0.97	0.01	0.00
Who decides how to spend money on food?						
Yourself	0.10	0.08	0.08	0.22	0.49	0.61
Your husband	0.27	0.29	0.28	0.56	0.67	0.86
Self and husband	0.60	0.59	0.59	0.86	0.73	0.86
Someone else	0.03	0.04	0.05	0.49	0.32	0.77
Who decides how to spend money on housing?						
Yourself	0.09	0.06	0.07	0.06	0.46	0.26
Your husband	0.27	0.28	0.26	0.75	0.79	0.54
Self and husband	0.61	0.62	0.62	0.78	0.87	0.90
Someone else	0.03	0.04	0.05	0.34	0.14	0.64
Who decides how to spend money on health care?						
Yourself	0.10	0.07	0.08	0.07	0.23	0.56
Your husband	0.24	0.25	0.23	0.77	0.65	0.44
Self and husband	0.63	0.64	0.65	0.66	0.49	0.78
Someone else	0.03	0.04	0.04	0.42	0.27	0.79
Who decides how to spend money on education?						
Yourself	0.06	0.03	0.03	0.01	0.04	0.51
Your husband	0.14	0.15	0.13	0.50	0.92	0.44
Self and husband	0.38	0.37	0.32	0.80	0.03	0.05
Someone else	0.02	0.03	0.02	0.54	0.84	0.62
Who decides how to spend money on clothing?						
Yourself	0.11	0.07	0.08	0.03	0.12	0.47
Your husband	0.24	0.25	0.25	0.77	0.73	0.97
Self and husband	0.62	0.64	0.63	0.43	0.76	0.63
Someone else	0.03	0.04	0.04	0.53	0.39	0.85
Do you control the money needed to buy food at the market?						
	0.37	0.35	0.36	0.69	0.91	0.37
Do you control the money needed to buy clothes for yourself?						
	0.41	0.39	0.40	0.65	0.95	0.41
Do you control the money needed to buy medicine for yourself?						
	0.48	0.45	0.49	0.59	0.79	0.48
Do you control the money needed to buy cosmetics for yourself?						
	0.47	0.47	0.51	0.97	0.37	0.47

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Table 2.36. Baseline means of access to NGO loans outcomes, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Have you taken any loans from an NGO?	0.20	0.20	0.37	0.98	0.00	0.00
Whose decision was it to take the loan from the NGO?						
Yourself	0.04	0.03	0.02	0.46	0.27	0.77
Your husband	0.13	0.12	0.10	0.64	0.28	0.52
Self and husband	0.81	0.82	0.83	0.80	0.65	0.88
Someone else	0.01	0.03	0.05	0.26	0.01	0.33
Who usually decides how to spend the money from the loan?						
Yourself	0.05	0.02	0.02	0.06	0.06	0.94
Your husband	0.13	0.13	0.12	0.79	0.76	0.95
Self and husband	0.81	0.83	0.81	0.64	0.87	0.76
Someone else	0.01	0.03	0.05	0.26	0.03	0.47

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

2.7.2 Reproductive decisions

Table 2.37 displays outcomes related to reproductive decisions; 73-74 per cent of women in the (L+N) and (L) groups report having used birth control, as opposed to 80 per cent of the (C) group. The difference between the (C) group and the (L+N) and (L) groups is statistically significant, though fairly small. For women who used birth control, 82-83 per cent of the (L) and (L+N) groups made this decision with their husbands, as did 88 per cent of the (C) group, with no significant difference across the intervention arms.

For women who have not used birth control, the main reason is because they did not feel the need to (between 68 per cent and 75 per cent). About 18 per cent have not used birth control because their husband did not allow it. For these two items, there is no significant difference across the intervention arms.

About 16 per cent of women in the (L+N) and (L) categories report that their husband used birth control, a figure more than twice as big as the one for (C) women (7 per cent). The difference is statistically significant. Both men's and women's sterilization rates are negligible.

Overall there are several statistically significant differences at the 5 per cent level in outcomes on reproductive decisions between (L+N) and (L); however the magnitudes of most of these differences are negligible and round to about 0-1 per cent difference, indicating that controlling for these differences will likely not affect the impact analysis. (C) women appear similar as well, although they are slightly more likely to use birth control and slightly less likely to report their husbands used birth control.

Table 2.37. Baseline means of reproductive decisions outcomes, by intervention arm—CLP						
	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Have you ever used birth control (methods to delay or avoid pregnancy?) If yes, who made this decision?						
	0.74	0.73	0.80	0.78	0.68	0.02
Yourself	0.11	0.11	0.09	0.05	0.92	0.28
Your husband	0.06	0.06	0.04	0.08	0.49	0.02
Self and husband	0.82	0.83	0.88	0.86	0.81	0.03
Someone else						
If not, why have you not used any birth control method?	0.00	0.00	0.00	0.01	0.31	
Husband did not allow	0.18	0.17	0.18	0.25	0.76	0.96
Makes me feel weak/ill	0.07	0.14	0.05	0.00	0.03	0.51
Don't feel the need to	0.73	0.68	0.75	0.72	0.19	0.71
Other	0.02	0.02	0.02	0.03	0.89	0.88
Has your husband ever used any birth control method?	0.16	0.14	0.07	0.10	0.45	0.00
Is the man sterilized?	0.00	0.01	0.00	0.01	0.42	0.27
Is the woman sterilized?	0.01	0.02	0.01	0.01	0.32	0.65

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

2.7.3 Domestic violence

Table 2.38 shows the distribution of outcomes related to domestic violence by intervention arm. A large majority of women – between 85 per cent and 89 per cent report that their husband has threatened them with divorce in the past year. The proportion for (C) women appear slightly larger (89 per cent) than for (L+N) (85 per cent) and (L) women (86 per cent), but the magnitude of the differences are small. 8 per cent of (L+N) and (L) women report they have been sometimes threatened with divorce, against 6 per cent of (C) women. Between 85 per cent and 90 per cent of women also report their husband has not threatened them with taking another wife, with the figure for (C) women (90 per cent) slightly superior to that of CLP beneficiaries.

A large majority of women report they have been verbally abused by their husband, another family member or household resident. Between 40 per cent and 42 per cent of respondents were often verbally abused, and between 38 per cent and 43 per cent of respondents were sometimes verbally abused. Women of the control group are slightly more likely to answer they have been sometimes abused than those of the (L) group; they are conversely less likely to report they have not been abused (15 per cent) than both (L+N) (22 per cent) and (L) women (25 per cent).

Table 2.38. Baseline means of domestic violence outcomes, by intervention arm—CLP						
	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Has your husband threatened you with divorce in the past year?						
Yes, often	0.06	0.06	0.05	0.97	0.27	0.27
Yes, sometimes	0.08	0.08	0.06	0.58	0.05	0.19
Has threatened and divorced/remarried	0.01	0.01	0.00	0.93	0.11	0.12
No	0.85	0.86	0.89	0.73	0.02	0.07
Has your husband threatened you with taking another wife in the past year?						
Yes, often	0.05	0.06	0.04	0.44	0.42	0.13
Yes, sometimes	0.08	0.07	0.06	0.52	0.05	0.19
Has threatened and divorced/remarried	0.02	0.01	0.01	0.79	0.07	0.09
No	0.85	0.86	0.90	0.94	0.02	0.03
Has your husband, another family member, or household resident verbally abused you in the past year?						
Yes, often	0.40	0.40	0.42	0.91	0.63	0.54
Yes, sometimes	0.38	0.35	0.43	0.50	0.16	0.04
No	0.22	0.25	0.15	0.38	0.02	0.00
Has your husband, another family member, or household resident physically abused you in the past year?						
Yes, often	0.20	0.18	0.25	0.38	0.06	0.01
Yes, sometimes	0.26	0.25	0.24	0.66	0.41	0.70
No	0.54	0.57	0.51	0.28	0.44	0.08
If any answer to above questions is YES, did you want to leave?						
Did you leave?	0.08	0.07	0.06	0.32	0.09	0.54
Yes, permanently	0.19	0.25	0.23	0.43	0.49	0.86
Yes, but I came back	0.51	0.52	0.57	0.85	0.47	0.57
No	0.31	0.23	0.20	0.41	0.20	0.67
If you did not leave permanently, why not?						
He was angry and didn't mean it	0.30	0.40	0.23	0.27	0.39	0.09
My husband and I came to an agreement	0.48	0.37	0.40	0.13	0.34	0.75
I could not support myself financially	0.00	0.00	0.00			
My parents could not support me financially	0.05	0.06	0.05	0.77	0.98	0.81
I came back for my children	0.14	0.15	0.19	0.79	0.51	0.69
Because of social pressure	0.03	0.02	0.14	0.70	0.09	0.06

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Physical abuse is a bit less prevalent: 54 per cent of (L+N) and 57 per cent of (L) women report they have not been physically abused. The corresponding figure for (C) women is 51 per cent and is significantly lower than that of (L). One quarter of women report they have been sometimes physically abused (no difference across intervention arm), and 20 per cent of (L+N), 18 per cent of (L) and 25 per cent of (C) women have been often physically abused. Women of the control group are significantly more likely to be in this category than both women of (L+N) and (L) groups.

About 7 per cent of women who suffered any threat or abuse described above report they wanted to leave. Just over half of them did leave but eventually came back, between 20 and 25 per cent leaved permanently, and between 20 and 31 per cent did not leave. None of these items exhibit significant differences between intervention arms. For the women who did not leave permanently, the main reasons

are that “he was angry and did not mean it” (between 23 per cent and 40 per cent of these women), “my husband and I came to an agreement” (between 37 per cent and 48 per cent of respondents), and “I came back for my children” (between 14 per cent and 19 per cent).

The randomization was successful in balancing domestic violence outcomes between (L+N) and (L) households, with no differences statistically significant at the 5 per cent level. Women of the control groups are slightly different than those in (L+N) and (L) groups, but the differences are relatively small.

2.7.4 Women’s financial literacy

The Organisation for Economic Cooperation and Development and the International Network on Financial Education (INFE) define the term “financial literacy” as

A combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial well-being (Hung, Yoong, and Brown 2012).

The baseline indicators of the financial literacy of women are summarized in Table 2.39. Approximately 95 per cent of women gave the correct answer to the question “what is 4+3?”, with women of the (C) group statistically more likely to give the correct answers than women of the (L+N) and (L) groups. However the difference is quantitatively negligible. 44 per cent and 42 per cent of women of the (L+N) and (L) groups, respectively, gave the correct answer to the question “What is 3 times 6?”, against 53 per cent for women of the (C) group, which is significantly higher (p-values of 0). Similarly, while 19 per cent and 17 per cent of women of the (L+N) and (L) groups, respectively, answered correctly the question “What is one tenth of 400?” Twenty-three per cent of women of the (C) group did so, which is significantly higher (p-values of 0).

Approximately 16 per cent of women of all groups correctly answered the question “How much is 15 per cent of 200 taka?” Fifty-eight per cent of (L+N) women and 54 per cent of (L) women chose the price/quantity combination that would maximise their earnings, against 60 per cent of (C) women, a statistically significant difference. 45 per cent correctly answered the question on interest rate (i.e., A moneylender offers to lend a farmer 100 taka for one year. He will charge the farmer 10 per cent interest on this loan. In one year’s time, how much will the farmer have to give the moneylender to repay the loan and all the interest?). Nearly 80 per cent of women of all groups correctly computed the greater odds of pulling out a red ball in an urn with 4 red balls and 1 white ball.

Overall, the randomization succeeded in balancing indicators of financial literacy between the (L+N) and (L) households, with no statistically significant differences at the 5 per cent level. However, the data suggest that women of the control group tend to perform slightly better in financial literacy tests than CLP beneficiaries.

Table 2.39. Baseline means of financial literacy outcomes, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
What is 4+3?	0.94	0.93	0.96	0.34	0.05	0.00
What is 3 times 6?	0.44	0.42	0.53	0.57	0.00	0.00
What is one tenth of 400?	0.19	0.17	0.23	0.21	0.07	0.00
How much is 15 per cent of 200 taka?	0.16	0.17	0.16	0.81	0.99	0.83
Which maximises price for each kg of rice: 10Kg for 50 taka or 15Kg for 60 taka?	0.39	0.42	0.37	0.36	0.40	0.08
Question on interest rate	0.43	0.46	0.46	0.29	0.27	0.97
Question on probabilities	0.75	0.77	0.80	0.61	0.06	0.18

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

2.7.5 Women's financial preferences

Table 2.40 displays results for financial preferences tests. A small majority of the respondents exhibit a preference for the present in that they prefer 100 taka today (the option A) rather than 110 taka in the future (the option B). When the amount to time between the two periods is increased to two months, the proportion of women who chose option A goes up to about 64 per cent. There are no significant differences between the treatment arms.

Table 2.40. Baseline means of financial preferences outcomes, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Answer A to: Would you prefer to be given A. 100 taka today B. 110 taka in one month?	0.54	0.52	0.55	0.49	0.82	0.35
Answer A to: Would you prefer to be given A. 100 taka today B. 110 taka in two months?	0.64	0.63	0.64	0.65	1.00	0.63

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

The randomization achieved balance on financial preferences outcomes between (L+N) and (L) households at the 5 per cent level, and (C) households are similar to the CLP beneficiaries.

2.7.6 Women's control and agency

An important component of women's status is the ability to make choices. Agency is defined as the ability to define one's own goals and act upon them even in the face of opposition from others (Kabeer 1999).

The baseline indicators of women's control and agency are summarized in Table 2.41. For each statement, the table reports the percentage of women who agree (slightly agree, agree or strongly agree) with it. The three statements for which more than 70 per cent of women agree are: "When what I get what I want, it is usually/mostly because I am lucky", "When I get what I want, it is usually because I worked

hard for it” and “My life is determined by my own actions”. Interestingly, two of these statements convey the idea of agency in women’s life while the third one is fatalistic.

Similarly, the statements that gather less than 50 per cent of agreement are: “My life is chiefly controlled by other powerful people”, “People like myself have very little chance of protecting our personal interest when they conflict with those of more powerful people”, “I can mostly determine what will happen in my life”, “I am usually able to protect my personal interests (I can usually look after what is important to me)” and “In order to have my plans work, I make sure that they fit in with the desires of people who have power over me”. These are a mixture of statements expressing lack of agency (women need to please more powerful people to succeed and cannot afford to go against them) and statements conveying agency and control (e.g., my life is determined by my own actions).

In Table 2.42 the results of two additional tools about control and agency are displayed. The first one asks respondents to imagine a nine-step ladder, with people without rights at the bottom, and people with lot of power at the top. Respondents had then to position themselves on this ladder. On average (L+N) women answered 2.43 and (L) women 2.57. Those are very low numbers, suggesting that women respondents feel largely powerless. The answer for (C) women is even lower, at 2.22, with is significantly different from both (L+N) and (L) groups. The second tool asks respondents to imagine a nine-step ladder, with people totally unable to change their lives at the bottom, and people with full control over their own lives at the top. Respondents had then to position themselves on this ladder. On average, (L+N) women answered 2.85 and (L) women 2.97. While still very low, these figures are a bit higher than for the first question. Again, women of the control group exhibit a lower score, 2.69, which is significantly lower than the one for (L) women.

Table 2.41. Baseline means of women's control and agency outcomes, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Percentage of women who slightly agree, agree or strongly agree to:						
To a great extent my life is controlled by accidental chance happenings	0.62	0.62	0.59	0.80	0.28	0.38
I feel like what happens in my life is mostly determined by powerful people	0.52	0.53	0.48	0.72	0.17	0.11
When I make plans, I am almost certain/guaranteed/sure to make them work	0.52	0.51	0.50	0.80	0.60	0.77
Often there is no chance of protecting my personal interest from bad luck happening	0.69	0.64	0.64	0.08	0.05	0.87
When what I get what I want, it is usually/mostly because I am lucky	0.70	0.74	0.69	0.07	0.75	0.02
My experience in my life has been that what is going to happen will happen	0.66	0.68	0.64	0.37	0.49	0.10
My life is chiefly controlled by other powerful people	0.47	0.46	0.42	0.83	0.04	0.09
People like myself have very little chance of protecting our personal interest when they conflict with those of more powerful people	0.50	0.50	0.50	0.95	0.99	0.94
It is not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune	0.59	0.58	0.57	0.66	0.63	0.96
Getting what I want requires making those people above me happy with me	0.55	0.57	0.52	0.39	0.25	0.04
I can mostly determine what will happen in my life	0.39	0.42	0.37	0.24	0.47	0.07
I am usually able to protect my personal interests (I can usually look after what is important to me)	0.48	0.48	0.45	0.97	0.40	0.34
When I get what I want, It is usually because I worked hard for it	0.74	0.72	0.70	0.30	0.11	0.48
In order to have my plans work, I make sure that they fit in with the desires of people who have power over me	0.49	0.50	0.48	0.69	0.74	0.43
My life is determined by my own actions	0.69	0.68	0.72	0.75	0.33	0.19

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

The randomization achieved balance between (L+N) and (L) women at the 5 per cent level on all of these items of perceived control and agency. However, women in control households appear to perceive having significantly less control even though the magnitude of the differences are modest.

Table 2.42. Baseline means of women's control and agency outcomes, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Please imagine a nine-step ladder, where on the bottom, the first step, stand people who are completely without rights, and step 9, the highest step, stand those who have a lot of power. On which step are you?	2.43	2.57	2.22	0.23	0.04	0.00
Please imagine a nine-step ladder, where on the bottom, the first step, are those who are totally unable to change their lives, while on step 9, the highest step, stand those who have full control over their own life.. On which step are you?	2.85	2.97	2.69	0.32	0.20	0.03

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

2.7.7 Summary [Error! Bookmark not defined.](#)

Given evidence that women's intra-household bargaining power is strongly associated with their children's outcomes, women's autonomy may play an important role in this evaluation in terms of mediating how livelihoods and direct nutrition interventions affect children's nutrition. This section examines baseline trends related to women's status across several areas: women's earning and spending decisions, reproductive decisions, domestic violence, financial literacy, women's financial preferences, and women's control and agency.

Nearly all women in CLP beneficiary households report working (about 90 per cent), a large majority report that their decision to work was made jointly between themselves and their husbands (about 80 per cent), and nearly all report working either inside the home (about 60 per cent) or both inside and outside the home (about 30 per cent). Virtually none report that there were objections to their working. Most give some or all of the money they earn (about 50 per cent and 30 per cent, respectively) to their husbands or other family members, with less than 20 per cent keeping all of their earnings themselves. The (L+N) and (L) groups show few statistically significant differences in these characteristics. In the (C) group, responses regarding location of work, objections to work, and keeping earnings are similar to the (L) and (L+N) groups. However, a significantly smaller share of women in the (C) group report working (53 per cent). Of those who work, while most still report that the decision to work was made jointly, a significantly higher share report that the decision was made by themselves than in the (L) and (L+N) groups.

Across a range of spending decisions (how to spend their own earnings; how to spend on food, housing, healthcare, education, and clothing), most women in CLP beneficiary households and control households report that the decisions are made jointly between themselves and their husbands. Half or fewer women in both CLP beneficiary households and control households report that they themselves control the money

needed to buy food (about 35 per cent), clothes (about 40 per cent), medicine (about 48 per cent), or cosmetics (about 47 per cent) for themselves. A large majority of women in all groups (about 80 per cent) also report that the decision to take loans and the decision on how to spend loans is made jointly by themselves and their husbands. Very few differences are statistically significant at the 5 per cent level across (L+N), (L), and (C) households.

Most women (about 70 per cent) in CLP beneficiary and control households report having ever used birth control, and a large majority (about 80 per cent) report that the decision was made jointly by themselves and their husbands. A large majority of women (about 85 per cent) in beneficiary and control households also report that their husbands have not threatened them with divorce or taking another wife in the past year. Few differences are statistically significant at the 5 per cent level across (L+N), (L), and (C) households, and magnitudes of differences tend to be very small where significant.

However, most women (about 80 per cent) in CLP beneficiary and control households report that they were verbally abused sometimes or often in the past year. A substantial proportion of women (about 40 per cent) in beneficiary and control households report that they were physically abused sometimes or often in the past year. In all three groups, only a very small share report wanting to leave, with the most common reasons for not leaving being that their husbands did not mean it and that they and their husbands came to an agreement. While the shares reported are similar across beneficiary and control women, a slightly but significantly higher share in the (C) group reports “yes, often” (and a slightly lower share reports “no”) to the questions on experiencing verbal and physical abuse than in the (L) or (L+N) groups.

On questions of financial literacy, nearly all women in all three groups were able to perform basic addition, but relatively few were able to answer more complex questions. There are no statistically significant differences in these responses between the (L) and (L+N) groups, and the few significant differences between the (C) group and the (L) and (L+N) groups are small in magnitude. Women in all three groups also respond very similarly on average to questions of time preference, with about half or more preferring a small transfer now to a larger one a month later.

In terms of direct questions regarding women’s own perceptions of their control and agency, no strong patterns emerge, and there are no statistically significant differences across the three intervention arms. However, when asked to imagine themselves on a ladder where those on step 1 have no rights and those on step 9 have a lot of power, women in all three intervention arms place themselves on average between step 2 and 3, indicating that they perceive themselves to have little power. Similarly, when asked to imagine themselves on a ladder where those on step 1 are totally unable to change their lives and those on step 9 have full control of their lives, women in all three intervention arms place themselves on average just under step 3, indicating that they perceive themselves to have limited ability to change their lives. These characteristics are balanced between the (L) and (L+N) groups. Although the averages are similar in all three intervention arms, women in (C) tend to report slightly but significantly lower “step”s than the women in (L) or (L+N).

Overall, the analysis suggests that women’s status tends to be low in the CLP sample, despite most women reporting that they make decisions jointly with their husbands. Randomization appears to achieve

balance at the 5 per cent level along most dimensions between the women in (L+N) and (L) households. There are quantitatively small but statistically significant differences in the share of women who report that they themselves took the decision to work and in the share of women reporting that they themselves decide how to spend money on education and clothing, which could nonetheless be controlled for in the eventual impact estimation between (L+N) and (L). However while women in (C) households are similar in many dimensions, they show some meaningful differences from those in (L+N) and (L) households. In particular, significantly fewer women in (C) households work, slightly but significantly more report verbal and physical abuse “often,” and their perceptions of their own power and control are slightly but significantly lower on average. Although these differences may be linked to benefits provided to women by the CLP programme itself (such as employment opportunities for women), they suggest that the differences must be accounted for if the (C) group is to serve as a counterfactual in the evaluation.

2.8 Nutrition practices and services

In this section, we review baseline quantitative information on nutrition-relevant practices and services. We start with experiences during pregnancy with a focus on access and use of ante-natal care as well as an examination of birth weights. We then move onto an exploration of sources of information available to mothers on good nutrition practices. We look at what mother’s know, with a particular focus on infant and young child feeding. We end by examining mothers’ nutrition, health and sanitation behaviours with respect to the index child in these data. Throughout we pay particular attention to the presence of meaningful differences in these characteristics and outcomes across intervention arms.

2.8.1 Access and use of antenatal care

Antenatal care (ANC) can play an important role in producing healthy babies and healthy mothers through the provision of information on healthy pregnancy, screening for risk factors, by providing health inputs for mothers and babies, and preparations for safe delivery (Pervin et al. 2012). The World Health Organisation (WHO) recommends a minimum of four antenatal sessions with a trained health worker (WHO 2014). The baseline quantitative survey asked women to describe their experiences with antenatal care services with reference to the index child (i.e., a child 24 months or younger whose anthropometry is described in 2.6 above. In this section, we describe mothers’ access and use of antenatal care.

Table 2.43 shows that about 70 per cent of women attended at least one antenatal session. Conditional on attending at least one session, the mean number of sessions attended varied slightly, from 2.74 in the livelihoods intervention arm to 3.13 in the control group. Relatively few women, between 15 and 23 per cent attended at least four sessions, the minimum as set out by WHO. In the CLP study areas, these sessions were offered by a wide range of providers. The most common setting for these were Union Health and Family Welfare Centers with about 32 per cent of all women using these. Approximately 17 per cent used an NGO facility and 12 per cent reported receiving these sessions with a CLP health worker. There were two marked differences across intervention arms. Between 10 and 12 per cent of mothers in the two livelihood intervention arms (with and without the nutrition intervention) reported using antenatal services provided by an NGO compared to 30 per cent in the control group. By contrast,

17 per cent of mothers in the livelihoods arm received ANC services through a CLP health worker while no mother in the control group did so. No differences between the (L) and (L+N) groups are statistically significant at the 5 per cent level.

Table 2.43. Baseline means of antenatal visits, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Any antenatal sessions	0.70	0.70	0.74	0.86	0.29	0.39
Number antenatal sessions	2.88	2.74	3.13	0.24	0.11	0.01
Attended at least four ANC sessions	0.20	0.15	0.23	0.10	0.38	0.01

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Table 2.44 gives some information on advice and actions received during these ANC sessions. Around 75 per cent of mothers report they are weighed. Conditional on being weighed at least once, on average women are weighed twice during the course of this pregnancy. Just over 80 per cent of women in the livelihood only or livelihood and nutrition intervention arms had been given advice on foods to cook or consume compared to only 66 per cent in the control group. This pre-intervention difference appears to arise because this information is especially likely to be provided when the session is led by a CLP health worker and women in control localities are less likely to have had access to these workers. Most women (~86 per cent) state that they were able to follow this advice though the majority report that they do so only once a week or less. Few women, less than 5 per cent, were provided a food supplement through the ANC services that they had accessed. No differences between the (L) and (L+N) groups are statistically significant at the 5 per cent level.

Table 2.44. Baseline means of ANC advice and actions, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Weighed during pregnancy	0.75	0.77	0.75	0.45	0.95	0.47
Number times weighed	2.09	2.02	2.09	0.53	0.97	0.57
Rec'd advice on food to eat	0.81	0.81	0.66	0.97	0.00	0.00
Followed advice	0.88	0.86	0.88	0.39	0.86	0.32

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

As reported in Bhutta et al. (2013), a Cochrane review by Pena-Rosas et al. (2012) showed that daily iron supplementation during pregnancy reduced anemia at term by 70 per cent and the incidence of low birth weight by 19 per cent. WHO recommends daily iron supplementation during pregnancy in at risk populations such as those in the CLP study area (WHO 2012). Table 2.45 shows that 63 – 69 per cent of women in the CLP study area took iron supplements when pregnant with the index child. On average, women began taking this supplement around the fifth month of pregnancy and took these iron supplements for just under three months. There are few statistically significant differences at the 5 per cent level in access to or duration of use by women across intervention arms. There is a quantitatively small difference in months of receiving iron supplements between the (L) and (L+N) groups, significant at the 4 per cent level, which could be controlled for in the eventual impact analysis. On average, women taking iron supplements did so for 25 days per month with no meaningful variation across treatment arms.

Table 2.45. Baseline means of iron supplement outcomes, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Rec'd iron supplement	0.69	0.68	0.63	0.76	0.07	0.12
Month rec'd supplement	5.05	5.21	5.19	0.04	0.10	0.79
Num months took supplement	2.93	2.88	2.77	0.57	0.08	0.20

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Neonatal tetanus, often arising from non-sterile procedures used during the cutting of the umbilical cord after delivery, can be prevented if the mother is vaccinated during pregnancy. In Bangladesh, where women may not have previously been vaccinated against tetanus, two vaccinations during pregnancy are recommended. When women have been vaccinated before, only one vaccination may be needed (NIPORT, 2013). Table 2.46 indicates that between 64 and 74 per cent of women received the tetanus toxoid vaccine during their pregnancy with the index child with this percentage lower (64 per cent) for women in control group. These women also had lower mean numbers of tetanus toxoid vaccines compared to women in the (L+N) and (L) groups. Vitamin A capsules are sometimes given to women after childbirth in order to increase vitamin A status in newborns through breast milk. Between 36 and 40 per cent of women were given vitamin A after giving birth to the index child with no differences across treatment arms. However, recent systematic reviews indicate no beneficial impacts of providing vitamin A on infant morbidity or mortality linked to vitamin A deficiency (Gogia and Sachdev 2010) and the WHO does not recommend this supplementation (WHO, 2014). In all cases, there is no statistically significant difference between the (L) and (L+N) groups at the 5 per cent level.

Table 2.46. Baseline means of Tetanus Toxoid vaccines and access to vitamin A at birth, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Rec'd tetanus toxoid vaccine	0.74	0.75	0.64	0.64	0.00	0.00
Number tetanus toxoid vaccines	1.26	1.29	1.06	0.55	0.00	0.00
Rec'd vitamin A at birth	0.40	0.37	0.36	0.28	0.20	0.76

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Lastly, the baseline survey instrument collected information on the location of the index child's birth and who assisted with the birth. Given the geography of the chars, not surprisingly nearly all (>93 per cent) of births occur at home. Information is also collected on who attends these births; in particular, it is instructive to see whether a trained health worker (doctor, nurse, midwife, trained traditional birth attendant) was present. Results are shown in Table 2.47.

Table 2.47 indicates that around 40 per cent of index child births are attended by a trained health professional with no meaningful differences in this percentage across treatment arms. However, births by mothers in the control arms are more likely to have been attended to by a doctor or midwife and less likely to have been attended by a traditional birth attendant. Across all intervention arms, around 70 per

cent of births are attended by a mother or mother-in-law and around 40 per cent by a friend or neighbor. In all cases, there is no statistically significant difference between the (L) and (L+N) groups at the 5 per cent level.

Table 2.47. Baseline means of assistance at birth, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Birth attended by doctor	0.05	0.05	0.10	0.67	0.00	0.00
Birth attended by midwife or nurse	0.05	0.05	0.11	1.00	0.00	0.00
Birth attended by village doctor	0.02	0.02	0.03	0.56	0.15	0.31
Birth attended by trained traditional birth attendant	0.35	0.31	0.27	0.17	0.01	0.17
Birth attended by any trained person	0.41	0.38	0.41	0.28	0.84	0.42
Birth attended by mother or mother-in-law	0.69	0.68	0.72	0.80	0.20	0.13
Birth attended by neighbour or friend	0.45	0.43	0.39	0.58	0.06	0.20

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Table 2.48 indicates that between 12 and 20 per cent (depending on the intervention arm) of babies were weighed immediately after birth.

Table 2.48. Baseline means of birth weight outcomes, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Child weighed	0.16	0.12	0.20	0.08	0.21	0.00
Birth weight	2.57	2.60	2.74	0.58	0.00	0.03
Low birth weight (<2.5kg)	0.36	0.33	0.25	0.56	0.01	0.11

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Children in control localities were more likely to be weighed than children in the intervention areas. With the important caveat that our birth weight sample comes from a non-random sample, birth weights are about 150g higher in control localities and the incidence of low birth weight is eight to 11 percentage points lower. There are no statistically significant differences between the (L) and (L+N) groups at the 5 per cent level.

2.8.2 Sources of information on good nutrition practices

Section 2.8.1 indicates that a variety of antenatal services are available to some women in the CLP study area? What about access to nutrition services, specifically access to information on good nutrition practices after the child is born. Table 2.49 describes access to various sources of information.

The most noticeable feature of Table 2.49 is the large, and statistically significant difference between the (L+N) and (L) intervention arms and households in the control group. (L+N) and (L) households are much more likely to have been exposed to information about good nutrition practices than the control group, 75 to 78 per cent versus 39 per cent. This results from much greater participation in group

meetings (55 to 58 versus 5 per cent) to discuss IYCF and other issues related to child nutrition and health by mothers in the livelihoods intervention localities as well as higher incidence of home visits. In addition, conditional on receiving any home visit, mothers in the livelihood intervention arms (L+N or L) received more frequent home visits, around 4 ½ in the previous six months compared to 2.8 for households in control groups (not shown). The vast majority of the visits to (L+N) and (L) households were by CLP health workers (~86 per cent). For households in the control groups, most of these visits were by BRAC health workers (~81 per cent). Mothers in control localities are more likely to have seen nutrition messages on television. At baseline, there is no difference in exposure to sources of information between (L+N) and (L) intervention arms significant at the 5 per cent level.

Table 2.49. Baseline means of sources of information about IYCF, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Exposed to any source of information about nutrition	0.78	0.75	0.39	0.41	0.00	0.00
Did HW give advice on IYCF during home visit?	0.55	0.52	0.20	0.53	0.00	0.00
Attend group meeting	0.58	0.55	0.05	0.42	0.00	0.00
Any home visit or group meeting	0.77	0.74	0.23	0.36	0.00	0.00
Heard nutrition messages on radio	0.02	0.02	0.02	0.33	0.43	0.87
Saw nutrition messages on TV	0.06	0.07	0.23	0.59	0.00	0.00
Any exposure to nutrition via media	0.07	0.08	0.23	0.51	0.00	0.00

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Mothers were asked to describe the advice they received from health workers during the last visit. Table 2.50 summarizes their responses; the sum of the mean values exceeds one because mothers could describe more than one item of advice. Exclusive breastfeeding is the most frequently offered advice and, more generally, we see more examples of advice around breastfeeding than about feeding children older than six months. Unlike access to information, conditional on receiving a home visit, mothers in all treatment arms receive similar information. There are no statistically significant differences between the (L), (L+N), and (C) groups at the 5 per cent level.

Table 2.50. Baseline means of advice given during home visits, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Exclusive breastfeeding to 6 months	0.50	0.45	0.50	0.16	0.93	0.18
Feed mashed foods after 6 months	0.33	0.34	0.39	0.69	0.13	0.21
Put baby to breast immediately after birth	0.34	0.34	0.26	0.90	0.09	0.08
Feed children animal source foods	0.33	0.31	0.27	0.41	0.10	0.31
Give only colostrums	0.30	0.28	0.27	0.70	0.55	0.75
Wash hands before food prep or feeding baby	0.23	0.24	0.21	0.65	0.73	0.45
Attachment during breastfeeding	0.12	0.15	0.16	0.30	0.23	0.67
Adding sprinkles	0.12	0.13	0.08	0.70	0.11	0.06
No pre- or post-lacteals	0.11	0.13	0.11	0.54	0.99	0.61
Positioning during breastfeeding	0.11	0.11	0.13	0.96	0.61	0.58
Adding oil when cooking	0.08	0.10	0.07	0.29	0.51	0.13
Extra feeding during and after illness	0.09	0.09	0.06	0.87	0.18	0.16

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

2.8.3 What have mothers and adolescents heard about infant and young child feeding

To what extent does knowing about practices translate into acting on this information? For six topics, mothers were asked whether they had ever heard of these practices, the source of this information, and whether they had attempted to follow this practice. Results are shown in Table 2.51.

Virtually all women had heard about the importance of commencing breastfeeding (BF) within an hour of giving birth and had heard about the importance of exclusive breastfeeding. Women in control localities were slightly less likely to have heard these messages but while the differences between them and women in livelihood localities are statistically significant, the magnitudes of these differences is small. However, when we look at women's exposure to knowledge surrounding IYCF we see large and statistically significant differences between women in (L+N) and (L) localities. For example, just over 90 per cent of women in livelihood localities had heard about the importance of feeding animal source foods to children 6-24m compared to 74 per cent in control areas. However, when we look at the subsample of mothers who have heard these messages, we find no difference across treatment arms in the likelihood that mothers attempted to act on this information. For example, among the subsample of mothers who had heard about ways of getting children with poor appetites to eat, nearly all (93-95 per cent) stated that they had acted on this information. There were no statistically significant differences across the (L) and (L+N) treatment arms at the 5 per cent level.

Table 2.51. Baseline means of knowledge and action on breastfeeding and IYCF, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Heard about commencing BF within 1 hour of birth	0.96	0.96	0.91	0.83	0.00	0.00
Heard about exclusive BF	0.96	0.97	0.93	0.67	0.02	0.01
Heard about feeding practices for children 6-24 months	0.95	0.94	0.85	0.91	0.00	0.00
Heard about feeding animal source foods to children 6-24 months	0.92	0.91	0.74	0.60	0.00	0.00
Heard about ways of getting children with poor appetites to eat	0.71	0.68	0.38	0.46	0.00	0.00
Heard about ways in which fathers can give mothers enough time to feed children	0.53	0.49	0.25	0.38	0.00	0.00
Heard and acted on information about commencing BF within 1 hour of birth	0.97	0.98	0.97	0.30	0.89	0.32
Heard and acted on information about exclusive breastfeeding	0.84	0.83	0.80	0.56	0.09	0.28
Heard and acted on information about feeding practices for children 6-24 months	0.89	0.86	0.86	0.15	0.19	0.97
Heard and acted on information about feeding animal source foods to children 6-24 months	0.59	0.57	0.51	0.63	0.12	0.26
Heard and acted on information about ways of getting children with poor appetite	0.94	0.93	0.95	0.48	0.66	0.28
Heard and acted on information about ways in which fathers can give mothers enough time to feed children	0.85	0.86	0.85	0.79	0.97	0.89

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

We triangulated this information by giving mothers and their adolescent daughters a short test on their knowledge of good nutrition practices. This included questions on breastfeeding, on the introduction of complementary foods, on hygiene and on knowledge of specific foods such as iodized salt. The mean total scores (maximum of 10) as well as answers to specific questions are given in Tables 2.52 and 2.53.

There are a number of salient results. First, adolescent girls' scores on these questions tend to be somewhat lower than that of their mothers. This holds across all treatment arms and for all topics. Mothers' overall score is around 7.2-7.4 with these scores slightly higher in livelihood areas relative to control localities. Mother's knowledge of breastfeeding practices is high in all treatment arms but knowledge of certain complementary feeding practices such as how to encourage a child to eat and the age at which complementary foods should be introduced is somewhat lower. In all cases, there are no statistically significant differences across the (L) and (L+N) treatment arms at the 5 per cent level.

Table 2.52. Baseline means of mothers' knowledge about feeding practices, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Score on test of nutrition knowledge, mother	7.42	7.40	7.17	0.85	0.02	0.04
# answers of how to encourage child to eat, mother	1.61	1.59	1.52	0.57	0.04	0.13
# answers of how to treat child with diarrhea, mother	1.13	1.11	1.11	0.38	0.38	0.92
# answers, when to wash hands, mother	2.51	2.46	2.41	0.25	0.03	0.26
when should a baby start getting breast milk	0.91	0.90	0.87	0.52	0.04	0.17
what should mother do with colostrum	0.86	0.85	0.87	0.66	0.51	0.28
at what age babies should be given other foods	0.63	0.63	0.63	0.90	0.95	0.86
what seasoning is fortified with iodine	0.57	0.57	0.48	0.95	0.01	0.01

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Table 2.53. Baseline means of adolescents' knowledge about feeding practices, by intervention arm—CLP

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Score on test of nutrition knowledge, adolescent	6.68	6.48	6.65	0.46	0.91	0.56
# answers of how to encourage child to eat, adolescent	1.36	1.50	1.37	0.14	0.91	0.24
# answers of how to treat child with diarrhea, adolescent	1.05	1.08	1.05	0.66	0.99	0.60
# answers, when to wash hands, adolescent	2.37	2.32	2.34	0.59	0.76	0.81
when should a baby start getting breast milk	0.68	0.65	0.63	0.61	0.48	0.79
what should mother do with colostrum	0.73	0.60	0.66	0.02	0.30	0.38
at what age babies should be given other foods	0.56	0.54	0.56	0.75	0.95	0.69
what seasoning is fortified with iron	0.66	0.72	0.71	0.37	0.45	0.94

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

2.8.4 Summary

Nutrition over the first 1,000 days, *in utero* and in the first two years of life, has lifelong effects. In this section, we assess baseline characteristics associated with this in the CLP study zone. We are interested in access to antenatal care, access to information about breastfeeding and complementary feeding practices and the extent to which this knowledge has been assimilated and acted on. We want to assess whether there are systematic and statistically significant pre-intervention differences between households in livelihood only localities and those households randomized into livelihood plus nutrition localities.

Finally, we would like to see if there are systematic and statistically significant pre-intervention differences between households in livelihood localities and non-randomly selected control localities.

Access to antenatal care is widespread with about 70 per cent of women attending at least one session. However, even after conditioning on attendance at least one session, relatively few women, between 15 and 23 per cent attended at least four sessions, the minimum as set out by WHO. More than 80 per cent of mothers reported being weighed and reported receiving advice on foods to eat while pregnant while more than 70 per cent reported receiving the tetanus toxoid and more than 64 per cent reported receiving iron supplements.

Certain nutrition messages are widespread and well-understood. For example, more than 90 per cent of all mothers had heard about commencing breastfeeding within one hour of birth and conditional on having this information, 96 per cent of all mothers reported that they had acted on this information. More generally, messaging about breastfeeding practices is widespread and understood.

By contrast, messaging about feeding practices for the age group 6-24 months is more limited. Between 38 and 71 per cent of mothers had heard about ways of getting children with poor appetites to eat though most of them stated that they had acted on this knowledge. Between 74 and 91 per cent had heard about feeding animal source foods to children 6-24 months but only 50-60 per cent stated that they acted on this information. Somewhere between 48 and 63 per cent of mothers could correctly identify when complementary foods should be introduced and what foods contain iodine.

In this section, we compare 69 aspects of access to antenatal care, to information about the utilization of this information between mothers in localities randomized to receive (L) interventions and localities randomized to receive (L+N) interventions. There is only one outcome where we observe a statistically significant difference at the 5 per cent level; conditional on receiving an iron supplement, the month during pregnancy when the first supplement was received. However, the magnitude of this difference is trivially small, 0.16 months or about 5 days. Nonetheless, even this difference can potentially be controlled for in eventual impact estimation of (L+N) over and above (L).

By contrast, there are 25 outcomes where there are statistically significant differences between the (L+N) and (C) households at the 5 per cent level and 23 outcomes where there are statistically significant differences between the (L) and (C) households. In nearly all instances, outcomes different between (L+N) and (C) households are also different when we compare (L) and (C) households. Households in control localities are much less likely to be exposed to any source of information about nutrition and, possibly consequently, have been less exposed to nutrition messaging. However, mothers in control localities attended more antenatal sessions and, conditional on being weighed, have higher birth weights.

3 SHIREE/CONCERN PROGRAMME

3.1 Background

3.1.1 Description of programme features

The Economic Empowerment of the Poorest Programme (EEP) is a joint initiative between the Government of Bangladesh and UKaid from DFID, Swiss Development Cooperation (SDC) joined as a co-funding agency in 2013. The programme has adopted the title ‘Shiree,’ which is the Bangla word for ‘steps’ and sums up the essential purpose of the programme: to enable members of one million households to climb the ladder out of extreme poverty in a sustainable manner. The programme commenced in 2008 and is due to continue until March 2016. The total programme value is £84,287m, over 94 per cent of which is provided in the form of grant funding by DFID. There are £66m of challenge fund resources within this budget. International and local NGOs are challenged to submit proposals for projects that adopt economic empowerment interventions with the objective of achieving sustainable graduation from extreme poverty. The interventions are hence designed by the NGOs and not, as is common with other programmes (such as the CLP and UPPR) by the Management Agency and implemented in a top-down manner (shiree 2012). There is hence considerable diversity within the shiree/EEP portfolio and the subproject for the nutrition investigation, the project implemented by Concern in the NE Haors region, is only one of 14 large Scale Fund projects that collectively account for over 280,000 beneficiary households.

The Programme Management Agency (MA) is made up of a consortium of partners: Harewelle International (lead)⁴, PMTC-Bangladesh, University of Bath Centre for Development Studies, British Council and Unnayan Shamannay (Ibid). The MA is responsible for the administration of the challenge funds and for the bidding process (selection is via an Independent Assessment Panel); contracting with selected NGOs, ongoing contract management; and performance review. In addition the MA provides support to subprojects, and under Output 3 (Lesson Learning and Research) and Output 4 (Advocacy) conducts other activities including supporting research, facilitating learning and the exchange of experience among partner NGOs and more widely as well as planning and implementing advocacy campaigns at both local and national levels.

In 2012, a Nutrition component was initiated as a fifth programme Output. This component is implemented with all 14 Scale Fund partners and is also under the guidance of the MA. The component is similar in design to that implemented by CLP and UPPR and targets the sub set of extreme poor beneficiary households containing pregnant or lactating mothers, adolescent girls aged 10-16 and children under 5 years. The principle components are behavioural change counselling and micro nutrient supplementation.

⁴ Now part of Ecorys UK.

There is also a small (£400,000) Nutrition Innovation Fund within the overall EEP/shiree framework that is supporting four projects, also selected by an Independent Panel, focused on developing interventions to achieve increased protein intake by extreme poor households.

Shiree has a fairly comprehensive internal monitoring and evaluation system – the CMS or change monitoring system – that utilizes both quantitative and qualitative methods. Among the CMS tools there is an annual panel survey (CMS3) that includes detailed nutritional data collection such as anthropometry, blood haemoglobin levels, morbidity status, food intake and food security. The CMS is applied across all scale fund partners and, while this evaluation only targets one sub project (Concern), there may be opportunities for comparison with the rest of the shiree portfolio using CMS data.

The EEP initial premise was that NGOs in Bangladesh have experience of working with the extreme poor (and can implement activities alongside corresponding research, policy, advocacy, and other leverage activities) and know the communities they work with and are therefore able to respond with innovative approaches related directly to their specific poverty issues (EEP, 2009). The MA has experienced neither of these to be wholly true and has had to work hard to make gains in building capacity, sensitivity and the broader understanding that extreme poverty is qualitatively different (Ibid).

In 2012, the diversity of the EEP portfolio peaked with a total of 36 contracts with 31 different NGOs. With the project entering its last 2 years, the number of individual contracts is starting to diminish but the total beneficiary household number is still increasing and set to exceed 300,000 by project close. EEP geographically covers 30 districts, 107 Upazilas, and 12 slums in Dhaka. The essential criteria for a household to be selected in EEP vary slightly between geographical locations but are typically: having incomes under Tk 1500 per month, being landless, owning no productive asset, living on the river/sea side of the embankment and living in someone else's premises (EEP, 2011b).

This evaluation concentrates only on the EEP/Shiree Scale Fund project managed by Concern⁵. The project covers Sunamgonj and Habigonj districts of Sylhet Division, as well as Kishoregonj district of Dhaka Division, and targets 22,500 households. The Concern project focuses intervention activities on (1) Input support for livelihoods (cropping; livestock; fishing; bamboo working; small businesses; tailoring etc.), (2) Capacity building (mobilising Self Help Groups; facilitating CBOs; skills transfer), and (3) Innovation support; market linkage and access to value chains. The Concern project was purposively sampled for inclusion in this evaluation for largely practical reasons. Findings taken from this project are not intended to be representative of the entire EEP. Recent internal monitoring data from EEP's monthly household-level monitoring system suggests that, out of all the regions in which EEP is implementing, the communities covered under this project may be among the poorest and suffering from the worst health conditions.

⁵ Concern also operates an Innovation Fund Rd 3 project working with Dhaka street dwellers.

In addition to the livelihoods and nutrition support described above, Shiree/Concern is introducing the following additional nutrition-specific intervention activities in 2013/2014 as per the guidance all three programmes have received from DFID regarding the implementation of direct nutrition support (which is the focus of this evaluation):

- Household Level Counselling: Counselling on exclusive breastfeeding, continuous breastfeeding, complementary feeding and hygiene promotion (including hand washing)
- Community level discussions, including with adolescent groups on early and forced marriage and early pregnancy
- Micronutrient Supplement: Five components Micronutrients (including '5 micro nutrients powder': Iron: 12.5 mg, Folic Acid: 0.16 mg, Zinc: 5 mg, vitamin A: 0.3 mg, vitamin C: 30 mg) will be given to children aged between 7 to 23 months.
- Iron and Folic Acid (IFA) Tablets (each tablet contains 60mg iron and 400 mg folic acid): 180 IFA tablets will be given to each pregnant woman after first trimester and up to 180 for each breastfeeding woman per year while 104 tablets will be given to each adolescent girl a year.
- Deworming Treatment: Children one to five years of age, adolescent girls, pregnant women after the first trimester of pregnancy will receive regular deworming treatment based on WHO and Government of Bangladesh guidelines

3.1.2 Sample selection

As described in Section 1.2.2, for the Shiree/Concern quantitative baseline survey, sample households were selected from the 70 (L+N) PSUs and 70 (L) PSUs using Shiree/Concern's beneficiary lists. PSUs were specified to be administrative wards, which are groups of adjacent villages. In each of the 140 PSUs, a census was conducted of all households that were listed as Shiree/Concern beneficiaries. Among these, of the households that were found in the census listing to have a child aged 0-24 months, ideally 18 households were randomly selected to be part of the sample. If a PSU was found to have fewer than 18 beneficiary households total with a child aged 0-24 months, the maximum number available were selected. This scenario was fairly common in the Shiree/Concern sites, leading to many PSUs in which fewer than 18 households could be sampled. In one PSU assigned to (L), no beneficiary household was found with a child aged 0-24 months, such that this PSU was dropped entirely from the study, and only 69 (L) PSUs were sampled. Where possible, households were selected such that half the sampled households had a boy aged 0-24 months and half had a girl aged 0-24 months. In each sampled household, the youngest child aged 0-24 months was designated as the "index child."

Seventy PSUs were selected for the Shiree/Concern (C) group as well. Given that the Shiree/Concern programme has extensive coverage in eligible areas, and that similar flood-prone Haor areas outside its coverage tend to be covered by other NGOs providing similar benefits, it was challenging to find localities in which households were observably similar to Shiree/Concern beneficiaries but did not receive a similar programme. At the time of the baseline survey, 70 PSUs were identified as potentially meeting these criteria. In each of these 70 PSUs, a census was conducted of all households in the PSU (since Shiree/Concern did not have information on these households). Of the households that were found in the census listing not to be beneficiaries of any similar programmes but found to have a child aged 0-24

months, ideally 18 households were randomly selected to be part of the sample. Again, if a PSU was found to have fewer than 18 beneficiary households total with a child aged 0-24 months, the maximum number available were selected. Where possible, these households were selected such that half the sampled households had a boy aged 0-24 months and half had a girl aged 0-24 months. In each sampled household, the youngest child aged 0-24 months was designated as the “index child.”

The final sample breakdown is as shown in Table 3.1.

	Number of sampled PSUs	Number of sampled households
(L+N)	70	970
(L)	69	1,152
(C)	70	1,260
Total	209	3,382

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

3.2 Household demographic and socioeconomic characteristics

The analysis of the Shiree/Concern quantitative baseline data begins with an exploration of the demographic and socioeconomic characteristics of sample households. In this section, we examine the demographics within these households, the educational attainment and occupational status of household members, the dwelling conditions and access to basic amenities they face, their exposure to economic shocks, and the remittances and transfers they report. These descriptions provide useful context on the situation in Shiree/Concern sample areas prior to the introduction of direct nutrition interventions. We also give particular attention to how these characteristics differ across the three intervention arms, since for the purposes of the evaluation, ideally they will be very similar across the arms at baseline.

3.2.1 Household composition and demographic outcomes

Table 3.2 shows the composition and demographic outcomes of the households in the *haor* locations under Shiree/Concern and its comparison areas. The average household size in the *haor* is more than 5 in all the three treatment arms, although the size in the control areas is slightly lesser than the programme areas. This is higher than the national rural average of 4.7 members per household as evidenced in the Bangladesh Demographic and Health Survey (NIPORT 2013). Among the male headed households, the average age of household heads ranges from 36-38 years. The percentage of female headed households varies from 9 per cent in the (L) only areas to approximately 12 per cent in the control areas. These women household heads are also in their mid-thirties but for the control areas, the average age is substantially lesser at 31 years. The data shows that majority of the women household heads were widows, which is probably a manifestation of the poor access to healthcare facilities and consequent high mortality rates that plague the *haor*.

Since the sample was selected in such a way that each household has a child less than 2 years, the numbers in the table below also reflect this. In terms of the gender division, we tried to ensure that

households were split equally, as far as possible, between boys and girls below 2 years of age. Accordingly 51 per cent of these households have boys below 2 years and 54 per cent of these households have girls below 2 years. Thus about 4 per cent of the households had more than one child below 2 years. If we look at the number of children below 5 years of age, the average number of children per household is 1.5 and more. On an average, households from all the treatment arms have more than one child of school-going age.

Each household in the (L+N), (L) and control areas have, on an average, more than 2 members of working age (between 15 to 64 years). The number of dependents in these areas is higher than the number of working age people, rendering a dependency ratio of 1.5 in the programme areas and 1.4 in the control areas. For each of the demographic indicators discussed above, there are no significant differences between the (L+N) and (L) households at the 5 per cent level. However between each of these two areas and the comparison areas there are significant differences in the means of indicators such household size, age of male and female household heads, number of school aged children and number of dependents. Shiree/concern has a comprehensive coverage of the extreme poor in the *haor* which made identifying appropriate control households difficult. A careful selection of these control households which serve as an apt counterfactual will eventually have to be done.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Household size	5.46	5.59	5.22	0.09	0.00	0.00
Age of male household head	37.30	37.84	35.68	0.27	0.00	0.00
Female headed household (per cent)	10.93	9.29	11.59	0.34	0.77	0.32
Age of female household head	36.01	37.47	30.79	0.39	0.00	0.00
Number of children <2 years	1.02	1.03	1.02	0.70	0.91	0.61
Number of children <5 years	1.54	1.56	1.50	0.54	0.15	0.04
Number of school aged children (5-18 years)	1.55	1.59	1.36	0.47	0.00	0.00
Number of working age members (15-64 yrs)	2.33	2.36	2.32	0.55	0.77	0.39
Number of dependents (<15 years and >64 years)	3.11	3.20	2.88	0.18	0.00	0.00
Dependency ratio ^a	1.51	1.51	1.42	0.91	0.12	0.08

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

^a Dependency ratio = number of dependents (less than 15 or over 60 years of age) divided by the number of working age people.

3.2.2 Educational attainment

Women have a higher exposure to schools than men as shown by Table 3.3. In the (L+N) and (L) locations, male household heads have gone to school for not even 1 year in their lives while for women the figure is slightly more than a year. Interestingly the average years of schooling is higher in the control areas than the intervention areas for both men and women, but the edge that women demonstrate over men in terms of higher schooling years is maintained here as well. As mentioned earlier, Shiree/Concern's coverage of the extreme poor in the *haor* locations is comprehensive and we ran into difficulties while trying to identify appropriate control groups. Moreover, given the pervading presence

and activities of NGOs in Bangladesh, it is possible that not all of our control group households were as poor as the Shiree/Concern households, who had already been identified and targeted. This could be an explanation for the higher average schooling years witnessed in the control areas since we know that education is associated with lower poverty.

Table 3.3. Baseline means of educational attainment indicators, by intervention arm—Shiree						
	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Household head						
Years of schooling	0.99	0.85	1.32	0.22	0.01	0.00
Level of education:						
No schooling	77.53	78.91	72.78	0.56	0.06	0.01
Below primary school	11.65	12.41	11.83	0.64	0.92	0.68
Completed primary school	10.41	8.16	14.05	0.13	0.02	0.00
Completed secondary school	0.31	0.43	0.87	0.62	0.10	0.20
Completed high school	0.00	0.09	0.32	0.32	0.10	0.27
Above high school	0.00	0.00	0.08		0.32	0.32
Religious or other education	0.10	0.00	0.08	0.31	0.85	0.32
Index child's mother/caregiver						
Years of schooling	1.24	1.38	1.93	0.21	0.00	0.00
Level of education						
No schooling	69.59	66.15	56.59	0.19	0.00	0.00
Below primary school	18.66	19.53	22.14	0.71	0.08	0.26
Completed primary school	11.55	14.15	20.79	0.14	0.00	0.00
Completed secondary school	0.10	0.17	0.24	0.65	0.51	0.76
Completed high school	0.10	0.00	0.16	0.32	0.71	0.15
Above high school	0.00	0.00	0.00			
Religious or other education	0.00	0.00	0.08		0.32	0.32

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

A look at the level of education shows that more than three quarters of the men never went to school in the (L+N) and (L) areas. The corresponding figures for women are somewhat lower ranging from approximately 56 per cent to 70 per cent. For Bangladesh as a whole, till the early 1980s, males were given significant preference over the females in education and accordingly investment in female education was lower than required. Since 1990, Bangladesh has seen a steep rise in girls' gross primary enrolment as well as at the secondary enrolment. The female-male gap in the enrolment rates began to narrow down and gender parity in primary and secondary education began to be established. Though the *haor* areas are poverty ridden locations, some of the achievements at the national level in closing the gender gap in education seem to have permeated here too, as the numbers in the table below indicate. Approximately 12-14 per cent of the mothers/caregivers of the index children had successfully completed primary education while for men the numbers ranged from 8-10 per cent. Again for the control areas, 21 per cent of the women had completed primary school as against 14 per cent of the men. Moving on to the

next tier of education, not even 1 per cent of the men or women could successfully complete secondary education. The p-values show no significant differences between the (L+N) and (L) households at the 5 per cent level, which implies that the randomization balanced well across both these arms. However between the (L+N)/(L) households, there were p-values that were lower than 0.05 indicating significant differences which are meaningful.

3.2.3 Occupational status

Approximately one-third of the household heads under the Shiree/Concern programme as well as in the control areas were daily wage labourers, primarily agricultural wage labour (Table 3.4). This is in conformity with the findings of the Household Income and Expenditure Survey conducted at regular intervals by the Bangladesh Bureau of Statistics which shows that daily wage labourers form the poorest occupational group (BBS 2011). The next most prevalent occupation in the *haor* is fishing. Given that the *haor* are wetlands which are under water for larger part of the year and since one of the components of the Shiree program in the *haor* is to support the extreme-poor for collective leasing of water-bodies for fishing with market-linkage, this is an expected result. Cultivation of the winter season rice (*Boro*) is also prominent in these wetlands but since our target group constitutes the extreme poor who have little or no cultivable land, our survey reveals that not even 1 per cent of the household heads were farmers. Moreover the recurrent river erosion in the *haor* often depletes whatever little land these poor households have. Households that are engaged in self-employed activities range from 11-16 per cent across the three treatment arms. These activities primarily include rickshaw pulling, carpentry or masonry. Close to 10 per cent of the household heads earn their living through petty trading such as a small tea/snack stall by the roadside. Among those earning no income at all, approximately 0.01 per cent was mentally or physically challenged.

The most dominant occupation for women who are mothers or caregivers of the index children in the Shiree programme areas was poultry and livestock farming. Approximately two-fifths of the mothers/caregivers were in a non-earning occupation, predominantly that of being a housewife. Interestingly for the households in the control group, the proportion of women engaged in poultry and livestock rearing was much lesser while the proportion of non-earning occupation (primarily housewives) was more than 70 per cent. As has already been mentioned earlier, this could be because not all households in the control group match perfectly with our programme areas, since it is very difficult to find comparable and ‘untouched’ areas in the *haor*. The p-values of differences in means between the (L+N) and (L) areas are mostly insignificant suggesting a good balance across the two treatment arms after randomization. The exception is a difference between (L) and (L+N) in the share of women who report their occupation as farming, which is statistically significant at the 1 per cent level; however, the magnitude of this difference is tiny, with 0.10 per cent of women reporting farming in the (L+N) group and 1.13 per cent of women reporting farming in (L), making both shares negligible. Between the programme areas and the control areas, there are some significant differences. A propensity score matching will eventually be done to identify all comparable households when the impact evaluation estimates are calculated. Women’s participation in wage work is much lower than men, and women are also significantly less likely than men to be engaged in self-employed nonfarm activities or in petty trading. Under petty trading/business, women were mostly in tailoring or making handicrafts for sale.

Fishing is also fairly popular among the women, given the *haor* geography. However, in the control areas, fishing seems to be a less popular occupation. Among the salaried workers, the women were mostly housemaids.

Table 3.4. Baseline means of household head and index child's mother/caregiver in different occupations, by intervention arm—Shiree

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Household head ^a						
Farming (crop) ^b	0.62	0.35	0.16	0.41	0.13	0.35
Fishing	27.22	28.13	18.33	0.78	0.01	0.00
Poultry and livestock	1.86	1.74	0.71	0.85	0.03	0.03
Daily wage labour	32.99	36.55	35.40	0.27	0.45	0.71
Salaried worker	2.99	1.82	3.49	0.14	0.57	0.03
Petty trader/business	8.87	12.41	12.46	0.08	0.02	0.98
Self-employed	14.95	10.85	16.51	0.16	0.64	0.01
Non-earning occupation	2.27	1.39	2.38	0.14	0.86	0.09
Index child's mother/caregiver						
Farming (crop) ^b	0.10	1.13	1.19	0.01	0.05	0.93
Fishing	8.45	9.72	2.70	0.50	0.00	0.00
Poultry and livestock	50.82	49.39	23.65	0.81	0.00	0.00
Daily wage labour	2.47	1.39	0.71	0.13	0.01	0.15
Salaried worker	2.16	1.30	0.48	0.19	0.00	0.07
Petty trader/business	1.34	1.65	0.56	0.55	0.05	0.01
Self-employed	2.47	3.91	2.22	0.18	0.77	0.11
Non-earning occupation	40.62	41.23	71.19	0.92	0.00	0.00

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

^a Excludes those women-headed household whose heads are also the mothers/caregivers of index children.

^b Includes homestead farming.

3.2.4 Dwelling conditions and access to basic amenities

Table 3.5 shows the dwelling conditions and access to basic amenities of the Shiree households and its comparison households. Quality of housing and poverty are closely correlated in Bangladesh. Housing conditions in the *haor* are meager. Almost all dwellings across the three treatment arms have dirt floors made of mud, straw and other unworked ground materials. The walls are non-permanent in almost all the houses in the (L+N) and (L) locations. However, more than one-half of these non-permanent walls are made of corrugated iron sheets, which are quite resilient to adverse weather conditions. Apart from tin, mud/bamboo/straw is also used for walls. In the control areas, the use of these is much lesser than the programme areas. As already mentioned earlier, Shiree/Concern's coverage of the extreme poor households in the *haor* is quite comprehensive and it is possible that the control households are relatively less poor. A look at the p-values also suggest that the differences between the Shiree areas and the comparison areas are significant, though there are no significant differences between the (L+N) and (L)

areas at the 5 per cent level. This suggests that a careful selection of the counterfactual would have to be done while deriving the nutrition impact estimates. The roofs of the dwellings are also predominantly made of tin as the walls. However in the programme areas, almost 6 per cent of the dwellings have more frail roofs made of straw, polythene or cardboards. The usage of these materials for roofing is significantly lesser in the control areas.

Households with access to electricity range from 9 per cent in the (L) areas to 16 per cent in the (L+N) areas. The comparison households are significantly better off with close to 30 per cent having access to electricity. Unlike access to electricity, the three treatment arms are quite similar with regard to access to a sanitary latrine with a mere 8-10 per cent of the households having access to one. The p-values also show that the differences in sanitary latrine usage are insignificant. A large majority of households in the *haor* have access to tubewells for drinking water. Tubewell water is considered safe unless it is contaminated by the presence of arsenic. However, we do not have information on the extent to which the tubewell water is arsenic-free. The p-values do not show significant differences in access to safe drinking water between the programme and control areas. Overall there are some significant differences in housing conditions and access to electricity between the control areas and the (L+N) and (L) areas. This warrants a careful selection of the counterfactual villages for computing the nutrition intervention impact estimates.

Table 3.5. Baseline means of dwelling structure and access to basic amenities of households, by intervention arm—Shiree

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Dirt floor	99.38	99.48	99.37	0.76	0.96	0.72
Tin wall	56.70	55.12	79.68	0.79	0.00	0.00
Other non-permanent wall	42.27	43.92	18.41	0.78	0.00	0.00
Tin roof	92.78	94.18	98.41	0.42	0.00	0.00
Other non-permanent roof	6.39	5.03	1.11	0.44	0.00	0.00
Access to electricity	16.19	9.29	28.97	0.09	0.01	0.00
Access to sanitary latrine	10.00	7.99	9.29	0.20	0.70	0.48
Access to safe drinking water	95.98	96.18	97.06	0.86	0.31	0.38

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

3.2.5 Exposure to economic shocks, remittances, and transfers

The *haor* basin suffers from extensive annual flooding. The cropped area is completely inundated for more than half the year and so are the rural roads, which snap communication and connectivity to markets. This severely limits the potential for agriculture production and rural enterprise growth, posing a constant threat to livelihoods. Strong wave action adds to the vulnerability as it can potentially wash away the land and submerge many villages. With such limited and transient livelihood options, people in the *haor* seasonally migrate to find work. As Table 3.6 shows, roughly two-fifths of the households in the Shiree/Concern operational area received remittances from domestic as well as foreign sources. In the control areas, the proportion was higher at more than one-half. The mean differences with programme areas are also significant. The average quantum of remittance is low – less than taka 2,400 per year in the programme areas. The amount is almost double in the control areas, and the difference with programme

areas is highly significant. Approximately 8-9 per cent of the Shiree/Concern households received other transfers, predominantly in the form of donations and assistances. Other transfers also included dowry receipts but the number of such households is negligible. Very few have to ability to give dowry and this is well-understood and accepted by both families at the time of marriage. The control households appear significantly better off, both economically and socially, with a much lower incidence of donations and assistances and no dowry receipts.

Table 3.6. Baseline means of household receipt of remittances/transfers and exposure to economic shocks, by intervention arm—Shiree

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Receipt of remittances/transfers in past 1 year						
Received remittance (home and abroad) (per cent)	44.02	42.80	52.30	0.76	0.03	0.01
Amount of remittance (taka)	2,339.57	2,342.40	4,521.55	1.00	0.01	0.01
Received other transfers (per cent)	7.73	8.68	3.33	0.66	0.01	0.00
Amount of other transfers (taka)	119.46	174.67	74.52	0.35	0.33	0.09
Incidence of shocks in past 5 years						
Death of main income earner	1.65	1.56	0.95	0.88	0.17	0.20
Death of other income earning member	0.82	2.17	1.03	0.01	0.59	0.02
Loss of employment of any member	0.21	0.09	0.48	0.47	0.25	0.06
Loss of home due to river erosion	1.13	0.52	0.24	0.18	0.03	0.31
Loss of crops/assets due to floods	5.15	4.69	1.19	0.72	0.00	0.00
Loss of livestock due to theft/illness	6.70	5.73	2.30	0.42	0.00	0.00
Loss of crops/assets due to storms/drought/theft	7.01	8.51	3.17	0.37	0.00	0.00
Eviction	0.41	0.26	0.16	0.54	0.27	0.58
Divorce/abandonment	0.41	0.26	0.08	0.60	0.21	0.29
Conflict/Dispute	2.99	2.52	1.83	0.55	0.09	0.31
Bankruptcy of business	1.65	1.13	1.35	0.36	0.61	0.64

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Though the *haor* basin is flooded for larger part of the year, the most common economic shock in the Shiree/Concern areas was not flood-related but was the loss of crops, productive assets and consumption assets due to other natural calamities such as storms. Up to 9 per cent of the programme areas lost either crops or other assets due to storms or theft. Loss of livestock due to disease or theft was also fairly common in the programme areas. With prolonged exposure to floods, households seem to have developed effective coping strategies. Barely 5 per cent of the programme households lost any crop or asset due to flood. In the control areas, the incidence of each of the three occurrences mentioned above was much lesser and the differences in means with the programme areas were highly significant. Nearly all p-values for the mean difference between (L+N) and (L) households are insignificant at the 5 per cent level,

indicating that the randomization successfully balanced across the two arms. The exception is a small difference between the (L+N) and (L) groups in the share reporting death of a non-main income-earning household member in the past five years, significant at the 1 per cent level; although the difference is likely to be negligibly small (0.82 per cent vs. 2.17 per cent), it can potentially be controlled for in the eventual impact analysis. Meanwhile, the significant p-values for differences in means between programme and control households suggest the need for a careful construction of the counterfactual for estimating livelihood cum nutrition intervention impact. Up to 1 per cent of programme households were affected by another natural disaster - riverbank erosion. Though the percentage of households affected by riverbank erosion is significantly less, the consequence of this occurrence is debilitating for the family since it results in loss of farmland and homestead. With their main source of living gone, the displaced family transitions deeper into poverty. In the control areas, the occurrence of river erosion was markedly reduced, implying the relative insulation of the control areas from riverbank erosion.

State presence in the *hoar* is low and it is the local powerful who hold sway over economic and social life. This not only provides an opportunity for the powerful to do as they like, but, often, gives rise to conflict over the use of common property resources. The consequent expenditures on violence, litigation and mitigation is an issue for the poor living in the *hoar*. Close to 3 per cent of the households in the treatment areas experienced loss of income because of such conflict or dispute.

3.2.6 Summary

The situation of Shiree/Concern sample households living in *hoar* areas is important to understand as context for the evaluation. In this section we explore their characteristics at baseline, after the start of the livelihoods interventions in programme areas but prior to the introduction of any direct nutrition interventions.

In terms of demographics, we find that the average programme household has greater than 5 members, with about 2 members of working age (between 15 to 64 years), a male household head aged about 37 years, and a dependency ratio of about 1.4 to 1.5. About 10 per cent of these programme households are female-headed. The average control household tends to show very small but statistically significant differences relative to the average programme household, in terms of having fewer household members and younger heads of household.

Educational attainment is extremely low in the beneficiary and control sample, with about 1 to 2 years of schooling completed on average by adult men or adult women. In both programme and control areas, women (specifically, mothers of index children) tend to have higher educational attainment than men (specifically, fathers of index children), with higher rates reported among women of completion of any schooling and of primary school. Although schooling is low among control households as well, it is on average significantly higher than in programme households.

The most common occupation in both programme and control areas is daily wage labor, representing the work of about 35 per cent of male heads in both programme and control areas. The next most common occupation is fishing, reported by about 30 per cent of male heads in programme areas and 20 per cent of male heads in control areas. These patterns are consistent with the *hoar* areas being wetlands that are

under water for about 6 months of the year (roughly June to November), and one component of the Shiree/Concern programme being support of the extreme poor in collective leasing of water bodies for fishing with market linkages. About 50 per cent of index children's mothers in programme areas participated in poultry and livestock farming, while only about 25 per cent of control area mothers did. Meanwhile, only about 40 per cent of mothers in programme areas reported being in non-earning occupations, while about 70 per cent of mothers in control areas reported the same.

Dwelling conditions tended to be poor in both programme and control areas, with nearly all households having dirt floors, non-permanent walls, and non-permanent roofs. However, the quality of non-permanent walls and roofs tended to be on average more durable in control households than in programme households (e.g., corrugated iron sheet walls rather than mud/bamboo/straw; corrugated iron sheet roofs rather than straw, polythene, or cardboard). About 10-16 per cent of programme households have access to electricity, while nearly 30 per cent of control households do. Access to sanitary latrines are low across all three intervention arms, ranging from about 8-10 per cent. Nearly all households in both programme and control areas have access to safe drinking water via tubewells, although it is not known whether the tubewell water is arsenic-free.

Reports of economic shocks were relatively low in both programme and control areas. Despite the *haor* being flooded for much of the year, the most common economic shocks were not related to flooding, but rather to loss of crops and assets due to storms or theft, with lower rates reported in control than in programme areas. About 40 per cent of programme households and about 50 per cent of control households report receiving inward remittances, with the average amounts received being significantly higher in control areas.

Overall, relevant to the evaluation design, the programme areas assigned to (L) and (L+N) appear well balanced in terms of nearly all of these characteristics at the 5 per cent level, suggesting that the randomisation was effective. The isolated exceptions are statistically significant but very small differences between the (L+N) and (L) groups in the share of women who report their occupation as farming and the share of households reporting death of a non-main income-earning household member in the past five years. Although the magnitudes of these differences are likely to be negligibly small, they can nonetheless be potentially controlled for in the eventual impact analysis. However, in terms of most characteristics, the control areas (C) show small but statistically significant differences on average. These differences are likely due to the Shiree/Concern programme having near comprehensive coverage, such that finding similar non-beneficiary households was challenging. Nonetheless, given some similarity on most dimensions, it may be possible to purposively choose a subset of the (C) sample that can serve as a counterfactual in the Shiree/Concern evaluation.

3.3 Livelihoods and participation in social programmes

3.3.1 Shiree/Concern programme benefits received by beneficiary households

Given that the evaluation is concerned with the joint effect of direct nutrition and livelihood programmes, it is key to assess the type and extent of participation in livelihood programmes (both those under evaluation and others) accessed by the households in our sample. Most of the information in this section is not relevant for the control group ((C)) as by definition it does not receive services from the livelihood programmes which are part of the evaluation. For almost all of this section, then, the information will only pertain to (L+N) and (L) households.

Table 3.7 displays the type of services accessed by Shiree Concern beneficiaries for the (L+N) and (L) groups. The range of services offered by Shiree Concern is narrow and basically boils down to financial training. 61 per cent of (L+N) households and 46 per cent of (L) households received financial training from the program. This difference is important and statistically significant at the 2 per cent level, so that the randomization did not succeed in balancing access to the main service provided by Shiree Concern. In terms of other services, 5 per cent of (L+N) and 4 per cent of (L) households received agricultural livelihood training, and all the others reached less than 5 per cent of respondents.

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Livelihood Maintenance Stipend	0.02	0.03	0.91
Asset Maintenance Cost Stipend	0.01	0.03	0.23
Agricultural Livelihood Training	0.05	0.04	0.48
Nonagricultural Livelihood Training	0.02	0.02	0.91
Financial Training	0.61	0.46	0.02
Health and Nutrition Training	0.02	0.03	0.30

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only.

Looking in more depth at financial training in Table 3.8, one can see that the service has been rolled out recently (about 7 months ago) and, as such, households only had 2.2 and 2.8 months of exposure to the service in the (L+N) and (L) groups, respectively. There are no significant differences at the 5 per cent level in the timing of access to as well as monetary value of the service between the treatment arms. We do not present similar analyses for the remaining services as they are reaching less than 5 per cent of households.

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Monetary value of service received	161.30	199.13	0.29
Number of months since first receiving the service	7.18	7.00	0.64
Number of months since last receiving the service	4.97	4.21	0.12
Number of months received the service in total	2.21	2.79	0.27

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only. The number of months are calculated from the dates of interview.

Shiree Concern beneficiaries may also receive assets (livestock and other productive assets) through the program. Table 3.9 shows the percentage of households that receive particular types of assets. The most common asset received are chicken, ducks, geese and other poultry, which reach 68 per cent of (L+N) and 65 per cent of (L) households, respectively. Land or pond share/lease/mortgage/purchase have been received by 17 per cent of (L+N) households and 22 per cent of (L) households, a difference significant at the 10 per cent level. 16 per cent of households report having been given sheep, 10.5 per cent a boat, 9 per cent goats and 5.5 per cent fishing nets. In all these cases, the percentage are similar across the treatment arms. The other assets have been received by less than 5 per cent of households. In total, 13 per cent of households received another type of asset, with no notable difference between the treatment arms. Overall, the randomization achieved balance at the 5 per cent level on most assets transferred. The exception is a very small difference in the share of (L) and (L+N) households receiving dairy cows (2 per cent vs. 1 per cent), significant at the 4 per cent level. This difference could be potentially controlled for in the eventual impact analysis, although it is likely that the shares themselves and the difference between them are negligibly small and would not affect the results.

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Heifer	0.01	0.01	0.65
Beef cattle	0.00	0.00	0.35
Dairy cow	0.02	0.01	0.04
Sheep	0.16	0.16	1.00
Goat	0.09	0.09	0.94
Chicken, duck, goose and other poultry	0.68	0.65	0.48
Sewing machine	0.02	0.02	0.76
Rickshaw/van	0.02	0.01	0.23
Boat	0.11	0.10	0.80
Fishing net	0.05	0.06	0.89
Land or pond share/lease/mortgage/purchase	0.17	0.22	0.10
Other	0.13	0.13	0.99

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only.

Going into the details for assets transfers, Table 3.10 shows the number of assets received; Table 3.11, their monetary value; and Table 3.12, the current stock of assets owned by the household. For this analysis, only assets received by at least 5 per cent of households are considered. In Table 3.10 we can see that for all assets except boats and land/pond, there have been multiple assets transferred: more than 6.7 and 6 chickens/poultry for (L+N) and (L), respectively; 2.5 and 2.3 goats, respectively; and 2.3 sheep for both groups. For fishing nets, the average quantity of items received is 2.47 for the (L+N) group and 1.15 for the (L) group, and this difference is not statistically significant due to the small sample size available for this comparison. Across all of these assets, the differences between (L) and (L+N) are not statistically significant at the 5 per cent level.

Turning to the monetary value of the assets transferred, we can see in Table 3.11 that there are no significant differences across the treatment arms at the 5 per cent level. The value of boats is around 5,900 taka for both (L+N) and (L) households. The value of land/pond is about 5,000 taka, that of sheep is about 5,300 taka and that of goats is 4,400 taka. The value of chicken/poultry is just shy of 2,000 taka for both groups, and that of fishing nets is 1,870 taka for (L+N) households and 2,189 taka for (L) households, a difference that is not statistically different from 0. The value of other assets received is just above 5,000 taka for both groups.

Table 3.10. Baseline means of number of assets received, by intervention arm—Shiree

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Sheep	2.28	2.31	0.76
Goat	2.46	2.30	0.54
Chicken, duck, goose and other poultry	6.72	6.01	0.21
Boat	1.04	1.00	0.28
Fishing net	2.47	1.15	0.20
Land or pond share/lease/mortgage/purchase	1.00	1.00	
Other	1.73	1.89	0.67

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only.

Table 3.11. Baseline means of monetary value of assets received, by intervention arm—Shiree

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Sheep	5,438.74	5,276.15	0.49
Goat	4,595.96	4,179.06	0.14
Chicken, duck, goose and other poultry	1,980.12	1,941.48	0.84
Boat	5,898.21	5,922.20	0.94
Fishing net	1,869.62	2,189.39	0.33
Land or pond share/lease/mortgage/purchase	2,698.27	3,098.52	0.22
Other	5,005.18	5,182.23	0.69

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only.

Finally the survey informs us on the current household ownership of these assets. The results are in Table 3.12. We can see that the figures for sheep, boats, fishing nets and land/pond are very close to those of Table 3.10 on number of assets transferred by Shiree Concern. This indicates that Shiree Concern beneficiaries were able to keep these assets. In contrast, the number of goats and chicken/poultry is noticeably smaller than in Table 3.10, which indicates that households have been selling part of these assets. There are no significant differences at the 5 per cent level between (L+N) and (L) groups across all the assets.

In sum, the randomization appears successful in balancing the characteristics of assets transfers across the two groups so that the type of assets transferred, their numbers, and their monetary value are similar in (L+N) and (L) groups. The current ownership of these assets is similarly balanced.

Table 3.12. Baseline means of current ownership of assets received, by intervention arm—Shiree

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Sheep	2.14	2.32	0.47
Goat	1.69	1.49	0.53
Chicken, duck, goose and other poultry	3.87	3.73	0.70
Boat	0.97	0.97	0.92
Fishing net	2.30	1.21	0.23
Land or pond share/lease/mortgage/purchase	1.06	1.04	0.86
Other	0.98	1.30	0.25

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only.

Shiree Concern may offer other types of support than the 6 services and the asset transfers shown in previous tables. In particular, Table 3.13 reveals that more than 90 per cent of beneficiaries report that their communities received support in mobilizing to establish savings and credit groups, and just below 20 per cent of beneficiaries report that their communities received support in mobilizing to advocate for its needs. In both cases, there is no significant difference at the 5 per cent level between the (L+N) and (L) groups. Other potential supports are virtually inexistent in Shiree Concern areas.

Table 3.13. Baseline means of other supports received, by intervention arm—Shiree

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Plinth (to household or neighbor) provided to raise homestead	0.03	0.01	0.15
Direct microcredit service	0.00	0.01	0.14
Support to improve housing conditions	0.02	0.01	0.07
Support to improve access to water/waste sanitation	0.01	0.02	0.35
Support to improve access to health facilities	0.02	0.02	0.89
Support in mobilizing community to establish savings and credit groups	0.94	0.92	0.44
Support in mobilizing community to advocate for its needs	0.19	0.18	0.87

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only.

3.3.2 Other social programme benefits received by sample households

Finally, households in Bangladesh can take part in a myriad of welfare schemes and safety net programmes offered by the government or other actors, which may have independent effect on nutrition. For the evaluation of to be credible, we must then check whether the access to these other programmes systematically varies across the treatment arms. Table 3.14 summarizes this information for the schemes for which at least 5 per cent of households take part in any treatment arm. Unlike for the information on participation in programmes we presented earlier, the survey question about these schemes includes the (C) group.

There are 7 programmes fulfilling the above requirement, with the most common being by a large margin stipends for primary students which is accessed by 51 per cent of (L+N), and 55 per cent of both (L) and (C) households. The difference between both (L+N) on the one hand, and (L) and (C), on the other hand, is not statistically significant. Two other important programmes are school feeding programmes and Vulnerable Group Feeding (VGF). The former are accessed by 28 per cent of (L+N), 32 per cent of (L) and 20 per cent of (C). The differences between (C) and the two groups of Shiree Concern beneficiaries are strongly significant. The latter is accessed by 36 per cent of (L+N), 21 per cent of (L) and 30 per cent of (C) households. (L) households are statistically less likely to access this program than both (L+N) and (C). There are also disparities of access concerning the Shouharido Program (CARE), accessed by 16 per cent of (L) households, but only 8 per cent of (L+N) households and 1 per cent of (C) households. All the three differences are statistically significant. Similarly, (L) households are more likely to receive Old Age Allowance (11 per cent) than (C) households (7 per cent), with the figure for (L+N) being statistically indistinguishable from the former (9 per cent). Control households are also more likely to receive stipends for secondary and higher education (5 per cent) than (L) households (2 per cent), while the differences between (L+N) households and both (L) and (C) are not significant. Participation in General Relief Activities range from 4 to 9 per cent across the treatment arms but the differences are not statistically significant. Finally, it is worth pointing out that the average quantity of schemes households participate in is similar in (L+N) and (L) groups (1.54 and 1.61, respectively), it is significantly lower for the (C) group (1.38).

In terms of comparability between (L) and (L+N), the shares receiving most of the safety net programmes is balanced at the 5 per cent level. The exception is the difference in shares receiving Vulnerable Group Feeding (36 per cent among (L+N) and 21 per cent among (L)), significant at less than the 1 per cent level, which should potentially be controlled for in the eventual impact analysis.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Stipend for primary students	0.51	0.55	0.55	0.25	0.33	0.92
School feeding program	0.28	0.32	0.20	0.55	0.26	0.08
Stipend for secondary and higher secondary/female student	0.03	0.02	0.05	0.08	0.21	0.00
Old age allowance	0.09	0.11	0.07	0.25	0.24	0.02
General relief activities	0.04	0.09	0.06	0.10	0.41	0.34
Vulnerable Group Feeding (VGF)	0.36	0.21	0.30	0.00	0.25	0.04
Shouharido Program (CARE)	0.08	0.16	0.01	0.07	0.00	0.00
Number of programmes household participate in	1.54	1.61	1.38	0.37	0.02	0.00

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

3.3.3 Summary

Given that this study aims to explore synergies between direct nutrition and livelihood programmes, it is useful to understand the type and extent of sample households' participation in livelihood programmes. In this section, we review the baseline quantitative information on benefits they receive both from the Shiree

Concern livelihoods programme (which by definition is relevant only to (L+N) and (L) households, not (C) households) and other social programmes.

In terms of Shiree Concern benefits, we find that the main service (L+N) and (L) households report receiving is financial training. Although about 61 per cent of (L+N) households report receiving it, as opposed to only about 46 per cent of (L) households, the average months of exposure to the training is about 2 months for both groups.

We also find that (L) and (L+N) households report receiving some forms of asset transfer from Shiree Concern. About 65-68 per cent of (L) and (L+N) households report receiving poultry birds from the programme, with an average of about 6 received, with monetary value of about 2000 taka. About 16 per cent of both groups also report receiving sheep, and about 20 per cent report receiving pond land. Moreover, based on current household ownership of assets, programme households appear to keep these assets rather than sell them off. These characteristics appear to be statistically balanced between the (L+N) and (L) groups.

The two other primary forms of support provided by Shiree Concern appear to be support in mobilizing the community to establish savings and credit groups (reported by more than 90 per cent of both groups), and support in mobilizing the community to advocate for its needs (reported by just under 20 per cent of both groups). These characteristics are again statistically balanced between the (L+N) and (L) groups.

Finally, we consider other non-Shiree/Concern social programmes received by sample households, including those in the (C) group. The most common is a stipend for primary school students, received by about 51-55 per cent of all intervention arms. The next most common is the school feeding programme, received by 32-40 per cent of all three intervention arms. Receipt of other programmes, however, appear to be differentially accessed across the intervention arms. For example, the Vulnerable Group Feeding (VGF) is accessed by 36 per cent of (L+N), 21 per cent of (L), and 30 per cent of (C), with statistically significant differences. These patterns reflect that it will be important in the impact evaluation to adjust for receipt of other programmes.

Overall, the baseline analysis indicates that Shiree/Concern benefits to (L) and (L+N) households appeared to consist primarily of financial training, transfers of assets such as poultry birds, and support in mobilizing the community (to establish savings and credit groups, and in some cases to advocate for its needs). Sample households in all three intervention arms also receive other social programmes, although there tend to be different patterns in receipt across the arms.

In terms of comparison between (L) and (L+N), results indicate that most Shiree/Concern benefits tend to be statistically balanced across the two groups at the 5 per cent level, although there are some potentially important differences. In particular, there is a meaningful and statistically significant difference between the share of (L) and (L+N) households that receive financial training from Shiree, as well as a potentially meaningful and statistically significant difference in the share that receive the external Vulnerable Group Feeding programme. Both of these characteristics could be controlled for in the eventual impact analysis.

There is also a very small difference in the share receiving dairy cows from Shiree, but the shares themselves as well as the difference are likely to be so negligibly small that controlling for them would not affect the impact analysis.

3.4 Assets

It is generally recommended that a wide definition of assets be used in the context of poverty reduction strategies. Assets are considered not simply resources that people use to build livelihoods but are identified as the basis of agents' power to act to reproduce, challenge or change the rules that govern the control and use of those resources (Moser 2007). In this section, we analyse the ownership of physical assets and financial assets.

3.4.1 Physical assets

Table 3.15 shows the average quantity of a range of consumer durables reported owned by Shiree Concern and control households at the time of interview. The assets for which there are the highest quantity per household concern cooking, cleaning and sleeping arrangements. The average quantity of metal pots in a household is approximately 7 while the number of Beds/Khats/Chowkis in a household is approximately 1.1. The (L) and eventual (L+N) households show mostly no meaningful differences in means of consumer durables except electric fan, which is owned by 6 per cent of (L) households against 11 per cent of (L+N) ones. There are significant differences in means between, on the one hand, (L+N) and (C) households and, on the other hand, (L) and (C) households. These differences arise for all assets except the Trunk/Suitcase. (C) households consistently own more consumer durables than the Shiree Concern households, which is reflected in the total number of assets owned is about 20 per cent higher for (C) than for (L+N) and (L) groups (11.88 for (C) against 9.83 for (L+N) and 9.52 for (L)). Overall, we can conclude that while the randomization achieves balance between (L+N) and (L) at the 5 per cent level for all of these indicators, there are significant and meaningful differences between (L+N) and (L) households on the one hand and (C) households on the other hand, that will need to be addressed in future analyses.

Table 3.16 shows the average quantity of a range of productive assets reported owned by Shiree/Concern households at the time of interview. The (L) and eventual (L+N) households show no meaningful differences in means of productive assets, except for the rickshaw for which there is a significant difference at the 7 per cent level. However the magnitude of the difference in means is small (0.01). The mean difference between the (L) and (L+N) groups is not statistically significant at the 5 per cent level for most of these indicators. The exceptions are small differences between (L) and (L+N) in the shares of households that own a hammer and that own masons equipment, both of which are significant at the 5 per cent level and could be controlled for in the eventual impact analysis.

Table 3.15. Baseline means of quantity of consumer durables currently owned by the household, by intervention arm—Shiree

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)

Trunk/Suitcase	0.54	0.48	0.53	0.47	0.93	0.27
Buckets/Pots	0.52	0.52	0.73	0.91	0.00	0.00
Metal Cooking Pots	6.81	6.70	7.70	0.73	0.00	0.00
Bed/Khat/Chowki	1.00	1.00	1.27	0.86	0.00	0.00
Armoire/Cabinet/Alna	0.24	0.23	0.46	0.67	0.00	0.00
Table / chair	0.54	0.48	0.82	0.30	0.00	0.00
Electric fan	0.11	0.06	0.24	0.09	0.00	0.00
Wall clock /watch	0.04	0.03	0.05	0.68	0.15	0.03
Total	9.83	9.52	11.88	0.41	0.00	0.00

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Table 3.16. Baseline means of quantity of productive assets currently owned by the household, by intervention arm—Shiree

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Sewing machine	0.03	0.04	0.02	0.66	0.12	0.02
Rickshaw	0.04	0.02	0.02	0.07	0.05	0.74
Boat	0.21	0.22	0.07	0.71	0.00	0.00
Engine boat	0.02	0.02	0.02	0.83	0.66	0.56
Mobile phone set	0.51	0.50	0.69	0.91	0.00	0.00
Randa	0.02	0.01	0.01	0.15	0.21	0.66
Saw	0.04	0.02	0.03	0.18	0.56	0.18
Hammer	0.11	0.04	0.08	0.05	0.50	0.01
Fishing net	0.73	0.68	0.39	0.58	0.00	0.00
Spade (Kodal)	0.32	0.35	0.32	0.40	0.87	0.29
Axe(Kural)	0.07	0.05	0.04	0.33	0.05	0.32
Shabol	0.12	0.12	0.14	0.90	0.25	0.33
Daa	0.98	1.00	1.03	0.42	0.03	0.19
Cash in hand	326.97	355.61	286.07	0.41	0.23	0.04
Solar energy panel	0.05	0.05	0.09	0.56	0.03	0.08
Hoe	0.07	0.09	0.05	0.28	0.41	0.02
Pick axe	0.05	0.11	0.05	0.27	0.90	0.26
Winnower	0.66	0.61	0.72	0.44	0.32	0.07
Hand tube well	0.03	0.03	0.08	0.71	0.00	0.00
Masons equipment	0.05	0.01	0.11	0.05	0.21	0.03
Total assets including cash	331.04	359.50	290.02	0.41	0.23	0.04
Total assets excluding cash	4.07	3.90	3.94	0.37	0.48	0.78

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

There are also significant differences in means between (C) households on the one hand and (L+N) and (L) households on the other hand. (C) households tend to own fewer sewing machines, boats, fishing nets, hoes and cash in hand than Shiree Concern beneficiaries, and own more mobile phone sets, solar energy panels, winnower and mason's equipment. (C) households own more hammers on average than (L) households but less than (L+N) ones, although the magnitude of the differences are not very high. The

most meaningful differences in terms of magnitude are for boats (7 per cent for (C) against 21 per cent of (L+N) and 22 per cent for (L)), fishing nets (39 per cent for (C) against 73 per cent for (L+N) and 68 per cent for (L)), mason's equipment (10 per cent for (C) households but negligible among Shiree Concern ones) and mobile phone sets (69 per cent for (C) against 50 per cent for Shiree Concern households). Overall, we can conclude that there are some differences between the (L+N) and (L) households on the one hand, and (C) households on the other hand. In particular, the latter are much less likely to own boats and fishing nets but more likely to own mason's equipment, which hints at differentiated occupation patterns between the treatment and control groups.

Table 3.17 shows the average quantity of a range of livestock assets reported owned by Shiree Concern households at the time of interview. The (L) and eventual (L+N) households show no differences statistically significant at the 5 per cent level in means of livestock assets. The p-values for the mean difference between the (L) and (L+N) groups exceed 0.10 for all indicators. The most common livestock are ducks (about 2.5 per household) and chickens (about 2.2 per household). The average number of sheep owned is 0.36; that of goats is 0.13; that of milk cow, 0.12; and that of bulls/oxen, 0.06. There are significant differences in means between (C) on the one hand and (L+N) and (L) households on the other hand. Control households own significantly less goats (0.01 against 0.14 for (L+N) households and 0.11 for (L) households), chickens (0.85 against 2.21 for (L+N) households and 2.15 for (L) households) and chicks (0.11 against 0.65 and 0.36 for the (L+N) and (L) groups, respectively). Overall, we can conclude that randomization achieves balance between the treatment arms (L+N) households and (L) households but that there are significant and meaningful differences between (L+N) and (L) households on the one hand and (C) households on the other hand, which own less livestock. These will need to be addressed in future analyses.

Table 3.17. Baseline means of quantity of livestock assets currently owned by the household, by intervention arm—Shiree

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Bulls/oxen	0.06	0.06	0.07	0.95	0.55	0.55
Milk Cow	0.14	0.11	0.12	0.26	0.36	0.91
Buffalo	0.00	0.00	0.00	0.32	0.86	0.32
Goat	0.14	0.11	0.01	0.52	0.00	0.00
Sheep	0.36	0.36	0.01	0.97	0.00	0.00
Chicken	2.21	2.15	0.85	0.80	0.00	0.00
Horses	0.00	0.00	0.00			
Mules	0.00	0.00	0.00	0.32		0.32
Donkeys	0.00	0.00	0.00			
Chicks (1 day old)	0.65	0.36	0.11	0.36	0.08	0.00
Duck	2.18	2.81	0.77	0.27	0.00	0.00
Other birds (Specify)	0.03	0.03	0.05	0.96	0.31	0.30
Total assets	5.77	6.00	1.99	0.76	0.00	0.00

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

3.4.2 Financial assets

Table 3.18 shows outcomes related to financial assets. There are substantial differences in baseline means between the (C) households and the (L+N) and (L) households. (C) households are less likely to have savings currently or in the past year (96 per cent of (L+N) households have savings and 94 per cent of (L) households have savings compared to only 38 per cent of (C) households). While the likelihood that a household holds savings is lower among (C) households, the amount of savings held is close to three times the average amount of the (L+N) and (L) quantities. The differences in the means are significant. The same can be said of loan amounts, outstanding loan amounts and within country remittances received whose magnitude are higher among (C) households.

However, the (L) and eventual (L+N) households show no differences significant at the 5 per cent level in means of financial assets outcomes. The p-values for the mean difference between the (L) and (L+N) groups exceed 0.10 for all indicators. Overall, we can conclude that randomization achieves balance in financial assets between the (L+N) households and (L) households, but that there are significant and meaningful differences between (L+N) and (L) households on the one hand and (C) households on the other hand, that will need to be addressed in future analyses.

Table 3.18. Baseline means of positive responses to questions concerning ownership of financial assets, by intervention arm—Shiree

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Have any adult in the household had any savings in the past 1 year?	0.88	0.91	0.65	0.39	0.00	0.00
Does any adult in the household currently have any savings?	0.96	0.94	0.38	0.32	0.00	0.00
Total amount currently saved	1,205.49	1,242.93	3,397.22	0.88	0.00	0.00
How frequently do you save?	3.42	3.34	4.05	0.37	0.00	0.00
Any loan in household?	0.93	0.93	0.95	0.92	0.11	0.09
Current loan in household	0.74	0.74	0.71	0.84	0.42	0.34
Loan amount	9,212.61	9,468.69	15,444.34	0.74	0.00	0.00
Interest rate	76.01	77.71	77.92	0.76	0.76	0.98
Outstanding amount	9,672.98	9,163.78	14,501.31	0.54	0.00	0.00
Remittances received from relatives (cash and in-kind from outside the country)	159.90	17.42	434.72	0.33	0.21	0.01
Remittances received from relatives (cash and in-kind from within the country)	2,221.41	2,376.45	4,076.97	0.76	0.03	0.04
Charity and other assistance (in cash)	60.46	110.95	52.87	0.35	0.84	0.29
Charity and other assistance (in kind)	47.88	66.47	19.54	0.46	0.16	0.01
Dowry received (in cash)	10.88	0.00	0.00	0.32	0.32	
Dowry received (in kind)	0.00	18.67	0.00	0.32		0.32

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

3.4.3 Summary

Asset ownership is useful to explore in the context of this evaluation, both because the patterns in assets provide useful context on households' situation and because assets play an important role in livelihoods strategies. Ownership of assets may affect households' ability to participate in various livelihoods activities (for example, ownership of livestock allowing livestock rearing) and may also be affected by households' livelihoods through re-investment of generated income (for example, through purchases of consumer durables). Assets may additionally help to shield households from shocks (for example, through savings or loans available at low interest). In this section, we assess quantitative baseline information on households' physical assets (consumer durables, productive assets, and livestock) as well as financial assets.

We find that Shiree/Concern sample households tend to own few physical assets. In terms of consumer durables, the most commonly owned are very basic (such as cooking pots, beds, tables/chairs, trunks/suitcases, buckets). The (L+N) and (L) groups show no statistically significant differences in ownership of durables. Although the (C) group tends to have low ownership of consumer durables as well, it nonetheless tends to have significantly higher ownership of most durables (such as buckets, cooking pots, beds, cabinets, tables/chairs, electric fans) than the (L+N) and (L) groups.

Average ownership of productive assets is low as well. The most commonly owned are mobile phones, boats, fishing nets, agricultural implements (spades, daas, winnowers), and cash. The (L+N) and (L) groups are balanced at the 5 per cent level in terms of ownership of most productive assets. The exceptions are small differences between (L) and (L+N) in the shares of households that own a hammer and that own masons equipment, both of which are significant at the 5 per cent level and could be controlled for in the eventual impact analysis. Although the (C) group tends to have low ownership of productive assets as well, it has significantly higher ownership of certain productive assets (such as mobile phones) and significantly lower ownership of others (such as boats and fishing nets) than the (L+N) and (L) groups. These differences are potentially consistent with the Shiree/Concern programme providing support for fishing as part of its livelihoods activities.

We also see low ownership of livestock assets. The most commonly owned livestock animals in Shiree/Concern beneficiary and control group households are chickens and ducks. The (L+N) and (L) groups again show no statistically significant differences at the 5 per cent level. However, the (C) group tends to own significantly fewer chickens and ducks (about 1 chicken and 1 duck per household, compared with about 2 chickens and 2 ducks per household in (L) and (L+N) groups). Also, although ownership of other animals (such as goats and sheep) is low even among Shiree/Concern beneficiaries, it is significantly lower among the control group. These differences are consistent with the Shiree/Concern programme providing transfers of livestock assets to its beneficiary households as part of its livelihoods activities.

Finally, in terms of financial assets, we see that Shiree/Concern beneficiary households have high rates of savings and lending. The (L+N) and (L) households are again well balanced at the 5 per cent level in terms of these characteristics. However, the Shiree/Concern beneficiary households have significantly higher rates of holding savings and significantly smaller outstanding loan amounts, but significantly lower total amounts saved, than the control group households. These differences are consistent with the Shiree/Concern programme facilitating financial services, although the higher savings amounts held by the control group suggest the control group may be less poor overall.

Overall, the analysis suggests that randomization achieves balance between the (L+N) and (L) households in terms of most asset ownership at the 5 per cent level, but that there are many significant differences between (C) households on one hand and (L+N) and (L) households on the other hand. Although asset ownership is low among all, and although many of the differences in livestock and financial assets are explained simply by the benefits provided by Shiree/Concern to (L) and (L+N) households, other differences in consumer durables and savings suggest that the control group is likely to be less poor on average than the Shiree/Concern beneficiaries. These differences will need to be accounted for when attempting to identify a subset of (C) to serve as the counterfactual in the evaluation.

3.5 Food consumption

The quantity and quality of food consumed within a household, as well as who within the household consumes these foods, are important determinants of household members' nutritional status. In this

section, we explore the diversity of foods that were consumed in the Shiree/Concern sample at the time of the baseline survey. Assessing diversity of diets is a fairly simple but meaningful way to capture the quantity and quality of diets (Hoddinott and Yohannes 2002). We examine baseline dietary diversity measures for households as a whole, as well as by specific household members of particular interest: young children ages 6-24 months, mothers of young children, fathers of young children, and adolescent girls.

Food consumption is of particular interest in this evaluation because it serves as a pathway through which the livelihoods and direct nutrition interventions may affect nutrition outcomes. Livelihoods interventions may increase household income, allowing households to consume a more diverse and nutritious diet. Direct nutrition interventions may increase the knowledge of household members regarding which types of foods are important to consume. For the purposes of the evaluation, it is therefore useful to learn from the baseline data both how diverse diets were in each intervention arm prior to the start of direct nutrition interventions and how similar diets were across intervention arms.

As described in Section 1.2.3, the baseline survey included detailed questions on food consumption in each intervention arm. Information was collected on household consumption of 321 food types in the past 7 days prior to the survey. Information was also collected regarding the dietary diversity during the previous day of four specific household members: the index child, the index child's mother or primary female caregiver (if in the household), the index child's father or primary male caregiver (if in the household), and the oldest adolescent girl aged 11-19 years (if any in the household). As also noted in Section 1.2.3, all households in all intervention arms were interviewed between September-November 2013. Therefore, while there may be seasonal factors that affect dietary intake, these factors should affect all intervention arms similarly and should not bias the comparison across arms.

Dietary diversity was measured based on the following categorizations of foods:

1. **CEREAL:** Rice, bread made of wheat, puffed rice, pressed rice, noodles, or any other foods made of rice, wheat, maize/corn, or other locally available grains
2. **VITAMIN A RICH VEGETABLES AND TUBERS:** Pumpkin, carrots, sweet potatoes that are orange and yellow inside
3. **WHITE TUBERS AND ROOTS OR OTHER STARCHY FOODS:** Potatoes, white yams, white sweet potato (not orange inside), potato crisps or other foods made from roots (not orange or yellow roots)
4. **DARK GREEN LEAFY VEGETABLES:** Dark green leafy vegetables, including spinach, red amaranth leaves, green amaranth, puishak, laushak, kumrashak, kolmishak, mustard leaves, yam leaves, koloishak (pea leaves), methishak (amaranth leaves), dhekishak, demishak, etc.
5. **OTHER VEGETABLES:** Other vegetables (e.g., squash, eggplant, green papaya, cauliflower, cabbage, onion, radish, sheem/boboti, etc.)
6. **VITAMIN A RICH FRUITS:** Ripe mangoes, ripe papaya/pawpaw
7. **OTHER FRUITS:** Other fruits (e.g., banana, apples, guava, oranges, other citrus fruits, pineapple, shakalu, watermelon, olives, grapes, jambura (grapefruit), berries, kamranga, tamarind, plum, etc.)
8. **MEAT:** Any beef, goat, lamb, chicken, duck, or other birds, liver, kidney, heart, or other organ meats
9. **EGGS:** Eggs of different birds – chicken, duck, turkey etc.; with yolk or without yolk

10. FISH: Big/small fresh or dried fish or shellfish (e.g., prawn, crab, etc.)
11. BEANS, PEAS, OR LENTILS: Any foods made from beans, peas, lentils, other pulses, soybeans, peas
12. DAIRY: Milk, cheese, yogurt, or other milk products (excluding breast milk)

The key indicators explored in this section are whether the household or individual consumed each of these 12 food groups during the relevant reference period, as well as how many total out of the 12 food groups the household or individual consumed.

While we grouped the food types into food group categories for the household, questions about the food groups themselves were asked for individuals. In particular, for the household, the survey asked distinctly whether each of 321 food types was consumed by the household in the past 7 days. These responses were then mapped to the 12 listed food groups in the analysis stage. Meanwhile due to time constraints, for the four specific household members, the survey asked simply whether the index child / index child's mother / index child's father / adolescent girl consumed any of each of the 12 listed food groups the previous day.

Therefore, two dimensions of 'discrepancy' might appear between the reported dietary diversity at the household level and the reported dietary diversity at the individual level. First, the household indicators are likely to be more precise, since they were elicited in detail and were categorized systematically in analysis, while the individual-level indicators were elicited in aggregate and respondents may have inaccurately categorized food items into the food groups. Second, it is to be expected that not all food groups consumed in the past 7 days would necessarily have been consumed in just the previous day. The shares of households reporting consumption of a particular food group over the past 7 days are therefore likely to be larger than the shares of individuals in the household reporting consumption of that same food group in the previous day. Nonetheless, taken together, the patterns in the household-level and individual-level indicators are likely to give a meaningful picture of what was eaten in the household and by who.

3.5.1 Dietary diversity at the household level

The analysis starts at the household level. Table 3.19 shows dietary diversity in household food consumption over the seven days preceding the survey. There are several interesting observations. First, there are clear patterns in the diet. In all three intervention arms, nearly all Shiree Concern sample households (about 100 per cent) report consuming cereals in the past 7 days. This observation is not surprising, since rice is the primary staple food in Bangladesh. A large majority of households in all intervention arms also report consuming white tubers/roots (more than 90 per cent, likely to be white potatoes), green leafy vegetables (about 60 to 70 per cent), vitamin A-rich fruits (nearly 100 per cent), fish (nearly 100 per cent), and dairy (about 70 per cent). However, reported consumption of other produce is fairly low (about 7 to 18 per cent for vitamin A-rich vegetables, about 17 per cent for other vegetables, and about 4 per cent for other fruits). Reported consumption of proteins other than fish is also relatively low (about 48 per cent for meat, about 14 to 28 per cent for eggs, about 20 per cent for beans/peas/lentils). Overall, households in all three intervention arms report consuming about 6 of the 12

food groups in the past 7 days. While most households do not report having consumed all of these food groups in the past 7 days, there appears to be reasonable diversity in the diet.

Second, the (L) and eventual (L+N) households show few meaningful differences in average consumption of these food groups in the past 7 days. The p-values for mean difference between the (L) and (L+N) groups exceed 0.10 for nearly all indicators. The exceptions are differences in the share of households consuming cereals and the share of households consuming vitamin A-rich fruits, both significant at the 3 per cent level. However, the magnitude of both differences is a negligible 1 per cent, suggesting that controlling for them would likely not affect the impact analysis. These patterns indicate that the randomisation appeared to balance baseline dietary patterns at the household level between (L) and (L+N).

Table 3.19. Baseline means of dietary diversity outcomes over the past 7 days for households, by intervention arm—Shiree

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Consumed cereal	0.99	1.00	1.00	0.03	0.03	
Consumed vitamin A-rich vegetables	0.07	0.08	0.18	0.48	0.00	0.00
Consumed white tubers/roots	0.93	0.93	0.96	0.90	0.02	0.02
Consumed green leafy vegetables	0.73	0.72	0.60	0.90	0.00	0.00
Consumed other vegetables	0.15	0.17	0.18	0.46	0.18	0.64
Consumed vitamin A-rich fruits	0.99	1.00	0.99	0.03	0.73	0.08
Consumed other fruits	0.04	0.04	0.02	0.99	0.00	0.00
Consumed meat	0.48	0.52	0.47	0.30	0.82	0.17
Consumed eggs	0.15	0.14	0.28	0.74	0.00	0.00
Consumed fish	0.99	0.99	0.99	0.80	0.73	0.50
Consumed beans peas lentils	0.20	0.17	0.24	0.27	0.29	0.02
Consumed dairy	0.69	0.70	0.68	0.82	0.73	0.56
Number of groups (of 12)	6.43	6.46	6.60	0.75	0.10	0.21

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Third, the (C) group is somewhat similar to the (L) and (L+N) groups, but shows meaningful differences in consumption of vitamin A-rich vegetables, of green leafy vegetables, and of eggs. The mean differences between the (C) households and the (L) or (L+N) households are highly statistically significant for these food groups, and the magnitude of the differences are also considerable (18 per cent relative to about 8 per cent for vitamin A-rich vegetables, 60 per cent relative to about 72 per cent for green leafy vegetables, and 28 per cent relative to about 14 per cent for eggs). The differences suggest potentially a fairly different agricultural environment. Therefore, while the (C) group is similar to the (L) and (L+N) groups in some dimensions of household dietary diversity, there nonetheless appear to be potentially meaningful differences.

3.5.2 Dietary diversity among young children

The analysis then turns to exploring dietary diversity patterns within the household. Table 3.20 shows summary statistics on dietary diversity among index children aged 6-24 months during the day preceding

the survey. Here, the age range of index children is restricted to 6 months or older, because 6 months is the age at which the start of complementary feeding is recommended. Given that the recommendation for children younger than 6 months is to be exclusively breastfed (meaning that they would consume zero of these food groups), including these children in the statistics would complicate the interpretation of the summary statistics. Including only children aged 6-24 months allows interpreting a greater number of food groups consumed to be unambiguously better, since the recommendation is for children to start consuming a diverse diet as soon as solid or semi-solid foods are introduced at 6 months.

Table 3.20. Baseline means of Dietary Diversity outcomes the previous day for Index Child aged 6-24 months, by intervention arm—Shiree

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Consumed cereal	0.89	0.90	0.89	0.70	0.74	0.50
Consumed vitamin A-rich vegetables	0.02	0.03	0.00	0.06	0.02	0.00
Consumed white tubers/roots	0.56	0.56	0.62	1.00	0.04	0.04
Consumed green leafy vegetables	0.22	0.28	0.17	0.10	0.12	0.00
Consumed other vegetables	0.69	0.69	0.76	0.96	0.01	0.02
Consumed vitamin A-rich fruits	0.01	0.01	0.01	0.26	1.00	0.18
Consumed other fruits	0.17	0.21	0.17	0.25	0.80	0.08
Consumed meat	0.03	0.03	0.05	0.95	0.03	0.02
Consumed eggs	0.05	0.07	0.04	0.11	0.72	0.03
Consumed fish	0.54	0.55	0.62	0.73	0.01	0.04
Consumed beans peas lentils	0.18	0.21	0.18	0.09	0.97	0.12
Consumed dairy	0.08	0.08	0.08	0.98	1.00	0.98
Number of groups (of 12)	3.42	3.60	3.58	0.14	0.13	0.88

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

There are again a number of notable observations. First, the pattern of food groups most commonly consumed by index children age 6-24 months appears somewhat different than the pattern for households as a whole. As described above it is expected that shares reporting consumption over the last 1 day would be lower than shares reporting consumption over the last 7 days, and categorizations of some food items may be slightly consistent. However, there appear to be meaningful differences. In particular, similar to the household level, a large majority of index children are reported to have consumed cereal (about 90 per cent), and a majority are also reported to consume white tubers/roots (about 56 per cent) and fish (about 55 per cent). A fairly large share is also reported to consume “other vegetables” (about 69 per cent) which given the pattern at the household level might in fact include some vitamin A-rich vegetables due to respondent miscategorization. However, the reported consumption of green leafy vegetables (which is less likely to be miscategorized) and vitamin A-rich fruits appear fairly low relative to the shares reported at the household level.

Overall, the pattern suggests that children in the age range of 6-24 months might typically eat rice, white potatoes, vegetables (that are likely not leafy greens but might be vitamin A rich), and fish. Consumption of dairy appears infrequent. Only about 8 per cent of young children are reported to have consumed dairy

in the previous day, which could reflect either that most children in this age range do not consume dairy or that dairy is typically only consumed about once a week rather than daily by children in this age range. The overall number of food groups consumed in all three intervention arms is about 3.

A second important observation is that the (L) and (L+N) groups are well balanced at the 5 per cent level in terms of index children's dietary diversity. The p-values for nearly all mean differences between the two groups exceed 0.10, and the magnitudes of differences tend to be very small.

Third, again mirroring the household level, the (C) group appears similar to the (L) and (L+N) groups in terms of some dimensions of index children's dietary diversity, but there are statistically significant differences. In particular, the consumption of vitamin A-rich vegetables and green leafy vegetables is significantly lower in the (C) group than in the beneficiary groups, and the consumption of fish is significantly higher. These patterns suggest that the randomisation succeeded in balancing the baseline dietary diversity of index children 6-24 months between the (L) and (L+N) groups, but that the (C) group exhibits potentially meaningful differences.

3.5.3 Dietary diversity among mothers of young children

Next, the analysis turns to dietary diversity patterns of the mothers of all index children (including mothers of children 0-5 months). Table 3.21 shows summary statistics for dietary diversity among mothers during the day preceding the survey.

Several observations are again worth noting. First, the pattern of food groups most commonly consumed by mothers appear similar but slightly different to the patterns for index children age 6-24 months. Like index children, nearly all mothers are reported to have consumed cereal (about 100 per cent), a majority are reported to consume white tubers/roots (about 72 per cent) and fish (about 82 per cent), and most are reported to consume other vegetables (about 91 per cent, which again might include vitamin A rich-vegetables due to respondent miscategorization). However, the shares of mothers reporting consumption of each of these food groups are considerably higher than the shares of index children 6-24 months (about 89 per cent for cereals, about 56 per cent for white tubers/roots, about 22 per cent for green leafy vegetables, about 69 per cent for other vegetables, and about 54 per cent for fish). Meanwhile the share reporting consumption of dairy (about 4 per cent) is even lower than the small share of index children 6-24 months (about 8 per cent). The total number of food groups consumed in each intervention arm is reported to be about 4.

Overall, the pattern suggests that mothers of young children tend to consume mostly rice, potatoes, vegetables (possibly vitamin A rich and green leafy), and fish like their children. However, it is either the case that mothers tend to consume these food groups more frequently than young children or that a larger share of mothers than young children consume these food groups at all. On the other hand, mothers tend to consume dairy even less frequently than their young children.

A second observation is that the (L) and (L+N) groups are balanced at the 5 per cent level in terms of most dimensions of mothers' dietary diversity. The exceptions are small differences between (L) and (L+N) in the share of mothers consuming non-Vitamin-A-rich fruits and in the share of mothers

consuming eggs, both significant at the 4 per cent level. Although the magnitudes of both differences are small, they could nonetheless be potentially controlled for in the eventual impact analysis.

Third, again as at the household and index child level, the (C) group appears similar to the (L) and (L+N) groups in some dimensions of mothers' dietary diversity, but there are statistically significant differences particularly in consumption of green leafy vegetables and of beans/peas/lentils. These patterns suggest that the randomisation succeeded in balancing most dimensions of baseline dietary diversity of mothers between the (L) and (L+N) groups, but that the (C) group exhibits potentially meaningful differences.

Table 3.21. Baseline means of dietary diversity outcomes the previous day for mothers of Index Children, by intervention arm—Shiree

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Consumed cereal	0.99	1.00	0.99	0.07	0.32	0.29
Consumed vitamin A-rich vegetables	0.03	0.04	0.01	0.19	0.01	0.00
Consumed white tubers/roots	0.71	0.72	0.77	0.75	0.04	0.07
Consumed green leafy vegetables	0.32	0.35	0.23	0.36	0.01	0.00
Consumed other vegetables	0.91	0.91	0.95	0.97	0.00	0.01
Consumed vitamin A-rich fruits	0.02	0.02	0.01	0.66	0.28	0.10
Consumed other fruits	0.12	0.16	0.10	0.04	0.13	0.00
Consumed meat	0.04	0.04	0.07	0.95	0.01	0.00
Consumed eggs	0.04	0.05	0.03	0.04	0.61	0.01
Consumed fish	0.82	0.81	0.84	0.58	0.31	0.13
Consumed beans peas lentils	0.22	0.26	0.19	0.11	0.16	0.01
Consumed dairy	0.04	0.04	0.04	0.86	0.85	0.70
Number of groups (of 12)	4.26	4.40	4.24	0.09	0.79	0.03

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

3.5.4 Dietary diversity among fathers of young children

The analysis then proceeds to dietary diversity patterns of the fathers of all index children (including fathers of children 0-5 months). Table 3.22 shows summary statistics for dietary diversity among fathers during the day preceding the survey.

Again there are several observations to note. First, the pattern of food groups most commonly consumed by fathers is very similar to the pattern for mothers, if with slightly smaller shares reported than among mothers. The statistics indicate that, like mothers, fathers of young children tend to consume mostly rice, potatoes, vegetables (possibly vitamin A rich and green leafy), and fish like their children. However, it is either the case that fathers tend to consume these food groups more frequently than young children or that a larger share of fathers than young children consume these food groups at all. These patterns suggest that there is no clear gender bias in terms of individual dietary diversity. While it is possible that men consume a greater quantity of some foods than women do, they appear not to consume fundamentally different (or 'higher quality') types.

Second, the (L) and (L+N) groups are balanced at the 5 per cent level in terms of fathers' dietary diversity. The p-values for nearly all mean differences between the two groups exceed 0.10, and the magnitudes of the differences tend to be very small.

Third, again as in the previous breakdowns, the (C) group appears similar to the (L) and (L+N) groups in terms of fathers' dietary diversity, but there are statistically significant differences. These patterns suggest that the randomisation succeeded in balancing the baseline dietary diversity of fathers between the (L) and (L+N) groups, but that the (C) group exhibits potentially meaningful differences.

Table 3.22. Baseline means of dietary diversity outcomes the previous day for fathers of Index Children, by intervention arm—Shiree

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Consumed cereal	0.96	0.96	0.97	0.81	0.34	0.16
Consumed vitamin A-rich vegetables	0.03	0.04	0.01	0.25	0.01	0.00
Consumed white tubers/roots	0.70	0.70	0.75	0.99	0.07	0.04
Consumed green leafy vegetables	0.30	0.32	0.22	0.53	0.01	0.00
Consumed other vegetables	0.88	0.88	0.94	0.96	0.00	0.00
Consumed vitamin A-rich fruits	0.01	0.02	0.01	0.33	0.68	0.17
Consumed other fruits	0.12	0.14	0.09	0.27	0.04	0.00
Consumed meat	0.03	0.04	0.06	0.69	0.01	0.01
Consumed eggs	0.04	0.05	0.03	0.16	0.27	0.01
Consumed fish	0.80	0.77	0.83	0.29	0.16	0.02
Consumed beans peas lentils	0.21	0.25	0.19	0.08	0.41	0.02
Consumed dairy	0.03	0.04	0.04	0.39	0.64	0.74
Number of groups (of 12)	4.12	4.22	4.15	0.31	0.69	0.46

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

3.5.5 Dietary diversity among adolescent girls

The analysis finally turns to dietary diversity patterns of adolescent girls (in particular, the oldest girl aged 11-19 in the household, if any). Table 3.23 shows summary statistics for dietary diversity among adolescent girls during the day preceding the survey.

There are again several notable observations. First, the pattern of food groups most commonly consumed by adolescent girls is very similar to the patterns for fathers and mothers of index children, if with slightly smaller shares reported than among fathers and mothers. The statistics indicate that, like mothers and fathers of young children, adolescent girls tend to consume mostly rice, potatoes, vegetables (possibly vitamin A rich and green leafy), and fish like young children. However, is it either the case that adolescent girls tend to consume these food groups more frequently than young children or that a larger share of adolescent girls than young children consume these food groups at all. The patterns indicate again that there is no apparent 'favoritism' among adults in terms of individual dietary diversity. While it is possible that men consume a greater quantity of some foods than women or adolescent girls do, they appear not to consume fundamentally different (or 'higher quality') types.

Second, the (L) and (L+N) groups are balanced at the 5 per cent level in terms of most dimensions of adolescent girls' dietary diversity. The exception is a difference between the (L) and (L+N) groups in the share of adolescent girls consuming green leafy vegetables, significant at the 2 per cent level, which could be controlled for in the eventual impact analysis.

Third, as in the previous breakdowns, the (C) group appears similar to the (L) and (L+N) groups in some dimensions of adolescent girls' dietary diversity, but there are some statistically significant differences. These patterns suggest that the randomisation succeeded in balancing the baseline dietary diversity of adolescent girls between the (L) and (L+N) groups, but that the (C) group exhibits potentially meaningful differences.

Table 3.23. Baseline means of dietary diversity outcomes the previous day for adolescent girls (oldest aged 11-19 years), by intervention arm—Shiree

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Consumed cereal	0.87	0.93	0.92	0.11	0.21	0.74
Consumed vitamin A-rich vegetables	0.04	0.05	0.01	0.81	0.02	0.02
Consumed white tubers/roots	0.65	0.70	0.73	0.36	0.13	0.45
Consumed green leafy vegetables	0.27	0.40	0.27	0.02	0.90	0.01
Consumed other vegetables	0.79	0.85	0.87	0.15	0.10	0.72
Consumed vitamin A-rich fruits	0.04	0.03	0.02	0.60	0.21	0.38
Consumed other fruits	0.14	0.21	0.11	0.10	0.35	0.01
Consumed meat	0.04	0.02	0.08	0.25	0.14	0.01
Consumed eggs	0.02	0.04	0.04	0.50	0.40	0.84
Consumed fish	0.78	0.77	0.81	0.88	0.61	0.43
Consumed beans peas lentils	0.23	0.20	0.20	0.59	0.51	0.91
Consumed dairy	0.04	0.03	0.06	0.62	0.40	0.17
Number of groups (of 12)	4.33	4.39	4.34	0.70	0.95	0.71

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

3.5.6 Summary

The types of food consumed within a household, and who in the household consumes which foods, are important factors for household members' nutritional status. Dietary diversity measures are a useful way of capturing the quality of diets. They are of particular interest in this evaluation since food consumption serves as a key pathway through which the livelihoods and direct nutrition interventions may affect nutrition outcomes. In this section, we explore the diversity of foods that were consumed in the Shiree Concern sample at the time of the baseline survey. We examine baseline dietary diversity measures for households as a whole, as well as by specific household members of particular interest: young children ages 6-24 months, mothers of young children, fathers of young children, and adolescent girls.

Overall, the analysis of baseline indicators on household and individual dietary diversity in the Shiree Concern sample indicate that diets for young children age 6-24 months, mothers of young children,

fathers of young children, and adolescent girls in the household are likely to be mainly rice, potatoes, vegetables (possibly vitamin A rich and green leafy), and fish. However, is it either the case that mothers / fathers / adolescent girls tend to consume these food groups more frequently than young children do, or that a larger share of mothers / fathers / adolescent girls than young children consume these food groups at all. Although dairy appears to be consumed very infrequently even by young children, it does appear to be consumed more by them than by other household members.

There are no striking differences in the patterns between mothers, fathers, and adolescent girls, although the shares consuming various food groups appear to be slightly larger for mothers than for fathers and adolescent girls, and slightly larger for fathers than for adolescent girls as well. As a whole, however, it appears that there is no clear ‘favoritism’ among adults in terms of individual dietary diversity. While it is possible that men consume a greater quantity of some foods than women or adolescent girls do, they appear not to consume fundamentally different (or ‘higher quality’) types.

Relevant to the evaluation design, the (L) and (L+N) groups tend to be balanced at the 5 per cent level on most dimensions of baseline dietary diversity. The exceptions are likely negligible differences in the share of households consuming cereals and the share of households consuming vitamin A-rich fruits (both significant at the 3 per cent level), small differences in the share of mothers consuming non-Vitamin-A-rich fruits and in the share of mothers consuming eggs (both significant at the 4 per cent level), and a difference in the share of adolescent girls consuming green leafy vegetables (significant at the 2 per cent level). Although the magnitudes of these differences tend to be small, they could be controlled for in the eventual impact analysis.

The (C) group also tends to be fairly similar to the (L) and (L+N) groups though in most cases exhibits some potentially meaningful differences, suggesting that a subset would need to be carefully chosen to serve as a counterfactual.

3.6 Anthropometry

In this section, we review baseline quantitative information on measures of anthropometry. Anthropometric measures are considered the best indicators of young children’s nutritional status and are the key outcomes studied in this evaluation. Children’s nutritional status is strongly determined by their nutritional environment in the first thousand days of life starting with conception, which in turn is affected by their mothers’ nutritional status. This section therefore focuses on several measures of nutritional status for young children (height-for-age, weight for age, weight-for-height), as well as a measure of nutritional status for their mothers (body mass index).

3.6.1 Children’s height-for-age

In terms of long-term nutritional status, the most important anthropometric indicator for children is height-for-age. Height-for-age captures the history of a child’s nutritional environment from conception to about two years of age, including both dietary intake and exposure to infection. Height-for-age has also been shown to be a very strong predictor of a range of adult outcomes including educational and labor market indicators (Hoddinott et al. 2013). Malnutrition as indicated by low height-for-age is therefore understood to more broadly reflect impaired early development. While there are serious and

long-term adverse implications for growth failure, the critical window for affecting height-for-age is in the first thousand days of life. Evidence shows that nutritional interventions may be able to improve height-for-age when they are targeted to children ages 0-2 years and/or pregnant and lactating mothers, but have very limited remediating effects at later ages. Therefore, the window of opportunity for intervention is in precisely the age range that is targeted by this evaluation's nutrition component. Evidence also indicates however that effects on height-for-age require intensive intervention over fairly long duration. The potential for impacts on height-for-age will therefore depend on the extent to which programme components translate to meaningful changes in household behavior that improve diet and/or reduce infection over an extended period during the critical window (e.g., increasing exclusive breastfeeding from birth to the time a child is 6 months old).

The baseline survey recorded height measurements of all children aged 0-5 years old (recumbent length, for those aged 0-2 years). To norm these height measurements against a reference population of the same age and sex, Z-scores were constructed using the 2006 WHO child growth standards. The height-for-age Z-score (HAZ) indicates how many standard deviations the height is above or below the median height for the reference population of the same age and sex. A child with height-for-age Z-score more than two standard deviations below the reference median (i.e., $HAZ < -2$) is characterised as 'stunted.' A child with height-for-age Z-score more than three standard deviations below the reference median (i.e., $HAZ < -3$) is characterised as 'severely stunted.'

To begin, Figure 3.6.1.1 shows the distribution of the height-for-age Z-score in the overall Shiree/Concern baseline sample. The distribution peaks below zero, indicating that sample children tend to be below the reference population's median height, given their age and sex.

Next, we examine summary statistics for the height-for-age Z-score, the incidence of stunting, and the incidence of severe stunting. We compare children aged 0-5 years old in households who received both the livelihoods and nutrition interventions (L+N), in households who received the livelihoods intervention only (L), and in households who received neither intervention—the control group (C).

Table 3.24 shows that the average height-for-age Z-score is approximately 1.7 to 1.9 standard deviations below the reference median height. More than 45 per cent of children in the sample are stunted, and approximately 22 per cent of children are severely stunted. There are no statistically significant differences at the 5 per cent level between the (L+N) and (L) groups. However, there are statistically significant differences for all three outcomes between the (C) group and both the (L+N) and (L) groups.

Figure 3.1. Baseline distribution of height-for-age Z-scores, for children age 0-5 years—Shiree

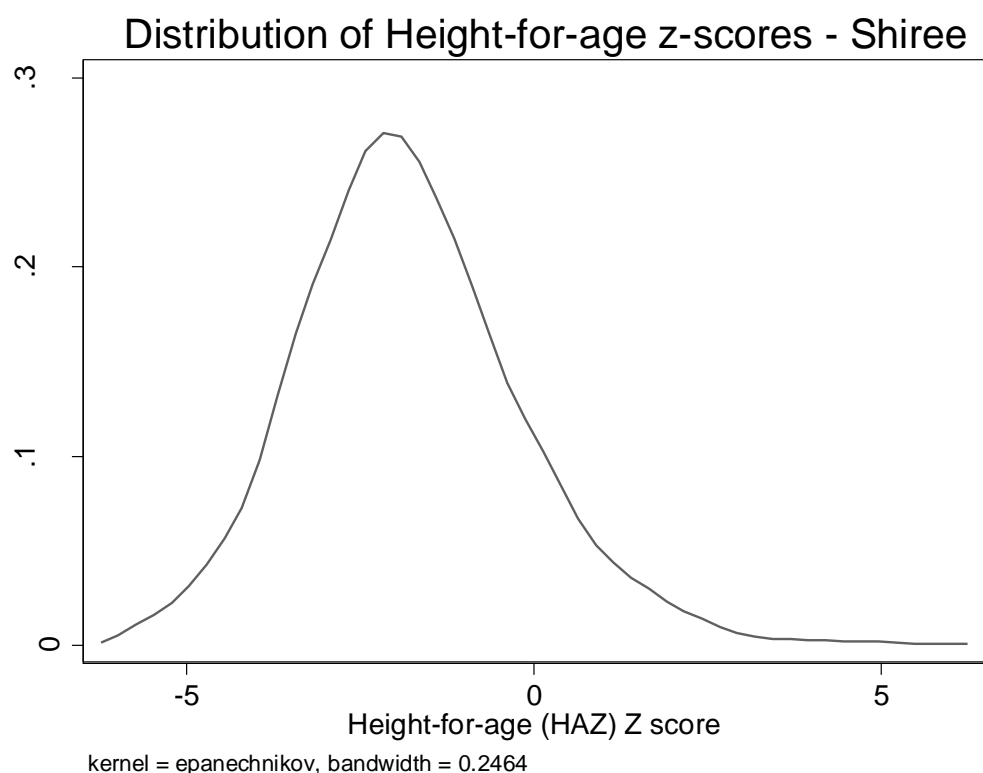


Table 3.24. Baseline means of height-for-age outcomes for children aged 0-5 years, by intervention arm—Shiree

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Height-for-age (HAZ) Z-score	-1.65	-1.74	-1.94	0.19	0.00	0.00
Proportion of children stunted (HAZ <-2 sd)	0.45	0.45	0.51	0.96	0.00	0.00
Proportion of children severely stunted (HAZ <-3 sd)	0.19	0.22	0.25	0.14	0.00	0.05

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

3.6.2 Children's weight-for-age

Children's weight can be considered a measure of short-term nutritional status. Unlike height, weight can be changed relatively quickly through changes in the nutrition environment. Weight can also be affected over a wider range of ages than height can be. For example, if a child's nutrition environment improves after the first thousand days, even though the child's height-for-age trajectory is unlikely to improve meaningfully, it is possible for the child's weight to improve.

The baseline survey recorded weight measurements of all children aged 0-5 years old. As with height, to norm these weight measurements against a reference population of the same age and sex, Z-scores were constructed using the 2006 WHO child growth standards. The weight-for-age Z-score (WAZ) indicates how many standard deviations the weight is above or below the median weight for the reference population of the same age and sex. A child with weight-for-age Z-score more than two standard deviations below the reference median (i.e., $WAZ < -2$) is characterised as ‘underweight.’ A child with weight-for-age Z-score more than three standard deviations below the reference median (i.e., $WAZ < -3$) is characterised as ‘severely underweight.’

To begin, Figure 3.2 shows the distribution of the weight-for-age Z-score in the overall Shiree/Concern baseline sample. The distribution peaks below zero, indicating that children tend to be below the reference population’s median weight, given their age and sex.

Figure 3.2. Baseline distribution of weight for age Z-scores, for children age 0-5 years—Shiree



Table 3.25 then reports summary statistics on the weight-for-age Z-score, the proportion of children aged 0-5 who are underweight, and the proportion of children aged 0-5 who are severely underweight, in each of the three intervention arms in the Shiree/Concern sample. The average weight-for-age Z-score is

approximately 1.6 to 1.7 standard deviations below the reference median weight. Approximately 40 per cent of children are underweight, and approximately 13 per cent of children are severely underweight. The (L+N) and (L) groups are largely balanced on these measures; the exception is a small difference in weight-for-age Z-score between (L) and (L+N) significant at the 5 per cent level, which could be controlled for in impact analysis. There are no significant differences at the 5 per cent level between the (L) and (C) groups. However, there are statistically significant differences between the (L+N) group and the control group (C) for all three measures, with the (C) group showing slightly worse average outcomes.

Table 3.25. Baseline means of weight-for-age outcomes for children aged 0-5 years, by intervention arm—Shiree

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Weight-for-age (WAZ) Z-score	-1.62	-1.71	-1.77	0.05	0.00	0.22
Proportion of children underweight (WAZ<-2 sd)	0.38	0.41	0.43	0.19	0.01	0.23
Proportion of children severely underweight (WAZ<-3 sd)	0.12	0.13	0.14	0.55	0.07	0.28

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

3.6.3 Children's weight-for-height

An alternative measure to capture a child's weight relative to the reference population is the child's weight-for-height. Because a child's weight naturally depends on the child's height, the weight-for-height measure can be more straightforward to interpret than the weight for age measure. In particular, the weight-for-height measure allows distinguishing low weight-for-age that is partially driven by low height-for-age from low weight-for-age given height.

As with height-for-age Z-scores and weight-for-age Z-scores, weight-for-height Z-scores (WHZ) were constructed using the 2006 WHO child growth standards. A child with weight-for-height Z-score more than two standard deviations below the reference median (i.e., WHZ<-2) is characterised as 'wasted.' A child with weight-for-height Z-score more than three standard deviations below the reference median (i.e., WHZ<-3) is characterised as 'severely wasted.'

To begin, Figure 3.3 shows the distribution of the weight-for-height Z-score in the overall Shiree/Concern baseline sample. The distribution peaks below zero, indicating that sample children tend to fall below the reference median.

Figure 3.3. Baseline distribution of weight-for-height Z-scores, for children age 0-5 years—Shiree

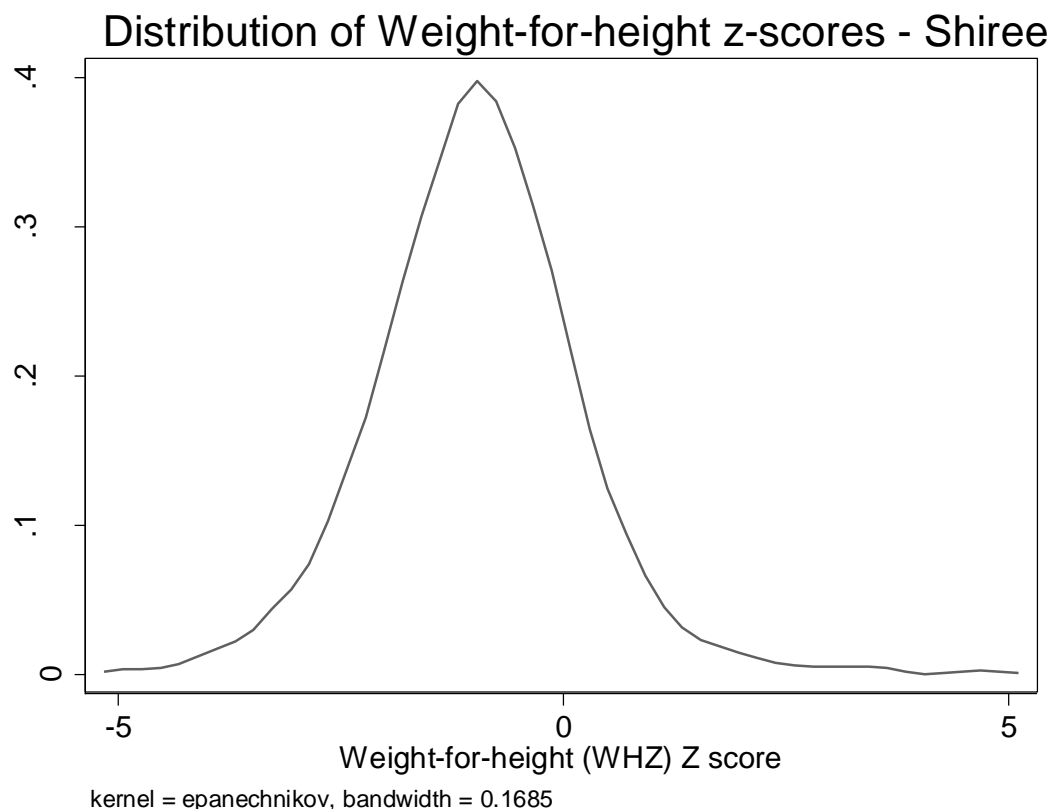


Table 3.26 then reports summary statistics on the weight-for-height Z-score, the proportion of children aged 0-5 who are wasted, and the proportion of children aged 0-5 who are severely wasted in each of the three intervention arms in the Shiree/Concern sample. The average weight-for-height Z-score is approximately 0.9 to 1.0 standard deviations below the median. Approximately 16 per cent of children are wasted, and approximately 4 per cent of children are severely wasted. There are no significant differences between any of the three groups at the 5 per cent level.

Table 3.26. Baseline means of weight-for-height outcomes for children aged 0-5 years, by intervention arm—Shiree

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Weight-for-height (WHZ) Z-score	-0.97	-1.00	-0.94	0.40	0.47	0.14
Proportion of children wasted (WHZ<-2 sd)	0.16	0.18	0.15	0.25	0.72	0.14
Proportion of children severely wasted (WHZ<-3 sd)	0.04	0.04	0.04	0.74	0.53	0.30

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

3.6.4 Women's body mass index

We then turn to nutritional status of women. Women's nutritional status, in addition to its intrinsic importance, is also a key determinant of children's nutritional status while in utero and during lactation. To construct a measure of women's nutritional status, we calculate their body mass index.

The baseline survey recorded height and weight measurements for the mother of the designated 'index child' aged 0-24 months in each sampled household. A measure of body mass index (BMI) is constructed as follows:

$$\text{BMI} = \frac{\text{weight in kilograms}}{(\text{height in meters})^2}$$

Per convention, pregnant women are excluded from the calculation of BMI, since their weight is affected by pregnancy. Following WHO cut-offs, BMI values between 18.5 and 25 are characterised as 'normal.' Women with BMI values under 18.5 are considered underweight, and women with BMI values above 25 are considered overweight.

Figure 3.4 shows the distribution of BMI for mothers of the index children who are not pregnant in the Shiree/Concern sample. A large proportion of women have BMI below 18.5.

Figure 3.4. Baseline distribution of body mass index, for mothers of index children—Shiree

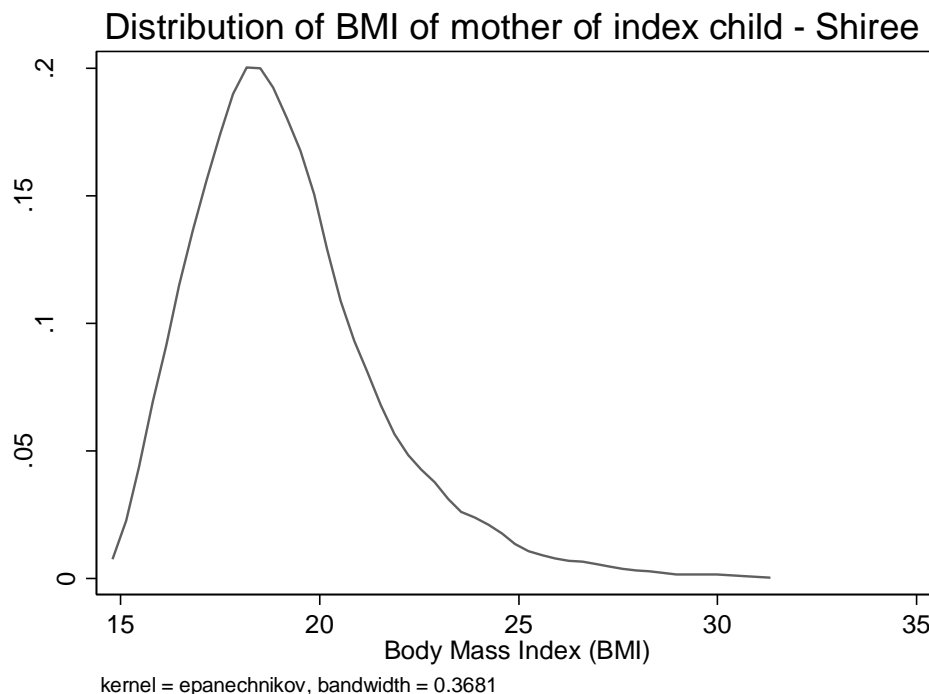


Table 3.27 reports the mean BMI for mothers of index children, as well as the proportions that are underweight or overweight, for each of the three groups in the Shiree/Concern sample. The average BMI for mothers of the index children in the sample is just above 19. This lies toward the lower end of the ‘normal’ range. Approximately 44 per cent of mothers are underweight (BMI less than 18.5), and approximately 2 per cent are overweight (BMI greater than 25). There are no statistically significant differences in means between (L) and (L+N) at the 5 per cent level. There are also few significant differences between the (L) or (L+N) groups and (C) group, apart from a small significant difference in the BMI measure between the (L) and (C) groups.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Body Mass Index (BMI)	19.13	19.05	19.31	0.51	0.18	0.03
Proportion underweight (BMI<18.5)	0.44	0.45	0.43	0.73	0.62	0.37
Proportion overweight (BMI>25)	0.02	0.02	0.03	0.60	0.11	0.27

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

3.6.5 Summary

Child nutritional status is the key outcome we study in this evaluation. Anthropometric measures are our primary indicators for nutritional status. Given that children’s nutritional status is strongly determined by

their nutritional environment in the first thousand days of life starting with conception, which in turn is affected by their mothers' nutritional status, this section focuses on several measures of nutritional status for young children as well as a measure of nutritional status for their mothers.

Children's height-for-age is the most important anthropometric indicator of their long-term nutritional status. Height-for-age captures the history of a child's nutritional environment from conception to about two years of age, and affecting its trajectory tends to require intensive early intervention. Growth failure in terms of height-for-age has been shown to have life-long adverse consequences. We use Z-scores to norm height-for-age and sex, based on the WHO 2006 reference population. In the Shiree/Concern sample of children aged 0-5 years, we find that the average height-for-age Z-score (HAZ) is approximately 1.7 to 1.9 standard deviations below the reference median. More than 45 per cent of children in the sample are stunted ($HAZ < -2$), and approximately 22 per cent of children are severely stunted ($HAZ < -3$). There are no statistically significant differences between the (L+N) and (L) groups. However, there are statistically significant differences for all three outcomes between the (C) group and both the (L+N) and (L) groups.

Whereas height trajectory captures the long term, children's weight captures short-term nutritional status. We examine two measures of weight for children aged 0-5 years, normed using the WHO 2006 reference population: the weight-for-age Z-score and the weight-for-height Z-score. We find that, in the Shiree/Concern sample, the average weight-for-age Z-score (WAZ) is approximately 1.6 to 1.7 standard deviations below the reference median, approximately 40 per cent of children are underweight ($WAZ < -2$), and approximately 13 per cent of children are severely underweight ($WAZ < -3$). The (L+N) and (L) groups are largely balanced on these measures, with the exception of a small difference in WAZ significant at the 5 per cent level that can be controlled for in eventual impact analysis. There are no significant differences between the (L) and (C) groups. However, there are statistically significant differences between the (L+N) group and the control group (C) for all three measures.

The alternative weight-for-height measure allows distinguishing low weight-for-age that is partially driven by low height-for-age from low weight-for-age given height. We find that, in the CLP sample, the average weight-for-height Z-score is approximately 0.9 to 1.0 standard deviations below the reference median, approximately 16 per cent of children are wasted ($WHZ < -2$), and approximately 4 per cent of children are severely wasted ($WHZ < -3$). There are no significant differences between the three groups.

We capture nutritional status for mothers of young children using their body mass index (BMI). Excluding pregnant women per convention, the mean BMI among mothers of index children in the Shiree/Concern sample is just over 19, which falls toward the bottom of the BMI range characterised as 'normal' by WHO (18.5 to 25). About 44 per cent of the sample is considered underweight, while only about 2 per cent is considered overweight. There are no statistically significant differences in means across any of the three intervention arms.

Overall, the baseline anthropometric indicators reflect that, in the Shiree/Concern sample, there are very high rates of undernutrition among young children aged 0-5 years. The indicators suggest that there are severe deficiencies in children's nutritional environment in the first thousand days of life, given that a large proportion of children are stunted. The baseline indicators also suggest that poor nutritional status

among mothers of these young children may play a role, since a very large proportion of sample mothers are underweight.

Relevant to the evaluation, these statistics suggest that the study's nutrition intervention may have potential to impact nutrition outcomes, given that its components are targeted at children in the first thousand days of life and their mothers. The (L) and (L+N) intervention arms are moreover well balanced at baseline, suggesting that any relative impacts estimated between these two arms at endline can be well identified as causal. However, the (C) intervention arm shows significant differences from the (L+N) and (L) arms at baseline, indicating that it may be challenging to find a subset in the Shiree/Concern control group that can serve as a reasonable counterfactual in the evaluation.

3.7 Women's autonomy

Research has shown that women having greater intra-household bargaining power is associated with better child outcomes in terms of nutrition, health, and education (Schmidt 2012; Quisumbing and Maluccio 2003). Some evidence has also suggested that women's low status in South Asia may partially explain why rapid economic growth has not translated to large reductions in child malnutrition (e.g., Smith et al. 2002; Ramalingaswami, Jonsson, and Rohde 1996). This section examines baseline trends related to women's status across seven areas: women's earnings, reproductive decisions, domestic violence, financial literacy, women's financial preferences, and women's control and agency.

3.7.1 Women's earning and spending decisions

Sociocultural norms in Bangladesh tend to stigmatize women's work outside the home. We begin our analysis by summarizing baseline indicators of women's employment status.

Table 3.28 shows work experience outcomes for women drawn from questionnaire responses to various work experience questions. Among the Shiree beneficiaries in the (L+N) and (L) groups, most women are working. However in the (C) treatment group only 40 per cent of women are working. As for the Shiree/Concern households, the differences in means between (C) household groups and (L) and (L+N) treatment groups are strongly significant.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Are you now doing any work or business that brings in cash, additional food, or	0.75	0.75	0.40	0.86	0.00	0.00
If yes, who took that decision?						
Yourself	0.27	0.25	0.30	0.60	0.23	0.11
Your husband	0.03	0.01	0.01	0.00	0.00	0.36
Self and husband	0.70	0.73	0.69	0.26	0.81	0.22
Someone else	0.01	0.01	0.00	0.57	0.04	0.02
If yes, where do you work to earn income						

Inside the house	0.75	0.80	0.81	0.30	0.25	0.92
Outside the house	0.04	0.03	0.03	0.30	0.83	0.55
Both inside and outside the house	0.21	0.17	0.16	0.38	0.24	0.75
At first your husband or other household member wanted to prevent you from working	0.02	0.01	0.00	0.83	0.06	0.03
What do you do with the money you earn?						
Give all money earned to your husband / other family member	0.22	0.25	0.22	0.23	0.97	0.20
Give some money to your husband / other family member	0.57	0.56	0.59	0.77	0.67	0.49
Keep all the money yourself	0.21	0.19	0.19	0.45	0.58	0.84

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Working women were asked whose decision it was that they work. The most common response to the question: whose decision it was for the woman to work is “self and husband”. The second most common response is “self”; that is, the woman herself, decided to seek work. The former response, “self and husband” is given in 70 per cent of (L+N) households, 73 per cent of (L) households and 69 per cent of (C) households. The latter response, “self” is given in 27 per cent of (L+N) households, 25 per cent of (L) households and 30 per cent of (C) households. The occurrence of the husband or another person making the decision for the woman to work is less than 3 per cent of cases across the treatment arms. For the two most common responses, the differences between the means are not significant.

Women who reported working were also asked where they worked, whether it was inside the house or outside the house. Most reported doing so “inside the house” (75 per cent of (L+N), 80 per cent of (L) and 81 per cent of (C)) households, followed by both inside and outside the house (21 per cent of (L+N), 17 per cent of (L) and 16 per cent of C). None of the differences in means across the treatment arms are significant.

Very small numbers of husbands in families at first prevented the woman from working (4 per cent of (L+N) and 3 per cent of (L) and (C) groups).

Finally, women who worked were asked whether there were any objections to them working and how any money earned was spent. Few women in any of the intervention arms reported objections to them working (4 per cent of (L+N) and 3 per cent of (L) and (C) groups). In terms of use of their earnings, the most common use was to provide the earnings partly to the husband or family (57 per cent of (L+N) 56 per cent of (L) groups and 59 per cent of (C) groups). The least common use is for exclusive use by the woman herself (21 per cent of (L+N) and 19 per cent of both (L) and (C) groups). In 22 per cent of cases in (L+N) groups, 25 per cent of cases in the (L) groups and 22 per cent of (C) groups the woman gives all the money to her husband or another family member.

In comparing (L+N) and (L) households, nearly all indicators are balanced at the 5 per cent level. The exception is a small difference between (L+N) and (L) in the share of working women who report that their husbands took the decision for them to work, significant at less than the 1 per cent level. However,

the magnitude of the difference is very small (3 per cent of women vs. 1 per cent of women), indicating that although this difference can be controlled for in impact analysis it is likely to meaningfully affect results.

There are several meaningful differences between these two groups on the one hand, and control households on the other hand. The most notable of these is the proportion of women working which is 35 percentage points lower for the control group. Thus, without adjustments, households in group (C) may not serve as a valid counterfactual for Shiree/Concern households.

Table 3.29 shows information on reasons given for not working, among women who reported that they did not work. The most common response for why a woman is not working in the Shiree/Concern sample is that she has to take care of children or perform household work (84 per cent of (L+N) households, 86 per cent of (L) households and 90 per cent of (C) households). Comparing (L) and (L+N), nearly all indicators are balanced at the 5 per cent level; the exception is a small difference between (L) and (L+N) in the share of non-working women who report that their reason for not working is that they do not want to, significant at the 4 per cent level. Although this difference can be controlled for in the impact analysis, the magnitude is so small (1 per cent of women vs. 0 per cent of women), doing so is unlikely to affect the results of the estimation. Differences with the control group also tend to be small in magnitude, though several are statistically significant.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Why don't you work?						
Husband won't allow	0.03	0.02	0.00	0.26	0.00	0.03
Society doesn't like it	0.00	0.01	0.00	0.38	0.31	0.09
Take care of children/household work	0.84	0.86	0.90	0.77	0.12	0.13
I don't want to	0.00	0.01	0.00	0.04	0.32	0.07
I don't need to	0.02	0.02	0.00	0.71	0.21	0.05
Am unable to work	0.02	0.01	0.00	0.39	0.13	0.25
Lack of demand for the work that I have skill to do	0.06	0.05	0.05	0.61	0.69	0.85
Other	0.02	0.02	0.04	0.99	0.20	0.15
Would your husband or in laws allow you to work inside to earn additional income?	0.02	0.01	0.00	0.57	0.00	0.01

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Table 3.30 shows baseline means of questions related to spending decisions. Women were asked who decides how to spend the money she earns, as well as how to spend money on six different categories: (1) food, (2) housing, (3) healthcare, (4) education and (5) clothing. The most common response is “self and husband” at above 53 per cent for all except the question concerning education; education nevertheless

has “self and husband” as the most common response with a range of 38 per cent to 45 per cent across the three treatment arms. In all cases, the differences between means is not significant for the (L+N) and (L) households. In all cases, the difference between means is not significant for the (L+N) and (L) households. In all but two cases, the differences are also not significant between the (C) group and the (L) and (L+N) groups. The exceptions are “who usually decides on how to spend money on food/housing?”. Women were also asked directly whether they controlled money for spending on food at the market, clothes for themselves, medicine for themselves, and cosmetics for themselves. For all, the proportion of positive responses for each question range from 39 per cent to 59 per cent.

Comparing (L+N) to (L), nearly all of this large set of indicators is balanced at the 5 per cent level. The exceptions are differences between (L+N) and (L) in the shares of women who report that their husbands decide how to spend money on health care (significant at the 3 per cent level), who report that their husbands decide how to spend money on clothing (significant at the 4 per cent level), and who report that they themselves control money needed to buy food at the market (significant at the 5 per cent level). All of these small differences can be controlled in the eventual impact estimation.

Control group women tend to be similar on these indicators to their (L+N) and (L) counterparts as well, although there are small significant differences, particularly in who decides how to spend money on food, housing, healthcare and clothing.

Table 3.30. Baseline means of spending decision outcomes, by intervention arm—Shiree

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Who usually decides how to spend the money you earn?						
Yourself	0.23	0.20	0.24	0.23	0.56	0.10
Your husband	0.06	0.07	0.05	0.36	0.32	0.07
Self and husband	0.71	0.72	0.70	0.63	0.95	0.64
Someone else	0.01	0.01	0.00	0.44	0.70	0.28
Who decides how to spend money on food?						
Yourself	0.12	0.13	0.11	0.59	0.83	0.51
Your husband	0.27	0.30	0.23	0.37	0.24	0.04
Self and husband	0.57	0.53	0.60	0.25	0.41	0.05
Someone else	0.04	0.04	0.05	0.94	0.15	0.26
Who decides how to spend money on housing?						
Yourself	0.11	0.11	0.08	0.93	0.20	0.23
Your husband	0.27	0.32	0.25	0.13	0.67	0.06
Self and husband	0.58	0.53	0.61	0.12	0.41	0.02
Someone else	0.04	0.04	0.05	0.91	0.17	0.20
Who decides how to spend money on health care?						
Yourself	0.14	0.13	0.11	0.88	0.17	0.22
Your husband	0.22	0.29	0.21	0.03	0.63	0.01
Self and husband	0.61	0.55	0.63	0.08	0.40	0.01
Someone else	0.04	0.03	0.05	0.74	0.06	0.05
Who decides how to spend money on education?						
Yourself	0.10	0.10	0.06	0.99	0.02	0.01
Your husband	0.16	0.21	0.11	0.07	0.01	0.00
Self and husband	0.45	0.41	0.38	0.23	0.03	0.31
Someone else	0.02	0.03	0.03	0.64	0.44	0.80
Who decides how to spend money on clothing?						
Yourself	0.12	0.12	0.10	0.94	0.32	0.34
Your husband	0.22	0.29	0.20	0.04	0.36	0.01
Self and husband	0.61	0.55	0.65	0.07	0.30	0.00
Someone else	0.04	0.03	0.05	0.79	0.11	0.10
Do you control the money needed to buy food at the market?	0.48	0.39	0.43	0.05	0.30	0.35
Do you control the money needed to buy clothes for yourself?	0.51	0.44	0.48	0.09	0.56	0.28
Do you control the money needed to buy medicine for yourself?	0.58	0.51	0.56	0.07	0.60	0.21
Do you control the money needed to buy cosmetics for yourself?	0.57	0.52	0.59	0.22	0.64	0.09

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Table 3.31 shows the baseline means on outcomes related to women’s NGO loans. Women were asked if loans had been taken up by the household. A loan was reported taken up by 15 per cent of the (L+N) households, 14 per cent of the (L) households and 21 per cent of the (C) households. Women were also asked who decided to take the loan and who made decisions on how to spend the money borrowed. As with nearly all the previous questions on decisionmaking, the most frequent response was that the decision had been made jointly by the “self and husband”. This response was given by about 77-87 per cent of women in all three intervention arms.

Comparing (L+N) and (L), nearly all of these indicators are balanced at the 5 per cent level. The exception is a small difference between (L+N) and (L) in the share of loan-receiving women who report it was their own decision to take the loan, significant at the 3 per cent level, which can be controlled for in the eventual impact analysis. There are more significant differences in means across the (C) households on the one hand and the (L+N) and (L) households on the other hand in terms of taking NGO loans and spending decisions, which may need to be addressed in future analyses.

Table 3.31. Baseline means of NGO loans outcomes, by intervention arm—Shiree						
	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Have you taken any loans from an NGO?	0.15	0.14	0.21	0.60	0.01	0.00
Whose decision was it to take the loan from the NGO?						
Yourself	0.08	0.02	0.03	0.03	0.07	0.61
Your husband	0.13	0.13	0.11	0.98	0.49	0.51
Self and husband	0.77	0.82	0.85	0.20	0.04	0.47
Someone else	0.03	0.03	0.01	0.89	0.31	0.33
Who usually decides how to spend the money from the loan?						
Yourself	0.06	0.03	0.01	0.22	0.03	0.33
Your husband	0.14	0.13	0.10	0.89	0.34	0.44
Self and husband	0.77	0.81	0.87	0.50	0.02	0.10
Someone else	0.03	0.03	0.01	0.83	0.31	0.18

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

3.7.2 Reproductive decisions

Table 3.32 displays the outcomes related to reproductive decisions. Women of the (L+N), (L) and (C) groups are 55 per cent, 58 per cent, and 60 per cent to report having used birth control, respectively. The differences are not significant. For women who used birth control, 76-77 per cent of the (L) and (L+N) groups made this decision with their husbands, as did 88 per cent of the (C) group, with no significant difference across the intervention arms at the 5 per cent level.

For women who have not used birth control, the main reason is because they did not feel the need to (between 68 per cent and 74 per cent). About 18 per cent have not used birth control because their husband did not allow it. 10 per cent, 14 per cent and 10 per cent of the (L+N), (L) and (C) women,

respectively, have not used birth control because it makes them feel weak/ill. Both men's and women sterilization rates are negligible.

Comparing (L+N) and (L), nearly all of these indicators are balanced at the 5 per cent level. The exception is a difference between (L+N) and (L) in the share of women reporting that they do not use birth control because they do not feel they need to, significant at the 1 per cent level, which can be controlled for in the impact analysis. There are more differences between the (L+N) or (L) groups and the (C) group, several of which are statistically significant.

Table 3.32. Baseline means of reproductive decisions outcomes, by intervention arm—Shiree						
	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Have you ever used birth control (methods to delay or avoid pregnancy?)						
If yes, who made this decision?	0.55	0.58	0.60	0.40	0.07	0.36
Yourself	0.17	0.17	0.11	0.92	0.02	0.01
Your husband	0.05	0.06	0.05	0.83	0.63	0.50
Self and husband	0.77	0.76	0.84	0.84	0.03	0.01
Someone else						
If not, why have you not used birth control?	0.00	0.00	0.00	0.83	0.95	0.87
Husband did not allow	0.18	0.25	0.13	0.08	0.15	0.00
Makes me feel weak/ill	0.10	0.14	0.10	0.09	0.89	0.08
Don't feel the need to	0.68	0.56	0.74	0.01	0.20	0.00
Other	0.05	0.05	0.03	0.66	0.39	0.25
Has your husband ever used any birth control method?	0.09	0.10	0.07	0.71	0.08	0.03
Is the man sterilized?	0.01	0.01	0.00	0.21	0.07	0.50
Is the woman sterilized?	0.04	0.03	0.02	0.23	0.06	0.45

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

3.7.3 Domestic violence

Table 3.33 shows the distribution of domestic violence outcomes by intervention arm. A large majority of women – between 81 per cent and 91 per cent report that their husband have not threatened them with divorce in the past year. The proportion for (C) women appears larger (91 per cent) than for (L+N) (84 per cent) and (L) women (81 per cent). 8 per cent of (L+N) and 9 per cent of (L) women report they have been sometimes threatened with divorce, against 5 per cent of (C) women. 87 per cent of (L+N) and 81 per cent of (L) also report their husband has not threatened them with taking another wife, with the figure for (C) women (92 per cent) significantly higher than that of Shiree Concern beneficiaries.

Two-thirds of (L+N) and (L) and three quarter of (C) women report they have been verbally abused by their husband, another family member or household resident. Women of the control group are slightly less

likely to answer they have been often abused than those of the (L+N) and (L) group; but they are substantially more likely to report they have been sometimes abused so that in total, they report higher levels of verbal abuse.

Table 3.33. Baseline means of domestic violence outcomes, by intervention arm—Shiree						
	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Has your husband threatened you with divorce in the past year?						
Yes, often	0.07	0.09	0.03	0.16	0.03	0.00
Yes, sometimes	0.08	0.09	0.05	0.54	0.01	0.00
Has threatened and divorced/remarried	0.01	0.01	0.01	0.88	0.86	0.98
No						
Has your husband threatened you with taking another wife in the past year?	0.84	0.81	0.91	0.19	0.00	0.00
Yes, often	0.05	0.09	0.03	0.03	0.07	0.00
Yes, sometimes	0.06	0.09	0.03	0.09	0.01	0.00
Has threatened and divorced/remarried	0.01	0.02	0.01	0.72	0.80	0.48
No						
Has your husband, another family member, or household resident verbally abused you in the past year?	0.87	0.81	0.92	0.01	0.00	0.00
Yes, often	0.37	0.39	0.31	0.42	0.08	0.01
Yes, sometimes	0.30	0.28	0.43	0.50	0.00	0.00
No						
Has your husband, another family member, or household resident physically abused you in the past year?	0.33	0.32	0.26	0.86	0.05	0.03
Yes, often	0.20	0.23	0.15	0.25	0.03	0.00
Yes, sometimes	0.19	0.17	0.26	0.55	0.01	0.00
No	0.61	0.59	0.59	0.70	0.60	0.87
If any answer to questions above is YES, did you want to leave?						
Did you leave?	0.10	0.09	0.08	0.63	0.17	0.58
Yes, permanently	0.17	0.25	0.22	0.21	0.50	0.58
Yes, but I came back	0.65	0.57	0.62	0.33	0.78	0.50
No						
If you did not leave permanently, why not?	0.18	0.17	0.16	0.87	0.70	0.84
He was angry and didn't mean it	0.41	0.32	0.30	0.36	0.17	0.79
My husband and I came to an agreement	0.20	0.23	0.28	0.75	0.39	0.61
I could not support myself financially	0.02	0.02	0.00	0.98	0.30	0.29
My parents could not support me financially	0.07	0.05	0.04	0.65	0.38	0.67
I came back for my children	0.24	0.36	0.33	0.14	0.26	0.80
Because of social pressure	0.06	0.02	0.06	0.31	1.00	0.30

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Physical abuses are about half as prevalent as verbal abuses: 61 per cent of (L+N) and 59 per cent of (L) and (C) women report they have not been physically abused. However, there is a slight composition

difference between (C) women and those benefitting from Shiree/Concern in that the former are more likely to have been sometimes abused and less likely to have been often abused.

About 9 per cent of women who suffered any threat or abuse described above report they wanted to leave. Approximately 60 per cent of them did leave but eventually came back, between 17 and 25 per cent leaved permanently, and about 17 per cent did not leave. For the women who did not leave permanently, the main reasons are that “he was angry and did not mean it” (between 30 per cent and 41 per cent of these women), “I came back for my children” (between 24 per cent and 36 per cent) and “my husband and I came to an agreement” (between 20 per cent and 28 per cent of respondents).

Comparing (L+N) and (L), nearly all of this large set of indicators is balanced at the 5 per cent level. The exceptions are differences between (L+N) and (L) in the shares of women who report that their husbands often threatened them with taking another wife in the past year (significant at the 3 per cent level) and of women who report that this never occurred in the past year (significant at the 1 per cent level). Both of these differences can be controlled for in the eventual impact analysis. Women in the control group show more significant differences from those in (L+N) and (L) groups, although many of the differences are relatively small in magnitude.

3.7.4 Women’s financial literacy

The Organisation for Economic Cooperation and Development and the International Network on Financial Education (INFE) define the term “financial literacy” as

A combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing (Hung, Yoong, and Brown 2012).

The baseline indicators of the financial literacy of women are summarized below (Table 3.34). Eighty-eight per cent, 91 per cent, and 94 per cent of the women of the (L+N), (L), and (C) groups, respectively, gave the correct answer to the question “What is 4+3?”. Thirty-two per cent, 39 per cent, and 46 per cent of women of the (L+N), (L), and (C) groups, respectively, gave the correct answer to the question “What is 3 times 6?”. Approximately 20 per cent of all women correctly answered the question “What is one-tenth of 400?” and 22 per cent did so to the question “How much is 15 per cent of 200 taka?”

Approximately 38 per cent of women correctly answered the question on interest rate (i.e., A moneylender offers to lend a farmer 100 taka for one year. He will charge the farmer 10 per cent interest on this loan. In one year’s time, how much will the farmer have to give the moneylender to repay the loan and all the interest?),” and around 70 per cent of women of all groups correctly computed the odds of pulling out a red and a white ball in an urn with 4 red balls and 1 white ball.

Comparing (L+N) and (L), nearly all of these financial literacy indicators are balanced at the 5 per cent level. The exception is a small difference between (L+N) and (L) in the share of women responding correctly to “4+3”, significant at the 5 per cent level. Although the difference can be controlled for in the

impact analysis, the magnitude is small enough that doing so is unlikely to affect the results. Comparing the control women to (L+N) or (L) women, more significant differences appear, though many of these are fairly small in magnitude.

Table 3.34. Baseline means of financial literacy outcomes, by intervention arm—Shiree

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
What is 4+3?	0.88	0.91	0.94	0.05	0.00	0.02
What is 3 times 6?	0.32	0.39	0.46	0.11	0.00	0.07
What is one-tenth of 400?	0.18	0.21	0.19	0.40	0.82	0.43
How much is 15 per cent of 200 taka?	0.21	0.21	0.24	0.92	0.49	0.44
Which maximises price for each kg of rice: 10Kg for 50 taka or 15Kg for 60 taka?	0.36	0.36	0.40	0.75	0.26	0.10
Question on interest rate	0.46	0.47	0.54	0.68	0.01	0.07
Question on probabilities	0.71	0.70	0.73	0.58	0.51	0.21

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

3.7.5 Women's financial preferences

Table 3.35 displays results for financial preferences tests. Fifty per cent of the (L+N) and (L) respondents prefer 100 taka today (the option A) rather than 110 taka in the future (the option B). The corresponding for (C) women is higher at 59 per cent. When the amount to time between the two periods is increased to two months, the proportion of women who chose option A goes up to about 67 per cent.

Comparing (L+N) and (L), both financial preference indicators are balanced at the 5 per cent level. There is a significant difference in the first indicator between (C) households and Shiree beneficiaries, although responses are similar for the second.

Table 3.35. Baseline means of financial preferences outcomes, by intervention arm—Shiree

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Answer A to: Would you prefer to be given A. 100 taka today B. 110 taka in one month?	0.50	0.50	0.59	0.99	0.01	0.02
Answer A to: Would you prefer to be given A. 100 taka today B. 110 taka in two months?	0.67	0.64	0.68	0.35	0.75	0.22

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

3.7.6 Women's control and agency

An important component of women's status is the ability to make choices. Agency is defined as the ability to define one's own goals and act upon them even in the face of opposition from others (Kabeer 1999).

The baseline indicators of women's control and agency are summarized in Table 3.36a. For each statement, the table reports the percentage of women who agree (slightly agree, agree or strongly agree) with it. The five statements for which more than 70 per cent of women agree are: "To a great extent my life is controlled by accidental chance happenings", "Often there is no chance of protecting my personal interest", "When what I get what I want, it is usually/mostly because I am lucky", "My experience in my life has been that what is going to happen will happen", "When I get what I want, It is usually because I worked hard for it". Clearly, apart from the last one, all these statements convey fatalist messages. The fact that many women respondents agree with these suggests a lack of control over their lives.

The statements that gather less than 50 per cent of agreement are: "I feel like what happens in my life is mostly determined by powerful people", "When I make plans, I am almost certain/guaranteed/sure to make them work", "My life is chiefly controlled by other powerful people", "People like myself have very little chance of protecting our personal interest when they conflict with those of more powerful people", "I can mostly determine what will happen in my life", "I am usually able to protect my personal interests (I can usually look after what is important to me)" and "In order to have my plans work, I make sure that they fit in with the desires of people who have power over me". Interestingly, these statements are either about strong agency or the need for women to align with the motives of powerful people. The fact that women tend to reject both these types of statements suggest a pervasive lack of control over their lives but this lack of agency cannot be traced to specific people having power over them.

Comparing (L+N) and (L), all of these women's control and agency indicators are balanced at the 5 per cent level. Indicators tend to be fairly similar for (C) households to Shiree beneficiary households, although more differences between these groups tend to be statistically significant.

In Table 3.36b the results of two additional tools about control and agency are displayed. The first one asks respondents to imagine a nine-step ladder, with people without rights at the bottom, and people with lot of power at the top. Respondents had then to position themselves on this ladder. On average (L+N) women answered 2.31 and (L) women 2.24. Those are very low numbers, suggesting that women respondents feel largely powerless. The answer for (C) women is even lower, at 2.09, with is significantly different from both (L+N) and (L) groups. The second tool asks respondents to imagine a nine-step ladder, with people totally unable to change their lives at the bottom, and people with full control over their own lives at the top. Respondents had then to position themselves on this ladder. On average, (L+N) women answered 2.69 and (L) women 2.54. While still very low, these figures are a bit higher than for the first question. Again, women of the control group exhibit a lower score, 2.31.

Table 3.36a. Baseline means of women's control and agency outcomes, by intervention arm—Shiree

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Percentage of women who slightly agree, agree or strongly agree to: To a great extent my life is controlled by accidental chance happenings	0.67	0.66	0.65	0.78	0.53	0.74
I feel like what happens in my life is mostly determined by powerful people	0.50	0.50	0.51	0.96	0.79	0.74
When I make plans, I am almost certain/guaranteed/sure to make them work	0.55	0.50	0.46	0.18	0.00	0.16
Often there is no chance of protecting my personal interest from bad luck happening	0.72	0.68	0.68	0.20	0.15	0.89
When what I get what I want, it is usually/mostly because I am lucky	0.79	0.78	0.77	0.49	0.39	0.78
My experience in my life has been that what is going to happen will happen	0.71	0.68	0.66	0.19	0.03	0.42
My life is chiefly controlled by other powerful people	0.45	0.45	0.43	1.00	0.73	0.74
People like myself have very little chance of protecting our personal interest when they conflict with those of more powerful people	0.45	0.45	0.40	0.93	0.10	0.09
It is not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune	0.59	0.59	0.60	0.98	0.75	0.73
Getting what I want requires making those people above me happy with me	0.56	0.54	0.50	0.46	0.05	0.19
I can mostly determine what will happen in my life	0.36	0.35	0.34	0.76	0.47	0.71
I am usually able to protect my personal interests (I can usually look after what is important to me)	0.43	0.38	0.38	0.09	0.10	0.98
When I get what I want, It is usually because I worked hard for it	0.70	0.66	0.70	0.15	0.97	0.15
In order to have my plans work, I make sure that they fit in with the desires of people who have power over me	0.42	0.44	0.41	0.58	0.70	0.32
My life is determined by my own actions	0.64	0.60	0.62	0.16	0.41	0.64

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Comparing (L+N) and (L), both indicators of women's control and agency are balanced at the 5 per cent level. Women in control households appear to report significantly lower scores, although the magnitudes of difference are modest.

Table 3.36b. Baseline means of women's control and agency outcomes, by intervention arm—Shiree

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Please imagine a nine-step ladder, where on the bottom, the first step, stand people who are completely without rights, and step 9, the highest step, stand those who have a lot of power. On which step are you?	2.31	2.24	2.09	0.58	0.04	0.20
Please imagine a nine-step ladder, where on the bottom, the first step, are those who are totally unable to change their lives, while on step 9, the highest step, stand those who have full control over their own life. On which step are you?	2.69	2.54	2.31	0.32	0.01	0.12

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

3.7.7 Summary

Given evidence that women's intra-household bargaining power is strongly associated with their children's outcomes, women's autonomy may play an important role in this evaluation in terms of mediating how livelihoods and direct nutrition interventions affect children's nutrition. This section examines baseline trends related to women's status across several areas: women's earning and spending decisions, reproductive decisions, domestic violence, financial literacy, women's financial preferences, and women's control and agency.

Most women in Shiree/Concern beneficiary households report working (about 75 per cent), most report that their decision to work was made jointly between themselves and their husbands (about 70 per cent), and nearly all report working either inside the home (about 75 per cent) or both inside and outside the home (about 20 per cent). Virtually none report that there were objections to their working. Most give some or all of the money they earn (about 50 per cent and 30 per cent, respectively) to their husbands or other family members, with about 20 per cent keeping all of their earnings themselves. The (L+N) and (L) groups show few statistically significant differences in these characteristics. The exceptions are small significant differences between (L+N) and (L) in the share of working women who report that their husbands took the decision for them to work and the share of non-working women who report that their reason for not working is that they do not want to; however, the magnitudes of both differences are so small that controlling for them in impact analysis is unlikely to meaningfully affect results. In the (C) group, responses regarding location of work, objections to work, and keeping earnings are similar to the (L) and (L+N) groups, though there are some differences that are statistically significant. However, a much smaller share of women in the (C) group report working (40 per cent).

Across a range of spending decisions (how to spend their own earnings; how to spend on food, housing, healthcare, education, and clothing), the most common response among women in Shiree/Concern beneficiary households and control households is that the decisions are made jointly between themselves and their husbands. About 40-60 per cent of women in both Shiree/Concern beneficiary households and control households report that they themselves control the money needed to buy food, clothes, medicine, or cosmetics for themselves. A large majority of women in all groups (about 80 per cent) also report that the decision to take loans and the decision on how to spend loans is made jointly by themselves and their husbands. In nearly all cases, differences are not statistically significant between women in (L+N) and (L). The exceptions are significant differences between (L+N) and (L) in the shares of women who report that their husbands decide how to spend money on health care, report that their husbands decide how to spend money on clothing, report that they themselves control money needed to buy food at the market, and report that it was their own decision to take a loan; all of these small differences can be controlled in the eventual impact estimation. Some differences are significant between (C) households on one hand and (L+N) and (L) households on the other, but magnitudes are quite small.

A majority of women (about 55-60 per cent) in Shiree/Concern beneficiary and control households report having ever used birth control, and a large majority (about 80 per cent) report that the decision was made jointly by themselves and their husbands. A large majority of women (about 85 per cent) in beneficiary and control households also report that their husbands have not threatened them with divorce or taking another wife in the past year. Nearly all of these indicators are balanced at the 5 per cent level between (L+N) and (L). The exceptions are small significant differences in the shares of women reporting that they do not use birth control because they do not feel they need to, the shares of women who report that their husbands often threatened them with taking another wife in the past year, and the shares of women who report that this never occurred in the past year. All of these differences can be controlled for in the eventual impact analysis. While several differences are statistically significant across the beneficiary and control groups, the magnitudes of differences tend to be fairly small.

However, most women (about 70 per cent) in Shiree/Concern beneficiary and control households report that they were verbally abused sometimes or often in the past year. A substantial proportion of women (about 40 per cent) in beneficiary and control households report that they were physically abused sometimes or often in the past year. In all three groups, only a very small share report wanting to leave, with the most common reasons for not leaving being that their husbands did not mean it, that they and their husbands came to an agreement, or that they came back for their children. There are no significant differences between the (L+N) and (L) groups at the 5 per cent level. While the shares reported are similar across beneficiary and control women, a slightly but significantly lower share in the (C) group reports “no” to the question on experiencing verbal abuse than in the (L) or (L+N) groups.

On questions of financial literacy, nearly all women in all three groups were able to perform basic addition, but relatively few were able to answer more complex questions. There are few statistically significant differences in these responses between the (L) and (L+N) groups. The exception is a small difference between (L+N) and (L) in the share of women responding correctly to “4+3”, for which the magnitude of difference is small enough that controlling for it is unlikely to affect results. Although there are more significant differences between the (C) group and the (L) and (L+N) groups, these also tend to

be small in magnitude. Women in all three groups also respond similarly on average to questions of time preference, with about half or more preferring a small transfer now to a larger one a month later.

In terms of direct questions regarding women's own perceptions of their control and agency, the majority of women in all three groups tend to agree with statements suggesting a lack of control over their lives but tend to disagree with statements suggesting that this lack of control is due to specific powerful people having control over them. When asked to imagine themselves on a ladder where those on step 1 have no rights and those on step 9 have a lot of power, women in all three intervention arms place themselves on average just above step 2, indicating that they perceive themselves to have very little power. Similarly, when asked to imagine themselves on a ladder where those on step 1 are totally unable to change their lives and those on step 9 have full control of their lives, women in all three intervention arms place themselves on average between steps 2 and 3, indicating that they perceive themselves to have limited ability to change their lives. These characteristics are balanced between the (L) and (L+N) groups at the 5 per cent level. Although the averages are similar in all three intervention arms, women in (C) tend to report slightly but significantly lower "step"s than the women in (L) or (L+N).

Overall, the analysis suggests that women's status tends to be low in the Shiree/Concern sample, despite most women reporting that they make decisions jointly with their husbands. Randomization appears to achieve balance on most dimensions between the women in (L+N) and (L) households, with the potential to control for remaining small differences in the eventual impact analysis. Women in (C) households are also similar in many dimensions, but show more meaningful differences from those in (L+N) and (L) households. In particular, significantly fewer women in (C) households work, slightly more report verbal abuse "often," and their perceptions of their own power and control are slightly but significantly lower on average. Although these differences may be linked to benefits provided to women by the Shiree/Concern programme itself (such as employment opportunities for women), they suggest that the differences must be accounted for if the (C) group is to serve as a counterfactual in the evaluation.

3.8 Nutrition practices and services

In this section, we review baseline quantitative information on nutrition-relevant practices and services. We start with experiences during pregnancy with a focus on access and use of ante-natal care as well as an examination of birth weights. We then move onto an exploration of sources of information available to mothers on good nutrition practices. We look at what mother's know, with a particular focus on infant and young child feeding. We end by examining mothers' nutrition, health and sanitation behaviors with respect to the index child in these data. Throughout we pay particular attention to the presence of meaningful differences in these characteristics and outcomes across intervention arms.

3.8.1 Access and use of antenatal care

Antenatal care (ANC) can play an important role in producing healthy babies and healthy mothers through the provision of information on healthy pregnancy, screening for risk factors, by providing health inputs for mothers and babies, and preparations for safe delivery (Pervin et al. 2012). The World Health

Organisation (WHO) recommends a minimum of four antenatal sessions with a trained health worker (WHO, 2014). The baseline quantitative survey asked women to describe their experiences with antenatal care services with reference to the index child (i.e., a child 24 months or younger whose anthropometry is described in 3.6 above). In this section, we describe mothers' access and use of antenatal care.

Table 3.37 shows that about 50 per cent of women attended at least one antenatal session. Conditional on attending at least one session, the mean number of sessions attended varied slightly, from 2.38 in the livelihoods intervention arm to 2.49 in the control group. Relatively few women, between seven and 11 per cent attended at least four sessions, the minimum as set out by WHO. In the Shiree study areas, these sessions were offered by a wide range of providers with no one provider dominating. Union Health and Family Welfare Centres, Upazila Health Centres and government hospitals each account for 15-20 per cent for the source of antenatal care. Comparing (L) and (L+N), there is a significant difference in the share of women reporting any antenatal care, which can be controlled for in eventual impact analysis.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Any antenatal care	0.50	0.41	0.55	0.01	0.16	0.00
Number antenatal visits	2.38	2.38	2.49	0.97	0.35	0.42
Made at least for four ANC visits	0.08	0.07	0.11	0.57	0.06	0.02

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Table 3.38 gives some information on advice and actions received during these ANC sessions. Between 56 and 78 per cent of mothers report they are weighed. Conditional on being weighed at least once, on average women are weighed 1.5 to two times during the course of this pregnancy. Less than 50 per cent of women in the livelihood only or livelihood and nutrition intervention arms had been given advice on foods to cook or consume. Unlike what we see in the CLP study zone, mothers in control groups are more likely to be weighed and to be advised on what foods to eat. Around 78 per cent of women state that they were able to follow this advice though the majority report that they do so only once a week or less. Few women were provided a food supplement through the ANC services that they had accessed. Comparing (L) and (L+N), there are no significant differences in these indicators at the 5 per cent level.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Weighed during pregnancy	0.61	0.53	0.72	0.09	0.00	0.00
Number times weighed	1.68	1.57	1.90	0.29	0.02	0.00
Rec'd advice on food to eat	0.40	0.41	0.48	0.85	0.03	0.09
Followed advice	0.78	0.78	0.79	0.94	0.63	0.73

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

As reported in Bhutta et al. (2013), a Cochrane review by Pena-Rosas et al. (2012) showed that daily iron supplementation during pregnancy reduced anemia at term by 70 per cent and the incidence of low birth weight by 19 per cent. WHO recommends daily iron supplementation during pregnancy in at risk

populations such as those in the Shiree study area (WHO 2012). Table 3.39 shows that 35 – 45 per cent of women in the Shiree study area took iron supplements when pregnant with the index child. On average, women began taking this supplement around the fifth month of pregnancy and took these iron supplements for about 2.5 months. Comparing (L) and (L+N), there are no significant differences in these indicators at the 5 per cent level.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Rec'd iron supplement	0.40	0.35	0.45	0.14	0.14	0.00
Month rec'd supplement	5.43	5.34	5.37	0.39	0.58	0.76
Num months took supplement	2.46	2.54	2.73	0.50	0.03	0.08

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Neonatal tetanus, often arising from non-sterile procedures used during the cutting of the umbilical cord after delivery, can be prevented if the mother is vaccinated during pregnancy. In Bangladesh, where women may not have previously been vaccinated against tetanus, two vaccinations during pregnancy are recommended. When women have been vaccinated before, only one vaccination may be needed (NIPORT 2013). Table 3.40 indicates that between 38 and 43 per cent of women received the tetanus toxoid vaccine during their pregnancy with the index child with this percentage slightly lower (38 per cent) for women in control group. These percentages are considerably lower than that seen in the CLP study zone (64 and 74 per cent). Vitamin A capsules are sometimes given to women after childbirth in order to increase vitamin A status in newborns through breast milk. Between 36 and 40 per cent of women were given vitamin A after giving birth to the index child with no differences across treatment arms. However, recent systematic reviews indicate no beneficial impacts of providing vitamin A on infant morbidity or mortality linked to vitamin A deficiency (Gogia and Sachdev, 2010) and the WHO does not recommend this supplementation (WHO 2014). Comparing (L) and (L+N), there are no significant differences in these indicators at the 5 per cent level.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Rec'd tetanus toxoid vaccine	0.74	0.75	0.64	0.64	0.00	0.00
Number tetanus toxoid vaccines	1.26	1.29	1.06	0.55	0.00	0.00
Rec'd vitamin A at birth	0.40	0.37	0.36	0.28	0.20	0.76

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Lastly, the baseline survey instrument collected information on the location of the index child's birth and who assisted with the birth. Nearly all (>93 per cent) of births occur at home. Information is also collected on who attends these births; in particular, it is instructive to see whether a trained health worker (doctor, nurse, midwife, trained traditional birth attendant) was present. Results are shown in Table 3.41.

Table 3.41. Baseline means of assistance at birth, by intervention arm—Shiree

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Birth attended by doctor	0.05	0.05	0.08	0.83	0.05	0.02
Birth attended by midwife or nurse	0.05	0.04	0.09	0.36	0.02	0.00
Birth attended by village doctor	0.02	0.02	0.02	0.72	0.32	0.43
Birth attended by trained traditional birth attendant	0.33	0.28	0.27	0.19	0.11	0.75
Birth attended by any trained person	0.40	0.34	0.37	0.13	0.45	0.43
Birth attended by mother or mother-in-law	0.72	0.75	0.72	0.35	0.82	0.26
Birth attended by neighbour or friend	0.56	0.49	0.57	0.02	0.83	0.01

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Table 3.41 indicates that around 40 per cent of index child births are attended by a trained health professional with no meaningful differences in this percentage across treatment arms. However, births by mothers in the control arms are more likely to have been attended to by a doctor or midwife and less likely to have been attended by a traditional birth attendant. Across all intervention arms, around 70 per cent of births are attended by a mother or mother-in-law and around 50-60 per cent by a friend or neighbor. Comparing (L) and (L+N), there are few significant differences in these indicators at the 5 per cent level. The exception is a small difference in the share of mothers who report that the index child's birth was attended by a neighbour or friend, significant at the 2 per cent level, which can be controlled for in the eventual impact analysis.

Table 3.42 indicates that only two to 5 per cent (depending on the intervention arm) of babies were weighed immediately after birth. Comparing (L) and (L+N), there are no significant differences in these indicators at the 5 per cent level.

Table 3.42. Baseline means of birth weight outcomes, by intervention arm—Shiree

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Child weighed	0.03	0.02	0.05	0.59	0.00	0.00
Birth weight	2.78	2.64	2.64	0.44	0.36	0.97
Low birth weight (<2.5kg)	0.24	0.37	0.28	0.36	0.71	0.50

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Birth weights in Shiree are comparable to those observed in CLP but given the small number of children weighted, these comparisons should be made with caution.

3.8.2 Sources of information on good nutrition practices

Section 3.8.1 indicates that a variety of antenatal services are available to some women in the Shiree study area? What about access to nutrition services, specifically access to information on good nutrition practices after the child is born. Table 3.43 describes access to various sources of information.

Table 3.43. Baseline means of sources of information about IYCF, by intervention arm—Shiree

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Exposed to any source of information about nutrition	0.25	0.27	0.34	0.64	0.03	0.05
Did health worker give advice on IYCF?	0.10	0.11	0.20	0.64	0.00	0.01
Attend group meeting	0.10	0.12	0.08	0.32	0.42	0.09
Any home visit or group meeting	0.16	0.17	0.23	0.53	0.04	0.14
Heard nutrition messages on radio	0.03	0.03	0.02	0.90	0.52	0.39
Saw nutrition messages on TV	0.12	0.11	0.16	0.86	0.21	0.06
Any exposure to nutrition via media	0.13	0.13	0.16	0.98	0.23	0.11

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Exposure to information is relatively low in the Shiree study localities. Between one-quarter and one-third of mothers had been exposed to information from any source. Access to this information via group meetings or home visits is much lower than that seen in the CLP study sites. For example, 75 per cent of mothers in CLP livelihoods localities had been to a group meeting or had a home visit compared to 16-17 per cent in Shiree. Comparing (L) and (L+N), there are no significant differences in these indicators at the 5 per cent level.

Mothers were asked to describe the advice they received from health workers during the last visit. Table 3.44 summarizes their responses; the sum of the mean values exceeds one because mothers could describe more than one item of advice. Exclusive breastfeeding is the most frequently offered advice and, more generally, we see more examples of advice around breastfeeding than about feeding children older than six months. Conditional on receiving a home visit, mothers in all treatment arms receive similar information. Comparing (L) and (L+N), there are no significant differences in these indicators at the 5 per cent level.

Table 3.44. Baseline means of advice given during home visits, by intervention arm—Shiree						
	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Exclusive breastfeeding to 6m	0.38	0.48	0.49	0.16	0.09	0.88
Feed mashed foods after 6m	0.40	0.38	0.35	0.74	0.44	0.71
Put baby to breast immediately after birth	0.41	0.47	0.45	0.43	0.58	0.77
Feed children animal source foods	0.37	0.28	0.35	0.13	0.71	0.24
Give only colostrums	0.26	0.32	0.31	0.42	0.51	0.95
Wash hands before food prep or feeding baby	0.17	0.25	0.29	0.20	0.04	0.54
Attachment during breastfeeding	0.13	0.07	0.07	0.18	0.18	0.88
Adding sprinkles	0.10	0.03	0.07	0.03	0.46	0.09
No pre- or post-lacteals	0.06	0.08	0.11	0.62	0.16	0.31
Positioning during breastfeeding	0.08	0.08	0.05	0.91	0.45	0.31
Adding oil when cooking	0.11	0.08	0.05	0.57	0.09	0.25
Extra feeding during and after illness	0.14	0.12	0.09	0.71	0.26	0.37

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

3.8.3 What have mothers and adolescents heard about infant and young child feeding

To what extent does knowing about practices translate into acting on this information? For six topics, mothers were asked whether they had ever heard of these practices, the source of this information, and whether they had attempted to follow this practice. Results are shown in Table 3.45.

Most women had heard about the importance of commencing breastfeeding (BF) within an hour of giving birth and about 80 per cent had heard about the importance of exclusive breastfeeding. Mothers were less likely to report having heard messages about improving feeding practices for children 6-24m. In some cases, if they did they hear these messages, they reported acting on them (e.g., encouraging children to eat) but in other cases, relatively little knowledge was compounded by unwillingness or inability to respond to these messages as was the case with feeding children animal source foods. Women in control localities were slightly more likely to have heard these messages regarding breastfeeding practices. Comparing (L) and (L+N), there are no significant differences in these indicators at the 5 per cent level.

Table 3.45. Baseline means of knowledge and action on breastfeeding and IYCF, by intervention arm—Shiree

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Heard about commencing BF within 1 hour of birth	0.85	0.86	0.92	0.59	0.00	0.02
Heard about exclusive breastfeeding	0.78	0.78	0.87	0.94	0.00	0.00
Heard about feeding practices for children 6-24 months	0.71	0.68	0.71	0.34	0.91	0.37
Heard about feeding animal source foods to children 6-24 months	0.54	0.55	0.57	0.93	0.48	0.61
Heard about ways of getting children with poor appetites to eat	0.37	0.40	0.34	0.59	0.49	0.24
Heard about ways in which fathers can give mothers enough time to feed children	0.18	0.18	0.18	0.87	0.96	0.82
Heard and acted on information about commencing BF within 1 hour of birth	0.97	0.98	0.98	0.36	0.05	0.31
Heard and acted on information about exclusive breastfeeding	0.81	0.83	0.82	0.54	0.80	0.68
Heard and acted on information about feeding practices for children 6-24 months	0.84	0.87	0.82	0.20	0.58	0.07
Heard and acted on information about feeding animal source foods to children 6-24 months	0.42	0.51	0.40	0.12	0.65	0.06
Heard and acted on information about ways of getting children with poor appetite	0.95	0.94	0.97	0.56	0.21	0.06
Heard and acted on information about ways in which fathers can give mothers enough time to feed children	0.84	0.84	0.85	0.99	0.79	0.76

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

We triangulated this information by giving mothers and their adolescent daughters a short test on their knowledge of good nutrition practices. This included questions on breastfeeding, on the introduction of complementary foods, on hygiene and on knowledge of specific foods such as iodized salt. The mean total scores (maximum of 10) as well as answers to specific questions are given in Tables 3.46 and 3.47.

There are a number of salient results. First, as was the case with CLP, adolescent girls' scores on these questions tend to be somewhat lower than that of their mothers. This holds across all treatment arms and for all topics. Mothers' overall score is around 6.4-6.6 and these are about a point lower than what was observed in CLP. While mother's knowledge of breastfeeding practices is relatively high in all intervention arms, knowledge of certain complementary feeding practices is low.

Comparing (L) and (L+N), there are no significant differences in the mothers' knowledge indicators at the 5 per cent level and few significant differences in the adolescent girls' knowledge indicators at the 5 per

cent level. The exceptions are differences in the shares of adolescent girls who know when a baby should start getting breast milk (significant at the 5 per cent level) and who know what seasoning is fortified with iodine (significant at the 1 per cent level), both of which can be controlled for in the eventual impact analysis.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Score on test of nutrition knowledge, mother	6.39	6.47	6.57	0.53	0.11	0.34
Number answers of how to encourage child to eat, mother	1.43	1.43	1.52	0.98	0.06	0.03
Number answers of how to treat child with diarrhea, mother	1.12	1.11	1.10	0.58	0.43	0.78
Number answers, when to wash hands, mother	2.24	2.25	2.30	0.77	0.14	0.28
When should a baby start getting breast milk	0.83	0.84	0.88	0.55	0.01	0.06
What should mother do with colostrum	0.87	0.89	0.92	0.30	0.00	0.05
At what age babies should be given other foods	0.53	0.53	0.57	1.00	0.26	0.26
What seasoning is fortified with iron	0.26	0.27	0.25	0.76	0.58	0.33

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Score on test of nutrition knowledge, adolescent	5.65	6.09	6.36	0.12	0.01	0.20
Number answers of how to encourage child to eat, adolescent	1.17	1.27	1.29	0.33	0.25	0.84
Number answers of how to treat child with diarrhea, adolescent	1.01	1.10	1.04	0.07	0.58	0.12
Number answers, when to wash hands, adolescent	2.03	2.18	2.23	0.11	0.02	0.59
When should a baby start getting breast milk	0.54	0.67	0.69	0.05	0.02	0.73
What should mother do with colostrum	0.62	0.65	0.71	0.61	0.09	0.22
At what age babies should be given other foods	0.43	0.46	0.50	0.63	0.29	0.52
What seasoning is fortified with iodine	0.37	0.54	0.51	0.01	0.03	0.66

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

3.8.4 Summary

Nutrition over the first 1,000 days, *in utero* and in the first two years of life, has lifelong effects. In this section, we assess baseline characteristics associated with this in the Shiree study zone. We are interested in access to antenatal care, access to information about breastfeeding and complementary feeding practices and the extent to which this knowledge has been assimilated and acted on. We want to assess whether there are systematic and statistically significant pre-intervention differences between households in livelihood only localities and those households randomized into livelihood plus nutrition localities. Finally, we would like to see if there are systematic and statistically significant pre-intervention differences between households in livelihood localities and non-randomly selected control localities.

Access to some antenatal care is widespread with about 70 per cent of women attending at least one session. However, even after conditioning on attendance at least one session, few women, seven to 11 per cent attended at least four sessions, the minimum as set out by WHO. Between 56 and 78 per cent of mothers reported being weighed with weight monitoring of mothers higher in control localities. Between 64 and 75 per cent reported receiving the tetanus toxoid and 35-45 per cent reported receiving iron supplements. Between one-third and two-fifths of births were attended by someone with training in safe delivery. Few children, less than 5 per cent, were weighed at birth.

Between one-quarter and one-third of mothers had been exposed to any source of information about improving children's nutritional status in early life. Certain nutrition messages are widespread and well-understood. For example, more than 85 per cent of all mothers had heard about commencing breastfeeding within one hour of birth and conditional on having this information, more than 97 per cent of all mothers reported that they had acted on this information. More generally, messaging about breastfeeding practices is widespread and understood.

By contrast, messaging about feeding practices for the age group 6-24 months is more limited. Between 34 and 40 per cent of mothers had heard about ways of getting children with poor appetites to eat though most of them stated that they had acted on this knowledge. Just over 50 per cent had heard about feeding animal source foods to children 6-24 months and only 40-50 per cent stated that they acted on this information. Just over half of all mothers could correctly identify when complementary foods should be introduced and only a quarter could identify what foods contain iodine.

In this section, we compare 69 aspects of access to antenatal care, to information about the utilization of this information between mothers in localities randomized to receive livelihood interventions and localities randomized to receive livelihood and nutrition interventions. There are six outcomes where we observe a statistically significant difference between these groups. While we expect that, randomly, there will be some rejections of the null hypothesis that these outcomes are equal between the (L+N) and (L) groups, this is slightly more than expected. Three of these are related to aspects of antenatal care, with mothers in the (L+N) group being slightly more likely (50 v 41 per cent) to have had any antenatal care, slightly more likely to have been weighed during pregnancy (68 v 56 per cent) and slightly more likely to have had the child's birth attended by a friend or neighbour (56 v 49 per cent). Two reflect differences in

knowledge of adolescent girls regarding breastfeeding and IYCF. It is not obvious that these differences between (L+N) and (L) groups are functionally important, although they can be controlled for in the eventual impact analysis.

By contrast, there are 22 outcomes where there are statistically significant differences between the (L+N) and (C) households at the 5 per cent level and 17 outcomes where there are statistically significant differences between the (L) and (C) households. However, while significant differences exist, the magnitudes of some these differences are small. For example, women in control localities were more likely to have had any antenatal care, and were more likely to have had at least four antenatal care visits. However, consider the magnitude of the differences between women in the control and livelihood treatment arms. For the percentage of women with at least four visits, the difference is only three or four percentage points. These small differences are also found where we look at births attended by doctors and births attended by nurses or midwives.

4 UPPR PROGRAMME

4.1 Background

4.1.1 Description of programme features

In 2008, the Urban Partnerships for Poverty Reduction (UPPR) was initiated with the goal of lifting three million urban poor and extreme poor people out of poverty by 2015 in 23 cities and towns across Bangladesh (UPPR 2014). The UPPR is the largest urban poverty reduction initiative in the country. The UPPR is a DFID-funded project with a £60 million grant over 6.5 years (2007-2014). The program is being implemented by the United Nations Development Program (UNDP) which is providing £1.9 million pounds in support of the programme, and the Government of Bangladesh, which is providing about £2.5 million. Key strategies of the UPPR include community mobilization, improvement of physical infrastructure, provision of support for livelihoods development, development of partnerships between communities and service providers, and influencing urban related policy (Ibid).

The UPPR uses a community-based approach led by mostly poor and extreme poor woman, who are empowered to manage their development and as a result overcome poverty. Through the Settlement Improvement Fund (SIF), the UPPR provides direct monetary support to selected communities so they can contract the necessary works for physical improvements in their neighbourhoods. The interventions can include the extension of drains and footpaths, the construction of latrines and water dwells, and improved access to road and markets. In addition, UPPR provides through the Socio-Economic Fund (SEF) finance of activities that improve the livelihoods and social conditions of the urban poor. The community intervention within the SEF framework finances apprenticeships and grants for small businesses, education grants to keep girls in school, and grants for urban food production activities.

The Settlements and Land Mapping (SLM) method identifies and maps 1) all low income slums and squatter settlements, including the smaller, vulnerable, marginal settlements, and 2) all available vacant land that is potentially suitable for settlement or any other pro-poor purposes. In this participatory method, community leaders and local government staff are trained to undertake most of the work for



selecting the poor communities to be impacted by the UPPR. Given that the SLM method is finding more and more diverse poor settlements, the project revised its settlement selection criteria in 2009, establishing new guidelines. The new rules are (1) select the most vulnerable settlements first; (2) combine settlements into a larger Community Development Committee (CDC) only when settlements are contiguous – smaller CDCs are therefore acceptable; (3) do not combine settlements that vary significantly in vulnerability and socioeconomic status; and (4) split large settlements into small CDCs of no more than 300 household CDCs.

The UPPR's theory of change builds upon the understanding that communities themselves are best placed to judge what their main priorities are and who among them is most in need of support. In particular, the UPPR objectives are focused on “about creating space for the most vulnerable members of communities, especially the poor and extreme poor women and empowering them to make these decisions and implement solutions” (UPPR 2014). The UPPR approaches poverty reduction strategies from a multi-dimensional view that includes education, health, nutrition and employment, which requires an integrated response. As such, the UPPR support to mobilise communities brings about that integrated response. UPPR recognizes that urban poverty is about more than income and so works with mobilized communities to tackle its causes in an integrated manner. Between 2008 and 2012, the UPPR mobilized around 816,242 households through Community Development Committees (CDCs) and around 3,509,841 million people (2012). In 2012, the UPPR budget was of £13.5 million, of which 44 per cent of expenditure was allocated to the SIF and 28 per cent to the SEF. Community grants this year accounted for 72 per cent of the project total expenditure for a total of £9.75 million (2012).

In addition to the livelihoods support described above, UPPR is introducing the following additional nutrition-specific intervention activities as per the guidance all three programmes have received from DFID regarding the implementation of direct nutrition support (which is the focus of this evaluation):

- Household Level Counselling: Counselling on exclusive breastfeeding, continuous breastfeeding, complementary feeding and hygiene promotion (including hand washing)
- Community level discussions, including with adolescent groups on early and forced marriage and early pregnancy
- Micronutrient Supplement:
 - Five components Micronutrients (including '5 micro nutrients powder': Iron: 12.5 mg, Folic Acid: 0.16 mg, Zinc: 5 mg, vitamin A: 0.3 mg, vitamin C: 30 mg) will be given to children aged between 7 to 23 months.
 - Iron and Folic Acid (IFA) Tablets (each tablet contains 60mg iron and 400 mg folic acid): 180 IFA tablets will be given to each pregnant woman after first trimester and up to 180 for each breastfeeding woman per year while 104 tablets will be given to each adolescent girl a year.
- Deworming Treatment: Children one to five years of age, adolescent girls, pregnant women after the first trimester of pregnancy will receive regular deworming treatment based on WHO and Government of Bangladesh guidelines

4.1.2 Sample selection

As described in Section 1.2.2, for the UPPR quantitative baseline survey, sample households were selected from the 70 (L+N) PSUs and 70 (L) PSUs using UPPR’s beneficiary lists. PSUs were specified to be UPPR-defined ‘clusters,’ which are groups of adjacent urban slums. In each of the 140 PSUs, a census was conducted of all households that were listed as UPPR beneficiaries. Among these, of the households that were found in the census listing to have a child aged 0-24 months, ideally 18 households were randomly selected to be part of the sample. If a PSU was found to have fewer than 18 beneficiary households total with a child aged 0-24 months, the maximum number available were selected. Given the dense population of slums, this scenario was rare in the UPPR sites. Where possible, households were selected such that half the sampled households had a boy aged 0-24 months and half had a girl aged 0-24 months. In each sampled household, the youngest child aged 0-24 months was designated as the “index child.”

Seventy PSUs were selected for the UPPR (C) group as well. Given that there are some urban slums nearby UPPR’s sites but outside their coverage areas, it was possible to find localities in which households appeared to have similar observable characteristics to UPPR beneficiaries but appeared not to be covered by any very similar programme. At the time of the baseline survey, 70 PSUs were identified as potentially meeting these criteria. In each of these 70 PSUs, a census was conducted of all households in the PSU (since UPPR did not have information on these households). Of the households that were found in the census listing not to be beneficiaries of any similar programs but found to have a child aged 0-24 months, ideally 18 households were randomly selected to be part of the sample. Again, if a PSU was found to have fewer than 18 beneficiary households total with a child aged 0-24 months, the maximum number available were selected. Given the dense population of slums, this scenario was rare in the control sites as well. Where possible, households were selected such that half the sampled households had a boy aged 0-24 months and half had a girl aged 0-24 months. In each sampled household, the youngest child aged 0-24 months was designated as the “index child.”

The final sample breakdown is as shown in Table 4.1.

	Number of sampled PSUs	Number of sampled households
(L+N)	70	1,257
(L)	70	1,254
(C)	70	1,260
Total	210	3,771

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

4.2 Household demographic and socioeconomic characteristics

The analysis of the UPPR quantitative baseline data begins with an exploration of the demographic and socioeconomic characteristics of sample households. In this section, we examine the demographics within these households, the educational attainment and occupational status of household members, the dwelling conditions and access to basic amenities they face, their exposure to economic shocks, and the

remittances and transfers they report. These descriptions provide useful context on the situation in UPPR sample areas prior to the introduction of direct nutrition interventions. We also give particular attention to how these characteristics differ across the three intervention arms, since for the purposes of the evaluation, ideally they will be very similar across the arms at baseline.

4.2.1 Household composition

Table 4.2 shows the composition and demographic outcomes of the households in the UPPR slums and the control slums. The average household size in the UPPR areas is more than 5 members per household. This is higher than the national urban average of 4.4 members per household according to the Bangladesh Demographic and Health Survey 2011 (NIPORT 2013). However, we need to bear in mind that the national average household size for urban areas is computed for both slum and non-slum areas. In the control areas, the average household size is lower at 4.6 but still higher than the national average. Among the male headed households in the programme areas, the household heads are aged around 38-39 years. However the control group slums have male household heads who are younger and the difference in means is significant as shown by the p-values. Approximately 10 per cent of the households are female headed in the (L) areas while in the (L+N) approximately 8 per cent of the households are headed by women although this difference is not significant. In the control slums, the percentage of women-headed households is significantly less at 4 per cent. The average age of these women hover around 45-46 years in the UPPR slums while in the control group slums, it is 41 years. The data shows that more than 80 per cent of the women household heads were widows in all the three treatment arms.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Household size	5.33	5.35	4.61	0.83	0.00	0.00
Age of male household head	37.90	38.67	35.48	0.20	0.00	0.00
Female headed household (per cent)	8.27	10.45	4.05	0.11	0.00	0.00
Age of female household head	44.95	46.27	41.20	0.49	0.14	0.06
Number of children <2 years	1.02	1.02	1.02	0.89	0.16	0.17
Number of children <5 years	1.19	1.20	1.17	0.76	0.33	0.19
Number of school aged children (5-18 years)	1.12	1.05	0.82	0.17	0.00	0.00
Number of working age members (15-64 years)	3.04	3.13	2.63	0.23	0.00	0.00
Number of dependents (<15 years and >64 years)	2.28	2.21	1.98	0.22	0.00	0.00
Dependency ratio ^a	0.89	0.84	0.85	0.08	0.09	0.88

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

^a Dependency ratio = number of dependents (less than 15 or over 60 years of age) divided by the number of working age people

Since the sample was selected in such a way that each household has a child aged less than 2 years, the numbers in the table below also reflect this. In terms of the gender division, 51 per cent of these households have boys below 2 years and 51 per cent of these households have girls below 2 years. This symmetry is because during the sample selection we also tried to ensure that households were split equally, as far as possible, between boys and girls below 2 years of age. If we look at the number of children below 5 years of age, the number per household goes up slightly to 1.2 for all the three treatment arms. On an average, the (L+N) households and the (L) households have approximately one child of school-going age while the control households have less than one school aged child.

Each household in the (L+N) and (L) areas have, on an average, more than 3 working age members (between 15 to 64 years). In the control households, the number of working age members is lesser at 2.6. The difference in the means between the programme households and control households is significant for the working age members. The number of dependents in each of the treatment arms is less than the number of working age members, rendering a dependency ratio of less than 1. For each of the demographic indicators discussed above, there are no significant differences at the 5 per cent level between the (L+N) and (L) households which is a reflection of the balance between the two groups after randomisation. However between the (L+N) / (L) slums and the control slums there are significant differences in the means for a number of indicators, warranting a careful selection of the counterfactual while deriving the intervention impact estimates.

4.2.2 Educational attainment

Women have a higher exposure to schools than men as shown by Table 4.3. In the (L+N) and (L) locations, male household heads have gone to school for more than 3 years in their lives while for women, the figure is approximately 5 years. Interestingly the average years of schooling is higher in the control areas than the intervention areas for both men and women, but the edge that women demonstrate over men in terms of higher schooling years is maintained here as well.

A look at the level of education shows that more than two-fifths of the men never went to school in both the (L+N) and (L) areas but when we look at corresponding figure for women, there is a sharp fall to a little more than one-fifth. It is worth mentioning here that during the early 1980s, significant biases existed in Bangladesh against females in educational outcomes given the historical underinvestment in female education. Since 1990, Bangladesh has seen a steep rise in girls' gross primary enrolment ratio as well as at the secondary level. The female-male gap in the enrolment rates began to narrow down and gender parity in primary and secondary education began to be established. The numbers in the table below serve as a manifestation of Bangladesh's efforts at closing the gender gap in education. Between 47-52 per cent of the mothers/caregivers of the index children had successfully completed primary education while for men the numbers ranged from 33-38 per cent. As one moves up the education ladder to secondary and high school, the numbers mostly show better for the women than the men. Beyond secondary school, however, fewer mothers of children completed high school compared to the men.

Comparing (L+N) to (L), all indicators for head's education are balanced at the 5 per cent level. Indicators for the mother/caregiver's education show small but significant differences, reflected by

differences in average years of education as well as level of schooling attained, which can be controlled for in the eventual impact estimation.

Table 4.3. Baseline means of educational attainment indicators, by intervention arm—UPPR						
	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Household head						
Years of schooling	3.53	3.42	4.84	0.62	0.00	0.00
Level of schooling:						
No schooling	40.89	43.22	32.14	0.36	0.00	0.00
Below primary school	19.25	17.30	13.97	0.26	0.00	0.05
Completed primary school	32.94	32.54	37.78	0.85	0.03	0.02
Completed secondary school	3.34	4.55	7.94	0.17	0.00	0.01
Completed high school	2.15	1.12	4.37	0.06	0.01	0.00
Above high school	1.27	1.28	3.73	0.99	0.00	0.00
Religious or other education	0.16	0.00	0.08	0.15	0.56	0.32
Mother/caregiver of index child						
Years of schooling	4.62	5.13	5.33	0.03	0.01	0.47
Level of schooling						
No schooling	23.47	21.05	23.33	0.31	0.96	0.37
Below primary school	21.88	17.86	14.44	0.03	0.00	0.04
Completed primary school	47.41	51.83	49.52	0.09	0.45	0.32
Completed secondary school	4.46	6.14	6.19	0.10	0.12	0.97
Completed high school	2.63	2.39	4.44	0.76	0.05	0.01
Above high school	0.16	0.72	2.06	0.04	0.00	0.03
Religious or other education	0.00	0.00	0.00			

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

4.2.3 Occupational status

Employment in the slums is largely in the informal sector. More than 50 per cent of the UPPR household heads as well as the heads of control slum households are found in two categories of jobs - self-employment or petty trading/business (Table 4.4). Self-employed workers are predominantly rickshaw pullers, being which requires no skill. A smaller percentage is engaged in the relatively better paid profession of bus/truck/van driver. Other self-employed activities include masonry and petty trading (such as street vending or a small roadside tea/snack stall or a store with basic groceries and toiletries). For the (L+N) and (L) areas, daily wage labour ranks third in terms of frequency of occurrence while for the control areas, it is fourth on the list. Daily wage labour predominantly takes the form of construction site worker, bus conductor/helper, porter or factory worker. Since the CDCs under UPPR programme target all households in the area, its beneficiaries include not only the extreme poor but also the other strata of the poor found in slums who are relatively secure and powerful. This is a probably the reason why self-employed workers top the list of occupations in the slums, in contrast to the CLP and Shiree households. These two programmes have the highest proportion of workers in the daily wage earner category, in conformity with the finding of the Household Income and Expenditure Surveys (conducted at regular

intervals by the Bangladesh Bureau of Statistics) which show that daily wage labourers form the poorest occupational group (BBS 2011). Approximately 14-16 per cent of the household heads in the UPPR areas are salaried workers. They are largely garments factory workers, office workers in private enterprises or in government jobs. A very small percentage of the household heads engaged in crop farming and fishing for a living. The small number is understandable given the dense living in the slums, especially Dhaka and Chittagong, where the surrounding area is normally cemented. In other locations, some farming may still be possible but mostly in the form of very small scale homestead farming. Sometimes, some land is available close to the slum area, where a group of households do farming. For slums that lie close to water bodies, fishing is an occupation for a few.

Table 4.4. Baseline shares of household head and index child's mother/caregiver in different occupations, by intervention arm—UPPR

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Household head ^a						
Farming (crop) ^b	0.40	0.32	1.19	0.76	0.07	0.04
Fishing	0.80	0.96	0.16	0.79	0.07	0.12
Poultry and livestock	0.56	1.67	0.32	0.01	0.34	0.00
Daily wage labour	20.45	18.98	15.63	0.43	0.01	0.09
Salaried worker	14.00	15.79	20.63	0.29	0.00	0.02
Petty trader/business	22.28	19.46	19.84	0.12	0.24	0.84
Self-employed	35.32	34.61	37.30	0.76	0.42	0.28
Non-earning occupation	3.74	5.82	2.78	0.04	0.26	0.00
Mother/caregiver of index child						
Farming (crop) ^b	0.08	0.32	0.00	0.25	0.32	0.10
Fishing	0.08	0.40	0.08	0.24	1.00	0.24
Poultry and livestock	13.76	14.67	11.83	0.72	0.46	0.25
Daily wage labour	2.15	2.55	1.03	0.57	0.03	0.02
Salaried worker	5.49	4.70	3.81	0.43	0.10	0.39
Petty trader/business	2.31	1.44	0.71	0.19	0.01	0.08
Self-employed	8.11	7.02	5.48	0.40	0.03	0.16
Non-earning occupation	68.10	69.30	77.14	0.68	0.00	0.00

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

^a Excludes women-headed households if the head is also the mother/caregiver of the index child.

^b Includes homestead farming.

Employment avenues for the women appear to be limited with an overwhelming percentage (ranging from 68-77 per cent across the three treatment arms) of the mothers/caregivers of the index children being housewives. The most dominant occupation for women turned out to be rearing poultry and, to a lesser extent, rearing livestock. Among the salaried workers, the women were predominantly housemaids. Women's participation in wage work was much lower than men, ranging from 1-3 per cent. As expected, women are also significantly less likely than men to be engaged in self-employed nonfarm activities or in petty trading. Under the latter, women were mostly in tailoring or making handicrafts for sale. It may be mentioned here that being a garments worker is a popular occupation for women in the urban areas, especially Dhaka. But, our data showed very few in this profession. Being a garments worker entails long

hours away from home which is difficult for these women who are mothers of very young children. A few women were in crop farming (mostly homestead farming) or fishing but these were mostly out of Dhaka.

Comparing (L+N) to (L), nearly all indicators for the household head's occupation are balanced at the 5 per cent level. The exceptions are very small differences between (L+N) and (L) in the shares of heads engaged in poultry and livestock (significant at the 1 per cent level) and engaged in a non-earning occupation (significant at the 4 per cent level); however the magnitudes of both the shares themselves and the differences are so small that controlling for them in the impact analysis is unlikely to change the results. All indicators for the mother/caregiver's occupation are balanced at the 5 per cent level.

4.2.4 Dwelling conditions and access to basic amenities

Most slums in Bangladesh comprise of clusters of substandard housing built on private land. More than half of the dwellings in the programme areas have dirt floors, which are largely earthen floors (Table 4.5). Though majority of the dwellings also have non-permanent walls, about 40 per cent have concrete walls. However most of the non-permanent walls are made from corrugated iron sheets, which are more resilient to adverse weather conditions. Other non-permanent walls included those made from straw, palm leaves, clay, bamboo, cardboard or polythene. A large majority of the dwellings had tin roofs. A small percentage had roofs of straw/cardboard/polythene/palm leaf. The dwellings in the control area appear to be of a better quality with a relatively higher proportion of homes with concrete floor, walls and roof. Some of the differences in housing quality were significant between the control areas and the (L+N) and (L) areas, suggesting a careful consideration in selecting a counterfactual for estimating the nutrition intervention impact.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Dirt floor	58.39	56.06	42.70	0.57	0.00	0.00
Tin wall	42.56	40.03	33.10	0.60	0.04	0.12
Other non-permanent wall	18.22	19.38	15.71	0.72	0.45	0.25
Tin roof	91.73	90.59	87.70	0.53	0.03	0.10
Other non-permanent roof	3.42	2.63	1.98	0.59	0.28	0.53
Access to electricity	91.49	90.83	91.83	0.73	0.88	0.67
Access to sanitary latrine	57.12	49.68	47.22	0.04	0.01	0.54
Access to safe drinking water	98.49	98.96	99.68	0.35	0.01	0.03

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

As Table 4.5 shows, bulk of the slum dwellings had access to electricity. It is possible that these are primarily illegal connections. With regard to sanitary latrines, between 50-57 per cent of the households had access to a latrine. This includes about 10 per cent households who used a community latrine, which is also a sanitary latrine. A large majority of households in the slums have access to a safe source for drinking water. The source is mostly tubewell and, to a lesser extent, piped water. Tubewell water is

considered safe unless it is contaminated by the presence of arsenic. However, we do not have information on the extent to which the tubewell water is arsenic-free. Overall, the p-values show some significant differences in access to basic amenities between the UPPR and control areas. This warrants a careful selection of the counterfactual slum households for the nutrition impact estimates.

Comparing (L+N) to (L), nearly all indicators for dwelling conditions are balanced at the 5 per cent level. The exception is a small difference between (L+N) and (L) in the share of households with access to a sanitary latrine (significant at the 4 per cent level), which can be controlled for in the eventual impact analysis.

4.2.5 Exposure to economic shocks, remittances, and transfers

Table 4.6 shows that approximately 50 per cent of the slum dwellers received remittances from home and abroad. Probing further into the data reveals that bulk of these were domestic remittances. Urban slums, though ‘slums’ by definition have an element of permanency in reality. Households live in particular slums for years together and have an established set-up for everyday living. A normal phenomenon to expect in slums would be eviction, but as the table below shows, there were no instances of eviction except for miniscule fraction in the (L) group. Many households have members who migrate to other parts of the city or other cities for better employment opportunities. They repatriate their earnings to their families who are living in another slum. The quantum of remittance ranges from approximately 4,500-6,000 taka across the three treatment arms. However there were no significant differences in the means indicating a balance across the slums in each treatment arm after randomization. Compared to remittance, a substantially lower percentage of households received other transfers which included donations/assurances and dowry receipts. The control slums had the least percentage of households who received other transfers compared to the treatment households and the difference was significant. Most of the other transfers across the three treatment arms were in-kind transfers.

Compared to the rural areas, the frequency of shocks among the urban poor is low as shown by the table below (also see Tables 2.6 and 3.6). The nature of economic shocks in the urban areas is very different from that in the rural areas. While majority of the shocks in the rural areas are related to natural disasters, such as floods, storms or river erosion, shocks among the urban poor are largely created by human behavior. As the table below shows, bankruptcy of business had the highest incidence of occurrence across all the three treatment arms in the UPPR areas. For the (L+N) households, death of the main income earner was the second most frequent shock. Often, it is the death of the main earner that actually causes the household to migrate to towns or cities. For the (L) group death of the main income earner was the third most occurring shock. However the difference in the mean values for these two groups was not highly significant. Other more common shocks which caused income loss for the poor slum dwellers included loss of livestock (primarily poultry) due to theft/illness, loss of crops or property due to storms/droughts and unforeseen expenditures due to conflict or dispute.

Comparing (L+N) to (L), all indicators for remittances/transfers and exposure to shocks are balanced at the 5 per cent level. For the control group, some differences in means with the programme areas are statistically significant though magnitudes tend to be similar.

Table 4.6. Baseline means of household receipt of remittances/transfers and exposure to economic shocks, by intervention arm—UPPR

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Receipt of remittances/transfers in past 1 year						
Received remittance (home and abroad) (per cent)	48.85	50.80	55.40	0.67	0.15	0.30
Amount of remittance (taka)	4,546.70	5,259.00	5,991.84	0.53	0.24	0.60
Received other transfers (per cent)	6.84	7.42	4.05	0.70	0.03	0.02
Amount of other transfers (taka)	343.68	425.14	209.26	0.64	0.36	0.21
Incidence of shocks in past 5 years						
Death of main income earner	2.55	1.44	0.63	0.09	0.00	0.05
Death of other income earning member	1.11	1.44	0.56	0.51	0.13	0.05
Loss of employment of any member	0.40	0.40	0.24	1.00	0.52	0.46
Loss of home due to river erosion	0.00	0.00	0.16		0.15	0.15
Loss of crops/assets due to floods	0.32	0.56	0.16	0.45	0.40	0.19
Loss of livestock due to theft/illness	2.15	2.15	0.71	0.99	0.02	0.00
Loss of crops/assets due to storms/drought	1.43	2.15	2.78	0.15	0.03	0.34
Eviction	0.00	0.16	0.00	0.15		0.15
Divorce/abandonment	0.16	0.32	0.08	0.47	0.56	0.25
Conflict/Dispute	1.67	1.91	1.35	0.67	0.50	0.33
Bankruptcy of business	2.63	3.27	2.94	0.42	0.68	0.66

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

4.2.6 Summary

The situation of UPPR sample households living in urban slums is important to understand as context for the evaluation. In this section we explore their characteristics at baseline, after the start of the livelihoods interventions in programme areas but prior to the introduction of any direct nutrition interventions.

In terms of demographics, we find that the average programme household has greater than 5 members, with about 3 members of working age (between 15 to 64 years), a male household head aged about 38 years, and a dependency ratio of about 0.84 to 0.89. About 8-10 per cent of these programme households are female-headed. The average control household tends to show small but statistically significant differences relative to the average programme household, in terms of having fewer household members, younger heads of household, and less likelihood of being female-headed.

Educational attainment is fairly low in the beneficiary and control sample, with about 3 to 5 years of schooling completed on average by adult men or adult women. In both programme and control areas, women (specifically, mothers of index children) tend to have higher educational attainment than men (specifically, fathers of index children), with higher rates reported among women of completion of any

schooling and of primary school. Although schooling is low among control households as well, it is slightly but significantly higher for control male heads than programme male heads.

Most work in urban slums is informal. The most common occupations for male heads in both programme and control areas are self-employment (such as rickshaw pulling) or petty trading/business (such as street vending), representing about 35 per cent and 20 per cent of work respectively among all three intervention arms. Daily wage labour (such as construction site worker) and salaried work (such as garment factory worker) are also reported, although the former is more common in programme areas and the latter is more common in control areas. Few in any intervention arm report farming or fishing, as expected in urban areas. About 70 per cent of index children's mothers in programme areas and about 80 per cent of index children's mothers in control areas report being in non-earning occupations. About 10-15 per cent of mothers report participating in poultry and livestock farming, with similar rates across programme and control areas. Notably, while garment work tends to be common for women in urban areas, it is rarely reported in our data, possibly because it requires work far from the home which may be challenging for mothers of the very young children in our sample.

In terms of dwelling conditions, about 50-60 per cent of programme households have dirt floors, while about 40 per cent of control households do. About 50-60 per cent of programme and control households have non-permanent walls, though most of these are relatively sturdy corrugated iron, and the remaining households have permanent concrete walls. Nearly all programme and control households have non-permanent roofs, but about 90 per cent of these are relatively sturdy corrugated iron. About 90 per cent of programme and control households had access to electricity, although it is not known whether these are legal connections. About 50 per cent of programme and control households have access to a sanitary latrine, and nearly all have access to safe drinking water via piped water or tubewells, although it is not known whether the tubewell water is arsenic-free.

Reports of economic shocks were very low in both programme and control areas. The most common economic shock was the bankruptcy of a business, reported by about 2-3 per cent of programme and control households. About 50 per cent of programme and control households report receiving inward remittances, with the average amounts received being similar across intervention arms.

Overall, relevant to the evaluation design, the programme areas assigned to (L) and (L+N) are largely balanced in terms of these characteristics. The exceptions are small differences between (L) and (L+N) in education of the index child's mother/caregiver, likely negligible differences in occupation of the household head relating to poultry and livestock or to non-earning occupations, and differences in household access to a sanitary latrine. All of these can potentially be controlled for in the eventual impact analysis.

In terms of most of these characteristics, the control areas (C) show statistically significant but fairly small differences on average. Given some similarity on most dimensions, it may be possible to purposively choose a subset of the (C) sample that can serve as a counterfactual in the UPPR evaluation.

4.3 Livelihoods and participation in social programmes

4.3.1 UPPR programme benefits received by beneficiary households

Given that the evaluation is concerned with the joint effect of direct nutrition and livelihood programmes, it is key to assess the type and extent of participation in livelihood programmes (both those under evaluation and others) accessed by the households in our sample. Most of the information in this section is not relevant for the control group (C) as by definition it does not receive services from the livelihood programmes which are part of the evaluation. For almost all of this section, then, the information will only pertain to (L+N) and (L) households.

Table 4.7 displays the type of services accessed by UPPR beneficiaries for the (L+N) and (L) groups. The range of services offered by UPPR is narrow and basically boils down to financial training for a minority of households. Eight per cent of (L+N) households and 7 per cent of (L) households received financial training from the program. This difference is not statistically significant at the 5 per cent level, indicating that the randomization did succeed in balancing access to the main service provided by UPPR. All of the other potential services are virtually nonexistent for UPPR beneficiaries.

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Livelihood Maintenance Stipend	0.00	0.00	
Asset Maintenance Cost Stipend	0.00	0.01	0.69
Agricultural Livelihood Training	0.00	0.01	0.37
Nonagricultural Livelihood Training	0.02	0.02	0.67
Financial Training	0.08	0.07	0.73
Health and Nutrition Training	0.02	0.02	0.44

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only.

Looking in more depth at financial training in Table 4.8, one can see that the service has been rolled out more than 3 years ago, and, as such, households had a sizable 28.9 and 26.9 months of exposure to the service in the (L+N) and (L) groups, respectively. There are no significant differences at the 5 per cent level in the timing of access to as well as monetary value of the service between the treatment arms. We do not present similar analyses for the remaining services as they are reaching less than 5 per cent of households.

UPPR beneficiaries may also receive assets (livestock and other productive assets) through the program. Table 4.9 shows the percentage of households that receive particular types of assets. The table excludes the assets for which ownership is nil. The only asset consistently transferred through the program is chicken and other poultry, which have been received by 9 per cent of (L+N) households and 12 per cent of (L) households. The difference is not statistically significant at the 5 per cent level. In total, 34 per cent of households received another type of asset, with no notable difference between the treatment arms. Overall, the randomization achieved balance on the only asset transferred through the program.

Table 4.8. Baseline means of monetary value of financial training and frequency timing and duration of access to financial training, by intervention arm—UPPR

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Monetary value of service received	436.29	874.40	0.40
Number of months since first receiving the service	38.20	35.61	0.53
Number of months since last receiving the service	9.30	8.69	0.85
Number of months received the service in total	28.90	26.93	0.75

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only. The number of months are calculated from the dates of interview.

Table 4.9. Baseline means of assets transfer, by intervention arm—UPPR

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Heifer	0.01	0.00	0.69
Goat	0.02	0.02	1.00
Chicken, duck, goose and other poultry	0.09	0.12	0.18
Sewing machine	0.01	0.01	0.38
Other	0.33	0.35	0.59

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only.

Going into the details for assets transfers, Table 4.10 shows the number of assets received; Table 4.11, their monetary value; and Table 4.12, the current stock of assets owned by the household. For this analysis, only assets received by at least 5 per cent of households are considered, i.e., chicken and other poultry and “other”. In Table 4.10 we can see that households in the (L+N) group received 3.39 chickens/poultry and those in the (L) group 3.41, a nearly identical figure. The same is true for the “other” category, with respective figures of 1.37 and 1.34. Differences are not statistically significant at the 5 per cent level.

Table 4.10. Baseline means of number of assets received, by intervention arm—UPPR

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Chicken, duck, goose and other poultry	3.39	3.41	0.95
Other	1.37	1.34	0.77

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only.

Turning to the monetary value of the assets transferred, we can see in Table 4.11 that there are no significant differences across the treatment arms. The value of chickens/poultry is around 500 taka for both (L+N) and (L) households and that of “other” is about 5,000 taka.

Finally the survey informs us on the current household ownership of these assets. The results are in Table 4.12. We can see that the figures for both chickens/poultry and “other” are noticeably below that of Table 4.10, which indicates that UPPR beneficiaries have been selling part of these assets. There are no significant differences at the 5 per cent level between (L+N) and (L) groups across the two assets.

Table 4.11. Baseline means of monetary value of assets received, by intervention arm—UPPR

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Chicken, duck, goose and other poultry	497.87	503.81	0.93
Other	4,921.27	5,077.67	0.77

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only.

Table 4.12. Baseline means of current ownership of assets received, by intervention arm—UPPR

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Chicken, duck, goose and other poultry	0.78	0.86	0.73
Other	0.59	0.56	0.77

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only.

In sum, the randomization was very successful in balancing the characteristics of assets transfers across the two groups so that the type of assets transferred, their numbers, and their monetary value are similar in (L+N) and (L) groups. The current ownership of these assets is equally balanced.

UPPR may offer other types of support than the 6 services and the asset transfers shown in previous tables. In particular, Table 4.13 reveals that more than 90 per cent of beneficiaries report that their communities received support in mobilizing to establish savings and credit groups, with no noticeable difference between (L+N) and (L) groups. 44 per cent of (L+N) households and 53 per cent of (L) households report that their communities received support in mobilizing to advocate for their needs, with once again, the difference being not significant. Furthermore, just below 40 per cent of both (L+N) and (L) households received support to improve access to water/waste sanitation, whereas 16 per cent of (L+N) and (L) households acceded direct microcredit service. 9 per cent of households received support to improve access to health facilities, 5 per cent support to improve housing conditions and 2 per cent a plinth. As with all the items in Table 4.13, there are no significant differences at the 5 per cent level between the (L+N) and (L) groups.

Table 4.13. Baseline means of other supports received, by intervention arm—UPPR

	Means		P-values of differences
	(L+N)	(L)	(L+N) - (L)
Plinth (to household or neighbor) provided to raise homestead	0.02	0.02	0.85
Direct microcredit service	0.16	0.19	0.36
Support to improve housing conditions	0.05	0.05	0.73
Support to improve access to water/waste sanitation	0.39	0.37	0.80
Support to improve access to health facilities	0.10	0.08	0.46
Support in mobilizing community to establish savings and credit groups	0.91	0.94	0.24
Support in mobilizing community to advocate for its needs	0.44	0.53	0.19

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only.

4.3.2 Other social programme benefits received by sample households

Finally, households in Bangladesh can take part in a myriad of welfare schemes and safety net programmes offered by the government or other actors, which may have independent effect on nutrition. For the evaluation of to be credible, we must then make sure that the access to these other programmes does not systematically vary across the treatment arms. Table 4.14 summarizes this information for the schemes for which at least 5 per cent of households take part in any treatment arm. Unlike for the information on participation in programmes we presented earlier, the survey question about these schemes includes the (C) group.

There are 8 programmes fulfilling the above requirement, with the most common being by a large margin Open Market Sales (OMS) which is accessed by 42 per cent of (L+N), 47 per cent of (L) and 46 per cent of (C) households. Two other important programmes are school feeding programmes and Old Age Allowance. The former is accessed by 19 per cent of (L+N), 15 per cent of (L) and 20 per cent of (C) households. The latter is accessed by 15 per cent of (L+N), 11 per cent of (L) and 22 per cent of (C) households. Other schemes of lesser importance in the UPPR context are stipends or primary and secondary/higher education and General Relief Activities which reach less than 10 per cent of households, irrespective of the treatment arm. The Maternity Allowance Program for Poor Lactating Mothers is virtually absent among (C) and (L) households (1 and 2 per cent, respectively) but is received by 8 per cent of (L+N) households. Control households are also significantly less likely to receive other schemes (4 per cent against 12 per cent and 14 per cent for (L+N) and (L), respectively) and overall participate in significantly less programmes than UPPR beneficiaries (1.09 against 1.31 and 1.21 for (L+N) and (L), respectively).

Comparing (L+N) and (L), nearly all of these indicators on access to other safety nets are balanced at the 5 per cent level, with the exception of the Maternity Allowance Program for Poor Lactating Mothers, which shows a difference significant at the 1 per cent level. This difference can be controlled for in the eventual impact analysis.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Stipend for Primary Students	0.04	0.03	0.08	0.80	0.26	0.18
School Feeding Program	0.15	0.11	0.22	0.45	0.38	0.11
Stipend for Secondary and Higher Secondary/Female Student	0.07	0.07	0.07	0.82	0.98	0.85
Old Age Allowance	0.19	0.15	0.10	0.23	0.01	0.09
Maternity Allowance Program for Poor Lactating Mothers	0.08	0.02	0.01	0.01	0.01	0.72
General Relief Activities	0.05	0.03	0.04	0.54	0.70	0.79
Open Market Sales (OMS)	0.42	0.47	0.46	0.55	0.59	0.97
Other	0.12	0.14	0.04	0.79	0.06	0.01
Number of Programmes Household Participate In	1.31	1.21	1.09	0.11	0.00	0.02

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

4.3.3 Summary

Given that this study aims to explore synergies between direct nutrition and livelihood programmes, it is useful to understand the type and extent of sample households' participation in livelihood programmes. In this section, we review the baseline quantitative information on benefits they receive both from the UPPR livelihoods programme (which by definition is relevant only to (L+N) and (L) households, not (C) households) and other social programmes.

In terms of UPPR benefits, we find that about 7-8 per cent of (L+N) and (L) households report receiving financial training. However, they report receiving this training for about 27-29 months, indicating considerable duration of exposure. These characteristics are statistically balanced across the (L) and (L+N) groups.

We also find that about 9-12 per cent of (L) and (L+N) households report receiving a transfer of poultry birds from the UPPR programme reported to have monetary value of about 500 taka, and about 33-35 per cent report receiving a transfer of other assets worth on average about 5,000 taka. Based on current household ownership of assets, programme households appear to have sold some of these assets. All of these characteristics are well balanced between the (L+N) and (L) groups.

Other forms of UPPR support reported by (L) and (L+N) households include support in mobilizing the community to establish savings and credit groups (more than 90 per cent of both groups), to advocate for its needs (about 44-53 per cent of the two groups), and to improve access to water and waste sanitation (about 37-39 per cent of the two groups). A share of both (L) and (L+N) also reports that UPPR provides direct microcredit service (about 16-19 per cent of the two groups). These characteristics are again statistically balanced between the (L+N) and (L) groups.

Finally, we consider other non-UPPR social programmes received by sample households, including those in the (C) group. The most common is Open Market Sales (OMS), which is accessed by 42-46 per cent of all three groups, with no statistically significant differences. School feeding programmes are accessed by 15-20 per cent of the three groups, with again no statistically significant differences. However, there are some programmes that are differentially accessed across intervention arms. For example, the Old Age Allowance is accessed by 11-15 per cent of the (L) and (L+N) households, but 22 per cent of (C) households. These patterns reflect that while the (L) and (L+N) households are well balanced in terms of receipt of other programmes, the (C) households may have somewhat different access to programmes.

Overall, the baseline analysis indicates that UPPR benefits to (L) and (L+N) households appeared to consist primarily of financial training, transfers of poultry birds and other assets, support in mobilizing the community (to establish savings and credit groups, to advocate for its needs, to improve access to water and waste sanitation), and provision of direct microcredit services. Services were reported to be provided over fairly long duration. Sample households in all three intervention arms also receive a range of other social programmes.

Results indicate that the (L) and (L+N) are balanced at the 5 per cent level in terms of UPPR benefits received as well as in terms of most external safety net benefits received; the exception is a significant difference in access to the Maternity Allowance Program for Poor Lactating Mothers, which can be controlled for in the eventual impact analysis. Results also indicate the (C) group may have access to slightly different other programmes on average. Therefore, it may be important to adjust for receipt of other programmes when using (C) as the counterfactual in the impact evaluation.

4.4 Assets

It is generally recommended that a wide definition of assets be used in the context of poverty reduction strategies. Assets are considered not simply resources that people use to build livelihoods but are identified as the basis of agents' power to act to reproduce, challenge or change the rules that govern the control and use of those resources (Moser 2007). In this section, we analyse the ownership of physical assets and financial assets.

4.4.1 Physical assets

Table 4.15 shows the average quantity of a range of consumer durables reported owned by households at the time of interview. UPPR households have approximately 24 consumer durable assets in the household, with the largest proportion of consumer durables serving cooking and sleeping needs. The (L) and eventual (L+N) households show few significant differences at the 5 per cent level in this large set of indicators on ownership of consumer durables. The exception is a small difference between (L) and (L+N) in the share of households owning a trunk or suitcase, significant at the 1 per cent level, which can potentially be controlled for in the eventual impact analysis. There are several significant differences in means between (L+N) or (L) households and (C) households, including for Bed/Khat/Chowki, Armoire/Cabinet/Alna and Refrigerator assets, although the magnitude of these differences tends to be small.

Table 4.16 shows the average quantity of a range of productive assets reported owned by UPPR households at the time of interview. Comparing (L) and (L+N) households, nearly all of this large set of indicators related to productive assets is balanced at the 5 per cent level. The exception is a small difference between (L) and (L+N) in the share of households owning hammers (significant at the 2 per cent level); although the magnitude of difference is relatively small, it can nonetheless be controlled for in the eventual impact analysis. There are several significant differences in means between (C) households on the one hand and (L+N) and (L) households on the other hand, including for randa, shabol, daa, and hoe assets, although the magnitude of differences tends to be quite small.

Table 4.17 shows the average quantity of a range of livestock assets reported owned by UPPR households at the time of interview. The (L) and (L+N) households show no statistically significant differences at the 5 per cent level in ownership of livestock assets. However, there are some significant differences between (C) households and both (L+N) and (L) households. The most notable are the differences in duck ownership (0.17 for (C) against 0.31 for (L+N) and (L)) and total assets (1.04 for (C) against 1.99 for (L)).

Table 4.15. Baseline means of quantity of consumer durables currently owned by the household, by intervention arm—UPPR

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Land phone set	0.00	0.00	0.00	0.32	0.32	1.00
Motorcycle	0.02	0.02	0.03	0.48	0.29	0.08
Bicycle	0.16	0.18	0.13	0.46	0.19	0.05
Trunk/Suitcase	0.66	0.78	0.76	0.01	0.04	0.67
Buckets/Pots	2.31	2.27	2.42	0.70	0.29	0.14
Stove/Gas Burner	0.10	0.11	0.13	0.84	0.23	0.35
Metal Cooking Pots	12.49	12.37	14.02	0.88	0.11	0.10
Bed/Khat/Chowki	1.81	1.87	1.62	0.42	0.01	0.00
Armoire/Cabinet/Alna	1.24	1.32	1.41	0.22	0.04	0.31
Table / chair	1.92	2.15	2.08	0.11	0.29	0.69
Hukka	0.00	0.00	0.00	0.65	0.52	0.34
Electric fan	1.43	1.46	1.41	0.60	0.83	0.51
Electric iron	0.04	0.05	0.07	0.37	0.06	0.23
Refrigerator	0.11	0.10	0.16	0.65	0.03	0.01
Radio	0.00	0.00	0.01	0.39	0.14	0.50
Audio cassette/CD player	0.03	0.04	0.04	0.75	0.24	0.39
Wall clock /watch	0.39	0.47	0.48	0.04	0.03	0.85
Television (B/W)	0.06	0.06	0.04	0.87	0.19	0.15
Television (Color)	0.51	0.54	0.55	0.35	0.26	0.81
Total assets	23.29	23.81	25.38	0.60	0.10	0.25

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Table 4.16. Baseline means of quantity of productive assets currently owned by the household, by intervention arm—UPPR

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Sewing machine	0.51	0.14	0.09	0.35	0.30	0.03
Rickshaw	0.06	0.10	0.08	0.26	0.62	0.57
Van(tricycle van)	0.04	0.05	0.04	0.52	0.53	0.18
Mobile phone set	1.32	1.39	1.41	0.23	0.14	0.76
Randa	0.02	0.02	0.01	0.78	0.08	0.09
Saw	0.04	0.06	0.02	0.06	0.20	0.00
Hammer	0.20	0.30	0.19	0.02	0.66	0.01
Fishing net	0.03	0.13	0.03	0.09	0.63	0.11
Spade (Kodal)	0.22	0.24	0.21	0.41	0.66	0.23
Axe(Kural)	0.16	0.17	0.15	0.67	0.61	0.37
Shovel(belcha)	0.07	0.08	0.06	0.56	0.57	0.29
Shabol	0.22	0.25	0.17	0.22	0.06	0.00
Daa	1.08	1.11	1.22	0.58	0.00	0.02
Cash in hand	978.27	1,186.75	1,227.60	0.13	0.07	0.80
Hoe	0.07	0.06	0.03	0.94	0.05	0.07
Winnower	0.09	0.11	0.10	0.48	0.87	0.65
Other light machinery	0.09	0.04	0.06	0.25	0.44	0.65
Hand tube well	0.22	0.24	0.20	0.65	0.72	0.41
Masons equipment	0.11	0.22	0.21	0.09	0.18	0.93
Total assets including cash	982.83	1,191.51	1,231.91	0.13	0.07	0.80
Total assets excluding cash	4.57	4.75	4.31	0.71	0.62	0.11

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Table 4.17. Baseline means of quantity of livestock assets currently owned by the household, by intervention arm—UPPR

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Bulls/oxen	0.06	0.06	0.03	0.77	0.09	0.10
Milk Cow	0.06	0.06	0.06	0.96	0.90	0.94
Goat	0.16	0.13	0.09	0.41	0.02	0.09
Sheep	0.00	0.01	0.01	0.20	0.07	0.69
Chicken	0.73	1.12	0.50	0.39	0.29	0.13
Chicks (1 day old)	0.08	0.05	0.04	0.19	0.21	0.95
Duck	0.31	0.31	0.17	0.99	0.07	0.02
Other birds (Specify)	0.13	0.24	0.13	0.25	0.96	0.22
Total assets	1.54	1.99	1.04	0.38	0.12	0.04

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

4.4.2 Financial assets

Table 4.18 shows outcomes related to financial assets. Comparing (L+N) and (L), all indicators related to financial asset ownership are balanced at the 5 per cent level. However, there are substantial differences

in financial assets between (C) households on the one hand and (L+N) and (L) assets on the other hand. Most significantly, current savings of (C) households amount to approximately three times the corresponding savings of both the (L) and (L+N) groups. There are also substantial—albeit much smaller—differences between the average loan amounts of the (C) group (28,800 taka) compared with the average loan amounts of both the (L) (20,300 taka) and (L+N) (21,000 taka) groups and the outstanding amounts on the loan (20,700 taka for (C) against around 14,500 for (L+N) and (L)). These differences are strongly significant.

Table 4.18. Baseline means of financial assets outcomes, by intervention arm—UPPR						
	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Have any adult in the household had any savings in the past 1 year?	0.97	0.98	0.86	0.38	0.00	0.00
Does any adult in the household currently have any savings?	0.96	0.97	0.72	0.54	0.00	0.00
Total amount currently saved	4,862.16	5,097.50	14,939.27	0.79	0.00	0.00
How frequently do you save?	2.82	2.98	3.53	0.07	0.00	0.00
Any loan in household?	0.96	0.96	0.96	0.74	0.99	0.74
Current loan in household	0.79	0.80	0.62	0.41	0.00	0.00
Loan amount	20,945.91	20,294.06	28,804.45	0.71	0.02	0.01
Interest rate	24.17	23.65	28.72	0.86	0.35	0.30
Outstanding amount	14,439.72	14,607.37	20,702.11	0.91	0.04	0.06
Remittances received from relatives (cash and in-kind from outside the country)	1,699.11	2,918.45	2,852.09	0.25	0.39	0.97
Remittances received from relatives (cash and in-kind from within the country)	2,832.77	3,423.92	4,322.63	0.36	0.05	0.31
Charity and other assistance (in cash)	112.17	65.22	138.15	0.37	0.77	0.35
Charity and other assistance (in kind)	44.29	38.71	40.61	0.78	0.86	0.91
Dowry received (in cash)	121.65	123.46	0.59	0.99	0.08	0.14
Dowry received (in kind)	207.46	104.08	23.52	0.47	0.13	0.33

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

4.4.3 Summary

Asset ownership is useful to explore in the context of this evaluation, both because the patterns in assets provide useful context on households' situation and because assets play an important role in livelihoods strategies. Ownership of assets may affect households' ability to participate in various livelihoods activities (for example, ownership of livestock allowing livestock rearing) and may also be affected by households' livelihoods through re-investment of generated income (for example, through purchases of

consumer durables). Assets may additionally help to shield households from shocks (for example, through savings or loans available at low interest). In this section, we assess quantitative baseline information on households' physical assets (consumer durables, productive assets, and livestock) as well as financial assets.

We find that UPPR sample households tend to own limited but somewhat diverse physical assets. In terms of consumer durables, some commonly owned items are basic (such as cooking pots, beds, tables/chairs, cabinets, trunks/suitcases, buckets), but others include simple electronics (electric fans, clocks/watches, color televisions). The (L+N) and (L) groups show few statistically significant average differences in ownership of consumer durables. The exception is a small difference in the share of households owning a trunk or suitcase, which can potentially be controlled for in the eventual impact analysis, although may be unlikely to affect the results. There are several statistically significant differences between the (C) group on one hand and the (L) and (L+N) groups on the other, though these tend to be of fairly small magnitude (e.g., about 1.8 beds among UPPR beneficiaries and about 1.6 beds among the control group).

Average ownership of productive assets tends to be very low. The most commonly owned are mobile phones and cash, with limited ownership of implements such as hammers, spades, shabols, and daas. The (L+N) and (L) groups are balanced in terms of nearly all of these characteristics. The exception is a small difference in the share of households owning hammers, which can potentially be controlled for in the eventual impact analysis, although may be unlikely to affect the results. There are again several statistically significant average differences between the (C) group on one hand and the (L) and (L+N) groups on the other, though these tend to be of fairly small magnitude (e.g., about 0.22-0.25 shabols among UPPR beneficiaries and about 0.17 shabols among the control group).

We also see low ownership of livestock assets. The most commonly owned animals in UPPR beneficiary and control group households are chickens. The (L+N) and (L) groups show no statistically significant differences at the 5 per cent level. The (C) group looks very similar as well. Although the (C) group owns significantly fewer ducks on average than the (L) and (L+N) groups, the difference is small in magnitude (e.g., about 0.3 ducks among UPPR beneficiaries and about 0.2 ducks among the control group).

Finally, in terms of financial assets, we see that UPPR beneficiary households have high rates of savings and lending. The (L+N) and (L) households are again balanced at the 5 per cent level in terms of these characteristics. However, the UPPR beneficiary households have significantly higher rates of holding savings and significantly smaller outstanding loan amounts, but significantly lower total amounts saved, than the control group households. These differences are mostly consistent with the UPPR programme facilitating financial services to its beneficiaries, although the higher savings amounts held by the control group is a meaningful difference.

Overall, the analysis suggests that randomization achieves balance between the (L+N) and (L) households on most indicators of asset ownership, with potential for controlling for the remaining differences in the impact analysis. The (C) households show more significant differences but tend to be quite similar to (L+N) and (L) households as well. Although we see a small set of significant differences in physical

asset ownership between UPPR beneficiary and control households, the magnitudes of the differences are quite small. Nonetheless, these differences should be taken into account when selecting a subset of (C) to serve as the counterfactual in the evaluation.

4.5 Food consumption

The quantity and quality of food consumed within a household, as well as who within the household consumes these foods, are important determinants of household members' nutritional status. In this section, we explore the diversity of foods that were consumed in the UPPR sample at the time of the baseline survey. Assessing diversity of diets is a fairly simple but meaningful way to capture the quantity and quality of diets (Hoddinott and Yohannes 2002). We examine baseline dietary diversity measures for households as a whole, as well as by specific household members of particular interest: young children ages 6-24 months, mothers of young children, fathers of young children, and adolescent girls.

Food consumption is of particular interest in this evaluation because it serves as a pathway through which the livelihoods and direct nutrition interventions may affect nutrition outcomes. Livelihoods interventions may increase household income, allowing households to consume a more diverse and nutritious diet. Direct nutrition interventions may increase the knowledge of household members regarding which types of foods are important to consume. For the purposes of the evaluation, it is therefore useful to learn from the baseline data both how diverse diets were in each intervention arm prior to the start of direct nutrition interventions and how similar diets were across intervention arms.

As described in Section 1.2.3, the baseline survey included detailed questions on food consumption in each intervention arm. Information was collected on household consumption of 321 food types in the past 7 days prior to the survey. Information was also collected regarding the dietary diversity during the previous day of four specific household members: the index child, the index child's mother or primary female caregiver (if in the household), the index child's father or primary male caregiver (if in the household), and the oldest adolescent girl aged 11-19 years (if any in the household). As also noted in Section 1.2.3, all households in all intervention arms were interviewed between September-November 2013. Therefore, while there may be seasonal factors that affect dietary intake, these factors should affect all intervention arms similarly and should not bias the comparison across arms.

Dietary diversity was measured based on the following categorizations of foods:

1. CEREAL: Rice, bread made of wheat, puffed rice, pressed rice, noodles, or any other foods made of rice, wheat, maize/corn, or other locally available grains
2. VITAMIN A RICH VEGETABLES AND TUBERS: Pumpkin, carrots, sweet potatoes that are orange and yellow inside
3. WHITE TUBERS AND ROOTS OR OTHER STARCHY FOODS: Potatoes, white yams, white sweet potato (not orange inside), potato crisps or other foods made from roots (not orange or yellow roots)

4. **DARK GREEN LEAFY VEGETABLES:** Dark green leafy vegetables, including spinach, red amaranth leaves, green amaranth, puishak, laushak, kumrashak, kolmishak, mustard leaves, yam leaves, koloishak (pea leaves), methishak (amaranth leaves), dhekishak, demishak, etc.
5. **OTHER VEGETABLES:** Other vegetables (e.g., squash, eggplant, green papaya, cauliflower, cabbage, onion, radish, sheem/boboti, etc.)
6. **VITAMIN A RICH FRUITS:** Ripe mangoes, ripe papaya/pawpaw
7. **OTHER FRUITS:** Other fruits (e.g., banana, apples, guava, oranges, other citrus fruits, pineapple, shakalu, watermelon, olives, grapes, jambura (grapefruit), berries, kamranga, tamarind, plum, etc.)
8. **MEAT:** Any beef, goat, lamb, chicken, duck, or other birds, liver, kidney, heart, or other organ meats
9. **EGGS:** Eggs of different birds – chicken, duck, turkey etc.; with yolk or without yolk
10. **FISH:** Big/small fresh or dried fish or shellfish (e.g., prawn, crab, etc.)
11. **BEANS, PEAS, OR LENTILS:** Any foods made from beans, peas, lentils, other pulses, soybeans, peas
12. **DAIRY:** Milk, cheese, yogurt, or other milk products (excluding breast milk)

The key indicators explored in this section are whether the household or individual consumed each of these 12 food groups during the relevant reference period, as well as how many total out of the 12 food groups the household or individual consumed.

While we grouped the food types into food group categories for the household, questions about the food groups themselves were asked for individuals. In particular, for the household, the survey asked distinctly whether each of 321 food types was consumed by the household in the past 7 days. These responses were then mapped to the 12 listed food groups in the analysis stage. Meanwhile due to time constraints, for the four specific household members, the survey asked simply whether the index child / index child's mother / index child's father / adolescent girl consumed any of each of the 12 listed food groups the previous day.

Therefore, two dimensions of 'discrepancy' might appear between the reported dietary diversity at the household level and the reported dietary diversity at the individual level. First, the household indicators are likely to be more precise, since they were elicited in detail and were categorized systematically in analysis, while the individual-level indicators were elicited in aggregate and respondents may have inaccurately categorized food items into the food groups. Second, it is to be expected that not all food groups consumed in the past 7 days would necessarily have been consumed in just the previous day. The shares of households reporting consumption of a particular food group over the past 7 days are therefore likely to be larger than the shares of individuals in the household reporting consumption of that same food group in the previous day. Nonetheless, taken together, the patterns in the household-level and individual-level indicators are likely to give a meaningful picture of what was eaten in the household and by who.

4.5.1 Dietary diversity at the household level

The analysis starts at the household level. Table 4.19 shows dietary diversity in household food consumption over the seven days preceding the survey. There are several interesting observations. First, there are clear patterns in the diet. In all three intervention arms, the diet is quite diverse. All UPPR sample households (100 per cent) report consuming cereals in the past 7 days. This observation is not

surprising, since rice is the primary staple food in Bangladesh. However, a large share of households in all intervention arms also report consuming vitamin A-rich vegetables (about 48 per cent), white tubers/roots (about 97 per cent, likely to be white potatoes), green leafy vegetables (about 80 per cent), other vegetables (about 62 per cent), vitamin A-rich fruits (about 100 per cent), meat (about 62 per cent), fish (about 95 per cent), beans/peas/lentils (about 40 per cent), and dairy (about 95 per cent). Overall, households in all three intervention arms report consuming about 8 of the 12 food groups in the past 7 days. While most households do not report having consumed all of these food groups in the past 7 days, there appears to be considerable diversity in the diet.

Second, the (L) and eventual (L+N) households show no significant differences at the 5 per cent level in average consumption of these food groups in the past 7 days. The p-values for the mean difference between the (L) and (L+N) groups in fact exceed 0.10 for all indicators, and the magnitude of the differences are very small. These patterns indicate that the randomisation successfully balanced baseline dietary patterns at the household level between (L) and (L+N).

Third, the (C) group is fairly similar to the (L) and (L+N) groups in terms of means and p-values, except for consumption of green leafy vegetables and of eggs. The difference between the share of (C) households that consume green leafy vegetables and eggs relative to the share in the (L) or (L+N) households is highly statistically significant, and the magnitude of the difference is also considerable (72 per cent relative to about 81 per cent for green leafy vegetables, and 68 per cent relative to about 53 per cent for eggs). The difference could reflect a different market environment. Therefore, while the (C) group is quite similar to the (L) and (L+N) groups in terms of household dietary diversity, there nonetheless appear to be potentially meaningful differences.

Table 4.19. Baseline means of dietary diversity outcomes over the past 7 days for households, by intervention arm—UPPR

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Consumed cereal	1.00	1.00	1.00		0.32	0.32
Consumed vitamin A-rich vegetables	0.48	0.47	0.44	0.83	0.11	0.16
Consumed white tubers/roots	0.98	0.97	0.97	0.49	0.24	0.64
Consumed green leafy vegetables	0.81	0.83	0.72	0.44	0.00	0.00
Consumed other vegetables	0.62	0.62	0.64	0.98	0.46	0.50
Consumed vitamin A-rich fruits	1.00	1.00	1.00	0.32	0.31	0.08
Consumed other fruits	0.07	0.08	0.04	0.56	0.01	0.00
Consumed meat	0.62	0.62	0.60	0.86	0.45	0.34
Consumed eggs	0.53	0.54	0.68	0.99	0.00	0.00
Consumed fish	0.95	0.96	0.93	0.38	0.09	0.02
Consumed beans peas lentils	0.39	0.41	0.38	0.46	0.78	0.32
Consumed dairy	0.95	0.96	0.94	0.53	0.29	0.09
Number of groups (of 12)	8.40	8.46	8.32	0.50	0.44	0.16

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

4.5.2 Dietary diversity among young children

The analysis then turns to exploring dietary diversity patterns within the household. Table 4.20 shows summary statistics on dietary diversity among index children aged 6-24 months during the day preceding the survey. Here, the age range of index children is restricted to 6 months or older, because 6 months is the age at which the start of complementary feeding is recommended. Given that the recommendation for children younger than 6 months is to be exclusively breastfed (meaning that they would consume zero of these food groups), including these children in the statistics would complicate the interpretation of the summary statistics. Including only children aged 6-24 months allows interpreting a greater number of food groups consumed to be unambiguously better, since the recommendation is for children to start consuming a diverse diet as soon as solid or semi-solid foods are introduced at 6 months.

There are again a number of notable observations. First, the pattern of food groups most commonly consumed by index children age 6-24 months, while somewhat different than the pattern for households as a whole, reflects similar diversity. As described above it is expected that shares reporting consumption over the last 1 day would be lower than shares reporting consumption over the last 7 days, and categorizations of some food items may be slightly inconsistent. Nonetheless, similar to the household level, a large majority of index children are reported to have consumed cereal (about 88 per cent), and a majority are also reported to consume white tubers/roots (about 70 per cent) and other vegetables (about 74 per cent, which given the pattern at the household level might in fact include some vitamin A-rich vegetables due to respondent miscategorization). A considerable share is also reported to consume green leafy vegetables (about 28 per cent and less likely to be miscategorized), other fruits (about 24 per cent, which again might include some that are vitamin A rich due to respondent miscategorization), eggs (about 22 per cent), fish (34 per cent), beans/peas/lentils (about 35 per cent), and dairy (about 30 per cent).

Table 4.20. Baseline means of dietary diversity outcomes the previous day for Index Child aged 6-24 months, by intervention arm—UPPR

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Consumed cereal	0.88	0.88	0.89	0.77	0.68	0.50
Consumed vitamin A-rich vegetables	0.05	0.06	0.02	0.56	0.00	0.00
Consumed white tubers/roots	0.68	0.70	0.70	0.59	0.56	1.00
Consumed green leafy vegetables	0.28	0.29	0.21	0.72	0.01	0.00
Consumed other vegetables	0.74	0.74	0.79	0.93	0.13	0.14
Consumed vitamin A-rich fruits	0.02	0.03	0.01	0.14	0.75	0.09
Consumed other fruits	0.24	0.24	0.23	0.93	0.74	0.79
Consumed meat	0.11	0.12	0.18	0.57	0.00	0.00
Consumed eggs	0.22	0.25	0.23	0.17	0.53	0.47
Consumed fish	0.34	0.34	0.39	0.93	0.08	0.14
Consumed beans peas lentils	0.40	0.35	0.34	0.13	0.05	0.75
Consumed dairy	0.30	0.31	0.26	0.83	0.26	0.16
Number of groups (of 12)	4.25	4.29	4.25	0.76	0.99	0.77

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Overall, the pattern suggests that children in the age range of 6-24 months might most typically eat rice, white potatoes, and vegetables (that are not leafy greens but might be vitamin A rich). The pattern also suggests that while the other food groups are not as regularly consumed, many might nonetheless be somewhat common in the diet for young children, including green leafy vegetables, fruits (which might be vitamin A rich), eggs, fish, beans/peas/lentils, and dairy. Given that shares reported consuming these food groups in the previous day fall between about 20 per cent to 40 per cent, it could either be that only some (but not most) children in this age range eat these food groups or that these food groups are typically only eaten a few days a week rather than daily by children in this age range. The overall number of food groups consumed in all three intervention arms is about 4.

A second important observation is that, as at the household level, the (L) and (L+N) groups are balanced at the 5 per cent level in terms of index children's dietary diversity. The p-values for all mean differences between the two groups in fact exceed 0.10, and the magnitudes of the differences are quite small.

Third, again mirroring the household level, the (C) group appears similar to the (L) and (L+N) groups in terms of index children's dietary diversity, but there are statistically significant differences. In particular, the consumption of green leafy vegetables appears to be significantly lower and the consumption of meat appears to be significantly higher in the (C) group than in the beneficiary groups. These patterns suggest that the randomisation succeeded in balancing the baseline dietary diversity of index children 6-24 months between the (L) and (L+N) groups, but that the (C) group exhibits potentially meaningful differences.

4.5.3 Dietary diversity among mothers of young children

Next, the analysis turns to dietary diversity patterns of the mothers of all index children (including mothers of children 0-5 months). Table 4.21 shows summary statistics for dietary diversity among mothers during the day preceding the survey.

Several observations are again worth noting. First, the pattern of food groups most commonly consumed by mothers appears similar to the patterns for index children age 6-24 months but different in certain dimensions. Like index children, nearly all mothers are reported to have consumed cereal (about 100 per cent), a majority are reported to consume white tubers/roots (about 86 per cent), and most are reported to consume other vegetables (about 94 per cent, which again might include vitamin A-rich vegetables due to respondent miscategorization). Also similarly, a considerable share is reported to consume green leafy vegetables (about 40 per cent), other fruits (about 20 per cent), eggs (about 19 per cent), fish (about 52 per cent), and beans/peas/lentils (49 per cent). The key differences are that for nearly all of these food groups the shares among mothers are reported to be higher than among young children age 6-24 months, notably in terms of green leafy vegetables, fish, and beans/peas/lentils. Meanwhile, the share consuming dairy is lower among mothers than among their young children.

Overall the pattern suggests that mothers might most typically eat rice, white potatoes, and vegetables (that are not leafy greens but might be vitamin A rich), and might somewhat commonly consume green

leafy vegetables, fruits (which might be vitamin A rich), eggs, fish, and beans/peas/lentils, like their young children. On the other hand, they tend to less frequently consume dairy. The average number of food groups consumed is about 5.

A second observation is that, as at the household and index child level, the (L) and (L+N) groups are balanced at the 5 per cent level in terms of mothers' dietary diversity. The p-values for all mean differences between the two groups in fact exceed 0.10, and the magnitudes of the differences are quite small.

Third, again as at the household and index child level, the (C) group appears similar to the (L) and (L+N) groups in terms of mothers' dietary diversity, but there are statistically significant differences, particularly in consumption of green leafy vegetables, meat, and beans/peas/lentils. These patterns suggest that the randomisation succeeded in balancing the baseline dietary diversity of mothers between the (L) and (L+N) groups, but that the (C) group exhibits potentially meaningful differences.

Table 4.21. Baseline means of dietary diversity outcomes the previous day for mothers of Index Children, by intervention arm—UPPR

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Consumed cereal	1.00	1.00	1.00	0.46	1.00	0.46
Consumed vitamin A-rich vegetables	0.09	0.09	0.04	0.67	0.00	0.00
Consumed white tubers/roots	0.85	0.86	0.87	0.83	0.49	0.64
Consumed green leafy vegetables	0.40	0.42	0.31	0.51	0.00	0.00
Consumed other vegetables	0.94	0.94	0.97	0.72	0.00	0.01
Consumed vitamin A-rich fruits	0.03	0.04	0.01	0.66	0.01	0.01
Consumed other fruits	0.20	0.20	0.17	0.89	0.24	0.17
Consumed meat	0.15	0.18	0.25	0.24	0.00	0.00
Consumed eggs	0.19	0.21	0.18	0.38	0.56	0.14
Consumed fish	0.52	0.51	0.56	0.58	0.19	0.06
Consumed beans peas lentils	0.49	0.49	0.42	0.94	0.03	0.04
Consumed dairy	0.13	0.14	0.11	0.79	0.20	0.13
Number of groups (of 12)	4.99	5.06	4.87	0.43	0.15	0.03

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

4.5.4 Dietary diversity among fathers of young children

The analysis then proceeds to dietary diversity patterns of the fathers of all index children (including fathers of children 0-5 months). Table 4.22 shows summary statistics for dietary diversity among fathers during the day preceding the survey.

Again there are several observations to note. First, the pattern of food groups most commonly consumed by fathers is very similar to the pattern for mothers, if with slightly smaller shares reported than among mothers. The statistics indicate that, like mothers, fathers of young children tend to consume mostly rice, potatoes, and vegetables (possibly vitamin A rich) like their children, tend to also consume some green leafy vegetables, fruits (which might be vitamin A rich), eggs, fish, and beans/peas/lentils, but consume less dairy than young children. These patterns suggest that there is no clear gender bias in terms of

individual dietary diversity. While it is possible that men consume a greater quantity of some foods than women do, they appear not to consume fundamentally different (or ‘higher quality’) types.

Second, as in the previous breakdowns, the (L) and (L+N) groups are balanced at the 5 per cent level in terms of fathers’ dietary diversity. The p-values for all mean differences between the two groups in fact exceed 0.10, and the magnitudes of the differences are quite small.

Third, again as in the previous breakdowns, the (C) group appears similar to the (L) and (L+N) groups in terms of fathers’ dietary diversity, but there are statistically significant differences, particularly in consumption of green leafy vegetables, meat, and beans/peas/lentils. These patterns suggest that the randomisation succeeded in balancing the baseline dietary diversity of fathers between the (L) and (L+N) groups, but that the (C) group exhibits potentially meaningful differences.

Table 4.22. Baseline means of dietary diversity outcomes the previous day for fathers of Index Children, by intervention arm—UPPR

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Consumed cereal	0.98	0.99	0.98	0.40	0.62	0.20
Consumed vitamin A-rich vegetables	0.09	0.09	0.04	0.82	0.00	0.00
Consumed white tubers/roots	0.83	0.85	0.85	0.40	0.29	0.81
Consumed green leafy vegetables	0.39	0.42	0.31	0.27	0.00	0.00
Consumed other vegetables	0.92	0.93	0.96	0.57	0.00	0.03
Consumed vitamin A-rich fruits	0.03	0.03	0.01	0.65	0.01	0.01
Consumed other fruits	0.18	0.19	0.16	0.68	0.29	0.14
Consumed meat	0.16	0.18	0.24	0.29	0.00	0.00
Consumed eggs	0.18	0.21	0.17	0.24	0.57	0.09
Consumed fish	0.51	0.50	0.55	0.59	0.20	0.07
Consumed beans peas lentils	0.48	0.49	0.41	0.77	0.03	0.01
Consumed dairy	0.12	0.13	0.10	0.49	0.13	0.03
Number of groups (of 12)	4.88	5.01	4.78	0.13	0.22	0.01

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

4.5.5 Dietary diversity among adolescent girls

The analysis finally turns to dietary diversity patterns of adolescent girls (in particular, the oldest girl aged 11-19 in the household, if any). Table 4.23 shows summary statistics for dietary diversity among adolescent girls during the day preceding the survey.

There are again several notable observations. First, the pattern of food groups most commonly consumed by adolescent girls is very similar to the patterns for fathers and mothers of index children, if with slightly smaller shares reported than among fathers and mothers. The statistics indicate that, like mothers and fathers of young children, adolescents tend to consume mostly rice, potatoes, and vegetables (possibly vitamin A rich) like their children, tend to also consume some green leafy vegetables, fruits (which might be vitamin A rich), eggs, fish, and beans/peas/lentils, but consume less dairy than young children. The

patterns indicate again that there is no apparent ‘favoritism’ among adults in terms of individual dietary diversity. While it is possible that men consume a greater quantity of some foods than women or adolescent girls do, they appear not to consume fundamentally different (or ‘higher quality’) types.

Second, the (L) and (L+N) groups are balanced at the 5 per cent level in terms of nearly all dimensions of adolescent girls’ dietary diversity. The exception is a small difference between (L) and (L+N) in the share of adolescent girls consuming dairy (significant at the 3 per cent level); this difference can be controlled for in the eventual impact analysis, although doing so may not affect the results given its small magnitude.

Third, again as in the previous breakdowns, the (C) group appears similar to the (L) and (L+N) groups in terms of fathers’ dietary diversity, but there are statistically significant differences, particularly in consumption of green leafy vegetables, meat, and beans/peas/lentils. These patterns suggest that the randomisation succeeded in balancing the baseline dietary diversity of fathers between the (L) and (L+N) groups, but that the (C) group exhibits potentially meaningful differences.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Consumed cereal	0.92	0.92	0.94	0.82	0.37	0.49
Consumed vitamin A-rich vegetables	0.12	0.09	0.03	0.35	0.00	0.01
Consumed white tubers/roots	0.83	0.75	0.84	0.07	0.78	0.06
Consumed green leafy vegetables	0.41	0.42	0.29	0.86	0.01	0.01
Consumed other vegetables	0.88	0.87	0.93	0.67	0.11	0.08
Consumed vitamin A-rich fruits	0.04	0.05	0.02	0.89	0.14	0.15
Consumed other fruits	0.20	0.19	0.17	0.80	0.41	0.53
Consumed meat	0.16	0.19	0.23	0.31	0.08	0.38
Consumed eggs	0.17	0.19	0.18	0.62	0.88	0.78
Consumed fish	0.51	0.49	0.47	0.65	0.37	0.69
Consumed beans peas lentils	0.52	0.45	0.45	0.20	0.22	0.98
Consumed dairy	0.08	0.14	0.10	0.03	0.52	0.20
Number of groups (of 12)	4.98	5.05	4.76	0.66	0.20	0.10

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

4.5.6 Summary

The types of food consumed within a household, and who in the household consumes which foods, are important factors for household members’ nutritional status. Dietary diversity measures are a useful way of capturing the quality of diets. They are of particular interest in this evaluation since food consumption serves as a key pathway through which the livelihoods and direct nutrition interventions may affect nutrition outcomes. In this section, we explore the diversity of foods that were consumed in the UPPR sample at the time of the baseline survey. We examine baseline dietary diversity measures for households as a whole, as well as by specific household members of particular interest: young children ages 6-24 months, mothers of young children, fathers of young children, and adolescent girls.

Overall, the analysis of baseline indicators on household and individual dietary diversity in the UPPR sample indicate that diets for young children age 6-24 months, their mothers, their fathers, and adolescent girls in the household are likely to consist mainly of rice, potatoes, and vegetables (possibly vitamin A rich), but also include some diversity in terms of other food groups. Considerable shares are reported of green leafy vegetables, fruits (which might be vitamin A rich), eggs, fish, and beans/peas/lentils. However, mothers, fathers, and adolescent girls appear to more frequently consume these food groups than their young children and to less frequently consume dairy than young children. In particular, although dairy appears not to be consumed very regularly even by young children, it does appear to be consumed more by them than by other household members.

There are no striking differences in the patterns between mothers, fathers, and adolescent girls, although the shares consuming various food groups appear to be slightly larger for mothers than for fathers. As a whole, it appears that there is no clear ‘favoritism’ among adults in terms of individual dietary diversity. While it is possible that men consume a greater quantity of some foods than women or adolescent girls do, they appear not to consume fundamentally different (or ‘higher quality’) types.

Relevant to the evaluation design, in nearly all cases, the (L) and (L+N) groups appear to be well balanced at the 5 per cent level, suggesting that the randomisation largely succeeded in balancing baseline dietary diversity. The exception is a small difference between (L) and (L+N) in the share of adolescent girls consuming dairy, which can be controlled for in the eventual impact analysis, though may not affect the results given its small magnitude. The (C) group also tends to be fairly similar to the (L) and (L+N) groups but in most cases exhibits some potentially meaningful differences, suggesting that a subset would need to be carefully chosen to serve as a counterfactual.

4.6 Anthropometry

In this section, we review baseline quantitative information on measures of anthropometry. Anthropometric measures are considered the best indicators of young children’s nutritional status and are the key outcomes studied in this evaluation. Children’s nutritional status is strongly determined by their nutritional environment in the first thousand days of life starting with conception, which in turn is affected by their mothers’ nutritional status. This section therefore focuses on several measures of nutritional status for young children (height-for-age, weight for age, weight-for-height), as well as a measure of nutritional status for their mothers (body mass index).

4.6.1 Children’s height-for-age

In terms of long-term nutritional status, the most important anthropometric indicator for children is height-for-age. Height-for-age captures the history of a child’s nutritional environment from conception to about two years of age, including both dietary intake and exposure to infection. Height-for-age has also been shown to be a very strong predictor of a range of adult outcomes including educational and labor market indicators (Hoddinott et al. 2013). Malnutrition as indicated by low height-for-age is therefore understood to more broadly reflect impaired early development. While there are serious and long-term

adverse implications for growth failure, the critical window for affecting height-for-age is in the first thousand days of life. Evidence shows that nutritional interventions may be able to improve height-for-age when they are targeted to children ages 0-2 years and/or pregnant and lactating mothers, but have very limited remediating effects at later ages. Therefore, the window of opportunity for intervention is in precisely the age range that is targeted by this evaluation's nutrition component. Evidence also indicates however that effects on height-for-age require intensive intervention over fairly long duration. The potential for impacts on height-for-age will therefore depend on the extent to which programme components translate to meaningful changes in household behaviour that improve diet and/or reduce infection over an extended period during the critical window (e.g., increasing exclusive breastfeeding from birth to the time a child is 6 months old).

The baseline survey recorded height measurements of all children aged 0-5 years old (recumbent length, for those aged 0-2 years). To norm these height measurements against a reference population of the same age and sex, Z-scores were constructed using the 2006 WHO child growth standards. The height-for-age Z-score (HAZ) indicates how many standard deviations the height is above or below the median height for the reference population of the same age and sex. A child with height-for-age Z-score more than two standard deviations below the reference median (i.e., $HAZ < -2$) is characterised as 'stunted.' A child with height-for-age Z-score more than three standard deviations below the reference median (i.e., $HAZ < -3$) is characterised as 'severely stunted.'

To begin, Figure 4.1 shows the distribution of the height-for-age Z-score in the overall UPPR baseline sample. The distribution peaks below zero, indicating that sample children tend to be below the reference population's median height, given their age and sex.

Next, we examine summary statistics for the height-for-age Z-score, the incidence of stunting, and the incidence of severe stunting. We compare children aged 0-5 years old in households who received both the livelihoods and nutrition interventions (L+N), in households who received the livelihoods intervention only (L), and in households who received neither intervention—the control group (C).

Table 4.24 shows that the average height-for-age Z-score is approximately 1 standard deviations below the reference median height. Approximately 26 per cent of children in the sample are stunted, and approximately 9 per cent of children are severely stunted. There are few statistically significant differences at the 5 per cent level in these means across the three intervention arms. The exception is a very small difference between (L) and (L+N) in the proportion of children stunted, significant at the 3 per cent level, which can be controlled for in the impact analysis.

Figure 4.1. Baseline distribution of height-for-age Z-scores, for children age 0-5 years—UPPR

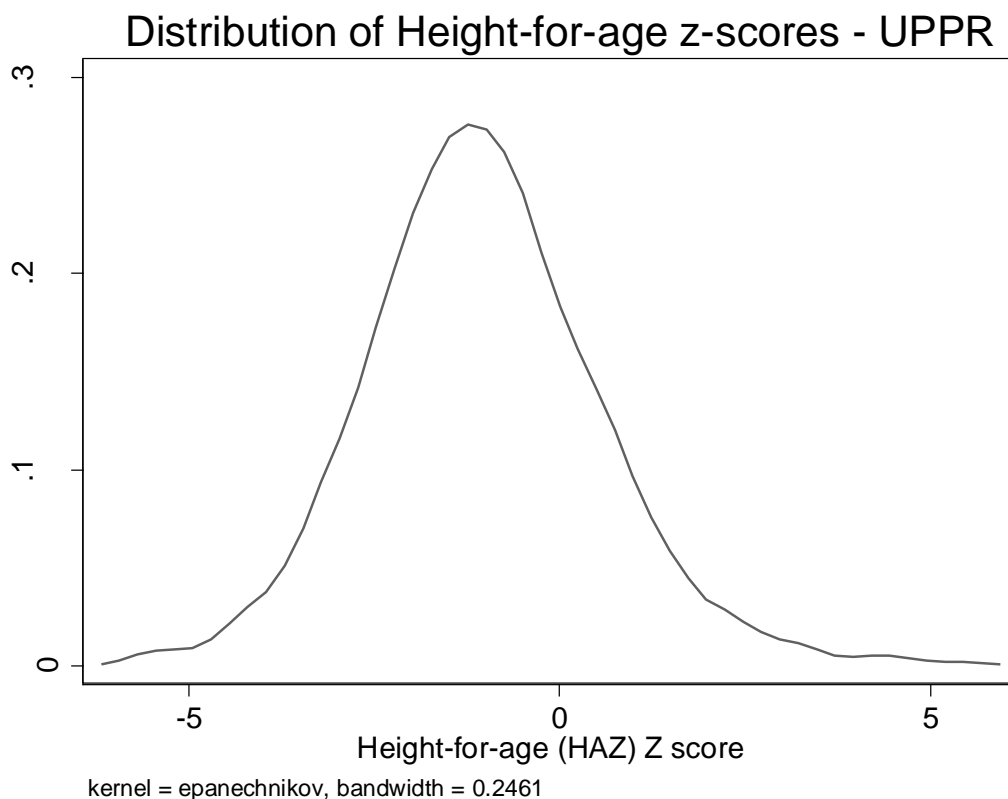


Table 4.24. Baseline means of height-for-age outcomes for children aged 0-5 years, by intervention arm—UPPR

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Height-for-age (HAZ) Z-score	-1.08	-0.97	-1.04	0.11	0.60	0.28
Proportion of children stunted (HAZ < -2 sd)	0.28	0.25	0.26	0.03	0.14	0.56
Proportion of children severely stunted (HAZ < -3 sd)	0.10	0.08	0.09	0.13	0.66	0.33

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

4.6.2 Children's weight-for-age

Children's weight can be considered a measure of short-term nutritional status. Unlike height, weight can be changed relatively quickly through changes in the nutrition environment. Weight can also be affected over a wider range of ages than height can be. For example, if a child's nutrition environment improves

after the first thousand days, even though the child's height-for-age trajectory is unlikely to improve meaningfully, it is possible for the child's weight to improve.

The baseline survey recorded weight measurements of all children aged 0-5 years old. As with height, to norm these weight measurements against a reference population of the same age and sex, Z-scores were constructed using the 2006 WHO child growth standards. The weight-for-age Z-score (WAZ) indicates how many standard deviations the weight is above or below the median weight for the reference population of the same age and sex. A child with weight-for-age Z-score more than two standard deviations below the reference median (i.e., $WAZ < -2$) is characterised as 'underweight.' A child with weight-for-age Z-score more than three standard deviations below the reference median (i.e., $WAZ < -3$) is characterised as 'severely underweight.'

To begin, Figure 4.2 shows the distribution of the weight-for-age Z-score in the overall UPPR baseline sample. The distribution peaks below zero, indicating that children tend to be below the reference population's median weight, given their age and sex.

Figure 4.2. Baseline distribution of weight-for-age Z-scores, for children age 0-5 years—UPPR

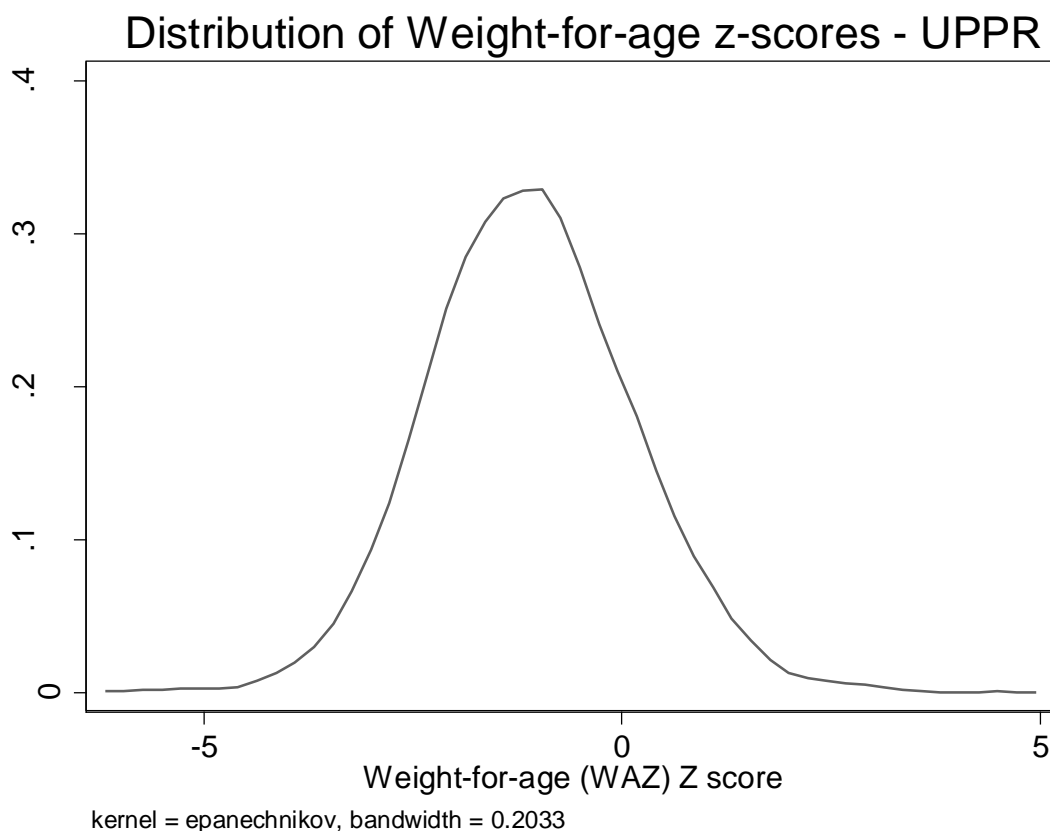


Table 4.25 then reports summary statistics on the weight-for-age Z-score, the proportion of children aged 0-5 who are underweight, and the proportion of children aged 0-5 who are severely underweight, in each of the three intervention arms in the UPPR sample. The average weight-for-age Z-score is approximately 1.06 to 1.13 standard deviations below the reference median weight. Approximately 23 per cent of children are underweight, and approximately 5 per cent of children are severely underweight. All three groups are well balanced on the WAZ and proportion of children underweight measures. Comparing (L+N) and (L), there are no significant differences at the 5 per cent level in average WAZ or proportion of children underweight; however, there is a very small difference in the proportion of children severely underweight, significant at the 3 per cent level, which can be controlled for in the impact analysis.

Table 4.25. Baseline means of weight-for-age outcomes for children aged 0-5 years, by intervention arm—UPPR

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Weight-for-age (WAZ) Z-score	-1.13	-1.06	-1.10	0.16	0.55	0.47
Proportion of children underweight (WAZ<-2 sd)	0.23	0.22	0.23	0.49	0.84	0.64
Proportion of children severely underweight (WAZ<-3 sd)	0.06	0.04	0.06	0.03	0.98	0.03

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

4.6.3 Children's weight-for-height

An alternative measure to capture a child's weight relative to the reference population is the child's weight-for-height. Because a child's weight naturally depends on the child's height, the weight-for-height measure can be more straightforward to interpret than the weight for age measure. In particular, the weight-for-height measure allows distinguishing low weight-for-age that is partially driven by low height-for-age from low weight-for-age, given height.

As with height-for-age Z-scores and weight-for-age Z-scores, weight-for-height Z-scores (WHZ) were constructed using the 2006 WHO child growth standards. A child with weight-for-height Z-score more than two standard deviations below the reference median (i.e., WHZ<-2) is characterised as 'wasted.' A child with weight-for-height Z-score more than three standard deviations below the reference median (i.e., WHZ<-3) is characterised as 'severely wasted.'

To begin, Figure 4.3 shows the distribution of the weight-for-height Z-score in the overall UPPR baseline sample. The distribution peaks below zero, indicating that sample children tend to fall below the reference median.

Figure 4.3. Baseline distribution of weight-for-height Z-scores, for children age 0-5 years—UPPR

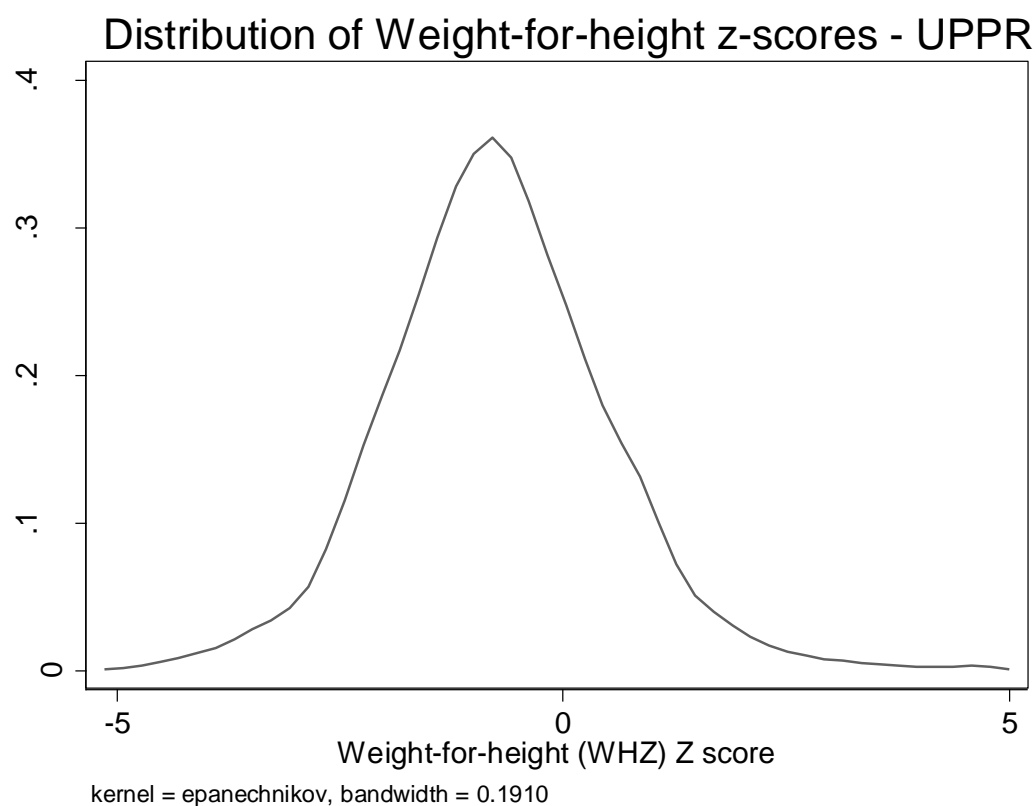


Table 4.26 then reports summary statistics on the weight-for-height Z-score, the proportion of children aged 0-5 who are wasted, and the proportion of children aged 0-5 who are severely wasted in each of the three intervention arms in the UPPR sample. The average weight-for-height Z-score is approximately 0.73 standard deviations below the median. Approximately 14 per cent of children are wasted, and approximately 3 per cent of children are severely wasted. There are no significant differences between the three groups at the 5 per cent level.

Table 4.26. Baseline means of weight-for-height outcomes for children aged 0-5 years, by intervention arm—UPPR

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Weight-for-height (WHZ) Z-score	-0.75	-0.73	-0.73	0.78	0.72	0.93
Proportion of children wasted (WHZ < -2 sd)	0.13	0.15	0.14	0.23	0.63	0.53
Proportion of children severely wasted (WHZ < -3 sd)	0.03	0.03	0.04	0.90	0.38	0.31

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

4.6.4 Women's body mass index

We then turn to nutritional status of women. Women's nutritional status, in addition to its intrinsic importance, is also a key determinant of children's nutritional status while in utero and during lactation. To construct a measure of women's nutritional status, we calculate their body mass index.

The baseline survey recorded height and weight measurements for the mother of the designated 'index child' aged 0-24 months in each sampled household. A measure of body mass index (BMI) is constructed as follows:

$$\text{BMI} = \frac{\text{weight in kilograms}}{(\text{height in meters})^2}$$

Per convention, pregnant women are excluded from the calculation of BMI, since their weight is affected by pregnancy. Following WHO cut-offs, BMI values between 18.5 and 25 are characterised as 'normal.' Women with BMI values under 18.5 are considered underweight, and women with BMI values above 25 are considered overweight.

Figure 4.4 shows the distribution of BMI for mothers of the index children who are not pregnant in the UPPR sample. A large proportion of women have BMI below 18.5.

Table 4.27 reports the mean BMI for mothers of index children, as well as the proportions that are underweight or overweight, for each of the three groups in the UPPR sample. The average BMI for mothers of the index children in the sample is just above 21. This lies toward the middle of the 'normal' range. Approximately 22 per cent of mothers are underweight (BMI less than 18.5), and approximately 17 per cent are overweight (BMI greater than 25). There are no statistically significant differences at the 5 per cent level in means across any of the three intervention arms.

Figure 4.4. Baseline distribution of body mass index, for mothers of index children—UPPR

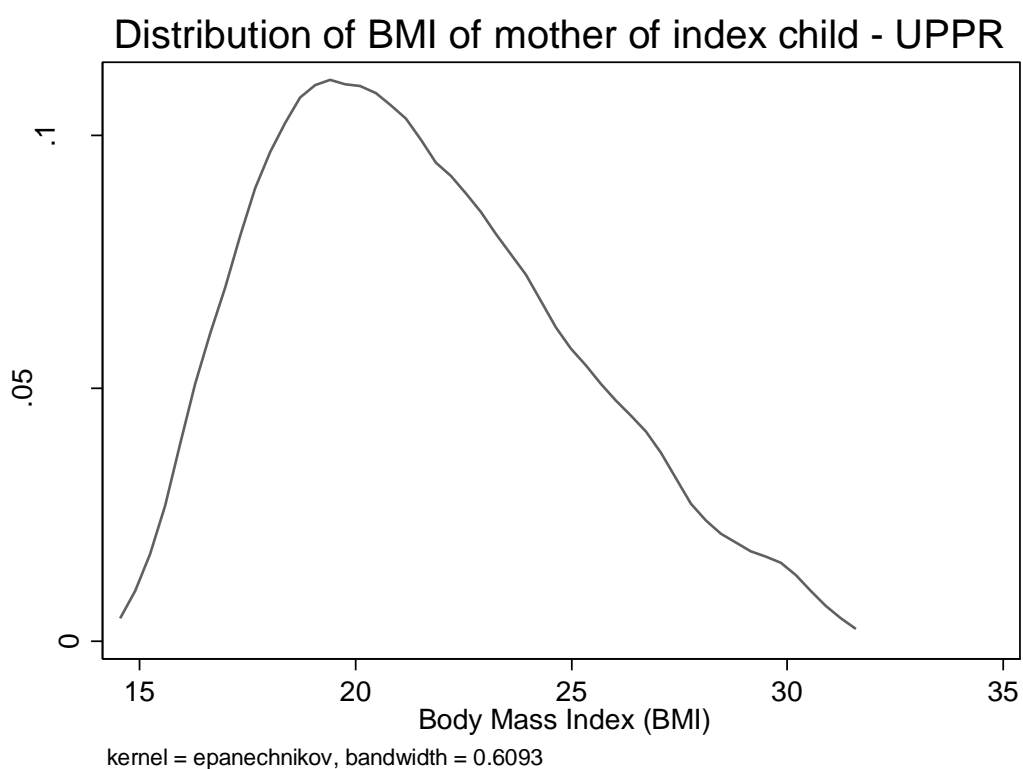


Table 4.27. Baseline means of anthropometry of mother of index child, by intervention arm—UPPR

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Body Mass Index (BMI)	21.47	21.57	21.51	0.57	0.86	0.74
Proportion underweight (BMI<18.5)	0.21	0.22	0.23	0.54	0.49	0.93
Proportion overweight (BMI>25)	0.16	0.18	0.18	0.17	0.21	0.92

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

4.6.5 Summary

Child nutritional status is the key outcome we study in this evaluation. Anthropometric measures are our primary indicators for nutritional status. Given that children's nutritional status is strongly determined by their nutritional environment in the first thousand days of life starting with conception, which in turn is affected by their mothers' nutritional status, this section focuses on several measures of nutritional status for young children as well as a measure of nutritional status for their mothers.

Children's height-for-age is the most important anthropometric indicator of their long-term nutritional status. Height-for-age captures the history of a child's nutritional environment from conception to about

two years of age, and affecting its trajectory tends to require intensive early intervention. Growth failure in terms of height-for-age has been shown to have life-long adverse consequences. We use Z-scores to norm height-for-age and sex, based on the WHO 2006 reference population. In the UPPR sample of children aged 0-5 years, we find that the average height-for-age Z-score (HAZ) is approximately 1 standard deviation below the reference median. Approximately 26 per cent of children in the sample are stunted ($HAZ < -2$), and approximately 9 per cent of children are severely stunted ($HAZ < -3$). Although there is a small significant difference in the proportion of stunted children between the (L+N) and (L) groups (28 per cent and 25 per cent, respectively), the magnitude of the difference is very small and can be controlled for in the impact analysis. There are no other statistically significant differences in these statistics across the three intervention arms.

Whereas height trajectory captures the long term, children's weight captures short-term nutritional status. We examine two measures of weight for children aged 0-5 years, normed using the WHO 2006 reference population: the weight-for-age Z-score and the weight-for-height Z-score. We find that, in the UPPR sample, the average weight-for-age Z-score (WAZ) is approximately 1.06 to 1.13 standard deviations below the reference median, approximately 23 per cent of children are underweight ($WAZ < -2$), and approximately 5 per cent of children are severely underweight ($WAZ < -3$). Although there are small significant differences in the proportions of underweight children between the (L+N), (L), and (C) groups (6 per cent, 4 per cent, and 6 per cent, respectively), the magnitudes of these differences are very small; in particular, the difference between (L+N) and (L) can be controlled for in the impact analysis. There are no other statistically significant differences in these statistics across the three intervention arms.

The alternative weight-for-height measure allows distinguishing low weight-for-age that is partially driven by low height-for-age from low weight-for-age given height. We find that, in the UPPR sample, the average weight-for-height Z-score is approximately 0.73 standard deviations below the reference median, approximately 14 per cent of children are wasted ($WHZ < -2$), and approximately 3 per cent of children are severely wasted ($WHZ < -3$). There are no significant differences at the 5 per cent level across the three intervention arms.

We capture nutritional status for mothers of young children using their body mass index (BMI). Excluding pregnant women per convention, the mean BMI among mothers of index children in the UPPR sample is just over 21, which falls toward the middle of the BMI range characterised as 'normal' by WHO (18.5 to 25). About 22 per cent of the sample is considered underweight, while 17 per cent are considered overweight. There are no statistically significant differences at the 5 per cent level in means across any of the three intervention arms.

Overall, the baseline anthropometric indicators reflect that, in the UPPR sample, there is considerable undernutrition among young children aged 0-5 years. The indicators suggest that there are deficiencies in children's nutritional environment in the first thousand days of life, given that a substantial proportion of children are stunted. The baseline indicators also suggest that some mothers of young children may have poor nutritional status, although the average mother's BMI falls within the range of normal.

Relevant to the evaluation, these statistics suggest that the study's nutrition intervention may have potential to impact nutrition outcomes, given that its components are targeted at children in the first thousand days of life and their mothers. The (L) and (L+N) intervention arms are balanced at the 5 per cent level on most anthropometric indicators at baseline, with the remaining differences in proportion stunted and proportion severely underweight possible to control for in the eventual impact analysis. The (L+N) and (L) groups are also relatively similar to the (C) group, indicating that it may be possible to find a subset in the UPPR control group that can serve as a reasonable counterfactual in the evaluation.

4.7 Women's autonomy

Research has shown that women having greater intra-household bargaining power is associated with better child outcomes in terms of nutrition, health, and education (Schmidt 2012; Quisumbing and Maluccio 2003). Some evidence has also suggested that women's low status in South Asia may partially explain why rapid economic growth has not translated to large reductions in child malnutrition (e.g., Smith et al. 2002; Ramalingaswami, Jonsson, and Rohde 1996). In this section, we examine baseline trends related to women's status across several areas: women's earning and spending decisions, reproductive decisions, domestic violence, financial literacy, women's financial preferences, and women's control and agency.

4.7.1 Women's earning and spending decisions

Sociocultural norms in Bangladesh tend to stigmatize women's work outside the home. We begin our analysis by summarizing baseline indicators of women's employment status.

Table 4.28 shows work experience outcomes for women drawn from questionnaire responses to various work experience questions. Unlike for the rural CLP and Shiree households, most women in the urban based UPPR households are not working. In the (L+N) treatment group 29 per cent of women are working, in the (L) treatment group 27 per cent of women are working and in the (C) treatment group 22 per cent of women are working. While the differences in means between (C) households and (L) and (L+N) households are strongly significant, the difference in magnitude is not greater than 7 percentage points.

There were three questions asked of working women: whose decision it was that the woman work, at first whether there were any objections to the woman working and how any money earned is spent.

The most common response to the question of who made the decision to work is "self and husband". The second most common response is that she herself decided to seek work. The former response, "self and husband" is given in 68 per cent of (L+N) households, 60 per cent of (L) households and 69 per cent of (C) households. The 8 percentage points difference between the (L) and (L+N) treatment groups is significant. The latter response, "self" is given in 36 per cent of (L+N) households, 30 per cent of (L) households and 27 per cent of (C) households. The occurrence of the husband or another person having made the decision is less than 3 per cent of cases across the treatment arms.

The most common location for where money is earned is inside the house (68 per cent of (L+N), 67 per cent of (L) and 75 per cent of (C)) households, followed by outside the house (24 per cent of (L+N), 24 per cent of (L) and 18 per cent of C). The differences between the means are not significant.

Very small numbers of husbands in families at first prevented the woman from working (2 per cent of (L+N) and 3 per cent of (L) and 3 per cent of (C) groups).

The most common use of money earned is to provide partly to the husband or family (50 per cent of (L+N) group, 43 per cent of (L) groups and 55 per cent of (C) groups) and the least common use is to keep for the woman herself (34 per cent of (L+N), 38 per cent of (L) groups and 31 per cent of (C) groups). In 16 per cent of cases in (L+N), 19 per cent of (L) groups and 14 per cent of (C) groups the woman gives all the money to her husband or another family member.

Comparing (L+N) and (L), all differences in work experience indicators for women are not significant at the 5 per cent level.

Table 4.28. Baseline means of work experience outcomes for working women, by intervention arm—UPPR						
	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Are you now doing any work or business that brings in cash, additional food, or	0.29	0.27	0.22	0.45	0.01	0.02
If yes, who took that decision?						
Yourself	0.30	0.36	0.27	0.12	0.45	0.01
Your husband	0.02	0.02	0.03	0.91	0.50	0.49
Self and husband	0.68	0.60	0.69	0.07	0.83	0.04
Someone else	0.01	0.02	0.02	0.12	0.12	0.92
If yes, where do you work to earn income?						
Inside the house	0.67	0.68	0.75	0.76	0.12	0.18
Outside the house	0.24	0.24	0.18	0.85	0.20	0.24
Both inside and outside the house	0.09	0.08	0.07	0.82	0.48	0.64
At first your husband or other household member wanted to prevent you from working	0.02	0.03	0.03	0.40	0.74	0.67
What do you do with the money you earn?						
Give all money earned to your husband / other family member	0.16	0.19	0.14	0.38	0.48	0.10
Give some money to your husband / other family member	0.50	0.43	0.55	0.18	0.35	0.02
Keep all the money yourself	0.34	0.38	0.31	0.42	0.56	0.15

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Table 4.29 shows information on reasons given for not working, among women who reported that they did not work. The most common response for why a woman is not working is because she has to take

care of children or perform household work (92 per cent of (L+N) households, 91 per cent of (L) households and 97 per cent of (C) households). The next most common response is not needing to work (3 per cent of (L+N) group, 4 per cent of (L) group and 1 per cent of (C) group). The differences in means between the (L+N) and (L) treatment arms are not significant at the 5 per cent level. Across these indicators there are significant, albeit small, differences between (C) households on the one hand, and (L+N) and (L) on the other hand.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Why don't you work?						
Husband won't allow	0.01	0.01	0.00	0.82	0.03	0.02
Society doesn't like it	0.00	0.00	0.00	0.72	0.61	0.28
Take care of children/household work	0.92	0.91	0.97	0.65	0.00	0.00
I don't want to	0.01	0.01	0.00	0.62	0.02	0.05
I don't need to	0.03	0.04	0.01	0.50	0.09	0.02
Am unable to work	0.00	0.01	0.00	0.76	0.34	0.21
Lack of demand for the work that I have skill to do	0.01	0.01	0.01	0.90	0.21	0.21
Other	0.01	0.01	0.01	0.96	0.73	0.73
Don't know	0.00	0.00	0.00	0.53	0.32	0.32
Would your husband or in laws allow you to work inside to earn additional income?	0.02	0.02	0.00	0.94	0.04	0.02

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Table 4.30 shows baseline means of questions related to spending decisions. Women were asked who decides how to spend the money she earns, as well as how to spend money on six different categories: (1) food, (2) housing, (3) healthcare, (4) education and (5) clothing. The most common response is “self and husband” at above 50 per cent for all of the questions except the question concerning education; education nevertheless has “self and husband” as the most common response - with a range of 36 per cent to 39 per cent across the three treatment arms. In all cases, women of the (C) group are more likely to report taking spending decisions jointly with their husbands than those of the two other groups. Conversely, women of the (C) group are less likely to report that the spending decisions are taken by their husband alone.

Women were also directly whether they controlled money for spending on food at the market, clothes for themselves, medicine for themselves, and cosmetics for themselves. For all, the proportion of positive responses range from 59 per cent to 76 per cent. In all four cases, women of the control groups are more likely to have the means to buy the items on her own than women who benefit from UPPR.

Table 4.30. Baseline means of spending decision outcomes, by intervention arm—UPPR

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Who usually decides how to spend the money you earn?						
Yourself	0.27	0.35	0.25	0.05	0.71	0.02
Your husband	0.06	0.03	0.03	0.20	0.06	0.51
Self and husband	0.66	0.59	0.70	0.13	0.29	0.01
Someone else	0.02	0.03	0.02	0.54	0.96	0.50
Who decides how to spend money on food?						
Yourself	0.09	0.10	0.07	0.68	0.18	0.09
Your husband	0.23	0.21	0.17	0.42	0.01	0.12
Self and husband	0.52	0.50	0.66	0.49	0.00	0.00
Someone else	0.16	0.19	0.10	0.05	0.00	0.00
Who decides how to spend money on housing?						
Yourself	0.07	0.08	0.07	0.74	0.54	0.36
Your husband	0.23	0.20	0.16	0.41	0.01	0.11
Self and husband	0.53	0.51	0.66	0.51	0.00	0.00
Someone else	0.17	0.20	0.11	0.04	0.00	0.00
Who decides how to spend money on health care?						
Yourself	0.09	0.10	0.07	0.60	0.24	0.10
Your husband	0.21	0.18	0.14	0.25	0.01	0.18
Self and husband	0.57	0.56	0.69	0.84	0.00	0.00
Someone else	0.14	0.17	0.10	0.09	0.02	0.00
Who decides how to spend money on education?						
Yourself	0.06	0.07	0.05	0.87	0.10	0.06
Your husband	0.15	0.12	0.07	0.19	0.00	0.00
Self and husband	0.38	0.39	0.36	0.67	0.33	0.17
Someone else	0.10	0.14	0.07	0.02	0.02	0.00
Who decides how to spend money on clothing?						
Yourself	0.10	0.10	0.09	0.70	0.39	0.25
Your husband	0.20	0.18	0.14	0.33	0.01	0.18
Self and husband	0.57	0.56	0.67	0.63	0.00	0.00
Someone else	0.13	0.16	0.10	0.05	0.04	0.00
Do you control the money needed to buy food at the market?	0.56	0.53	0.63	0.28	0.03	0.00
Do you control the money needed to buy clothes for yourself?	0.59	0.59	0.68	0.92	0.01	0.00
Do you control the money needed to buy medicine for yourself?	0.64	0.65	0.72	0.82	0.01	0.02
Do you control the money needed to buy cosmetics for yourself?	0.64	0.63	0.76	0.64	0.00	0.00

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Comparing (L+N) and (L), nearly all indicators related to spending decisions are balanced at the 5 per cent level. The exceptions are differences between (L+N) and (L) in the proportion of women reporting

specific categories of decisionmakers for decisions on spending the money they themselves earn, spending money on food, spending money on housing, spending money on education, and spending money on clothing. In all cases, the difference is fairly small in magnitude, but can nonetheless potentially be controlled for in the eventual impact analysis.

Table 4.31 shows the baseline means on outcomes related to women’s NGO loans. Women were asked if Loans had been taken up by the household. A loan was reported taken up by 55 per cent of the (L+N) households, 51 per cent of the (L) households and 45 per cent of the (C) households. Women were also asked who decided to take the loan and who made decisions on how to spend the money borrowed. As with nearly all the previous questions on decisionmaking, the most frequent response was that the decision had been made jointly by the “self and husband”. This response was given by 77 to 86 per cent of women in all three intervention arms.

Comparing (L+N) and (L), most indicators related to NGO loans are balanced at the 5 per cent level; however, there are small but significant differences between (L) and (L+N) in the share of women reporting that they and their husbands jointly decided to take the loan (significant at the 3 per cent level) and decided how to spend the money from the loan (at the 5 per cent level). These differences can be controlled for in the eventual impact estimation, although doing so may not change results given the small magnitudes of difference. There are several significant differences in means across the (C) households on the one hand and the (L+N) and (L) households on the other hand in terms of taking NGO loans and spending decisions, which will need to be addressed in future analyses.

Table 4.31. Baseline means of access to NGO loans outcomes, by intervention arm—UPPR						
	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Have you taken any loans from an NGO?	0.55	0.51	0.45	0.20	0.00	0.09
Whose decision was it to take the loan from the NGO?						
Yourself	0.02	0.03	0.01	0.09	0.52	0.02
Your husband	0.10	0.13	0.07	0.36	0.08	0.01
Self and husband	0.83	0.77	0.86	0.03	0.20	0.00
Someone else	0.05	0.07	0.06	0.14	0.54	0.52
Who usually decides how to spend the money from the loan?						
Yourself	0.02	0.04	0.02	0.04	0.97	0.04
Your husband	0.11	0.13	0.06	0.54	0.04	0.01
Self and husband	0.83	0.77	0.86	0.05	0.17	0.00
Someone else	0.04	0.06	0.05	0.17	0.54	0.58

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

4.7.2 Reproductive decisions

Table 4.32 displays the outcomes related to reproductive decisions. Women of the (L+N), (L) and (C) groups are 86 per cent, 84 per cent, and 88 per cent to report having used birth control, respectively. For women who used birth control, 83 per cent of (L+N) and (L) women made this decision with their

husbands, as did 89 per cent of the (C) group. For women who have not used birth control, the main reason is because they did not feel the need to (between 62 per cent and 75 per cent). About 13 per cent have not used birth control because their husband did not allow it. Sixteen per cent, 19 per cent, and 12 per cent of the (L+N), (L), and (C) women, respectively, have not used birth control because it makes them feel weak/ill. Both men's and women's sterilization rates are negligible.

Comparing (L+N) and (L), all indicators related to reproductive decisions are balanced at the 5 per cent level. (C) women show more significant differences from women in the (L+N) and (L) groups, although the magnitude of differences tends not to be very large.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Have you ever used birth control (methods to delay or avoid pregnancy?)						
If yes, who made this decision?	0.86	0.84	0.88	0.20	0.10	0.01
Yourself	0.12	0.12	0.07	0.95	0.01	0.01
Your husband	0.05	0.05	0.05	0.89	0.96	0.93
Self and husband	0.83	0.83	0.89	0.94	0.01	0.02
Someone else						
If not, why have you not used birth control?	0.00	0.00	0.00	0.54	0.30	0.60
Husband did not allow	0.17	0.14	0.09	0.56	0.06	0.23
Makes me feel weak/ill	0.16	0.19	0.12	0.61	0.38	0.19
Don't feel the need to	0.62	0.60	0.75	0.77	0.02	0.02
Other	0.05	0.07	0.04	0.54	0.70	0.34
Has your husband ever used any birth control method?	0.38	0.38	0.44	0.97	0.19	0.16
Is the man sterilized?	0.01	0.01	0.01	0.85	0.83	0.99
Is the woman sterilized?	0.03	0.04	0.03	0.55	0.84	0.41

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

4.7.3 Domestic violence

Table 4.33 shows the distribution of domestic violence outcomes by intervention arm. A large majority of women—between 84 per cent and 90 per cent in (L) and (L+N) household groups—report that their husbands have not threatened them with divorce in the past year. The proportion for (C) women appears larger (90 per cent) than for (L+N) (87 per cent) and (L) women (84 per cent). Six per cent of (L+N) and 8 per cent of (L) women report they have been sometimes threatened with divorce, against 5 per cent of (C) women. Eighty-eight per cent of (L+N) and 86 per cent of (L) also report their husband has not threatened them with taking another wife, with the figure for (C) women (90 per cent) much higher than that of UPPR beneficiaries.

Two-thirds of (L+N) and (L) and three-quarters of (C) women report they have been verbally abused by their husband, another family member, or household resident. Women of the three groups are similarly likely to report that they have been often victim of verbal abuse (40 per cent) but women of the control group (34 per cent) are more likely to answer that they have been sometimes abused than those of the (L+N) (26 per cent) and (L) groups (25 per cent).

Table 4.33. Baseline means of domestic violence outcomes, by intervention arm—UPPR						
	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Has your husband threatened you with divorce in the past year?						
Yes, often	0.07	0.08	0.04	0.24	0.01	0.00
Yes, sometimes	0.06	0.08	0.05	0.20	0.60	0.08
Has threatened and divorced/remarried	0.01	0.01	0.01	0.82	1.00	0.79
No	0.87	0.84	0.90	0.08	0.04	0.00
Has your husband threatened you with taking another wife in the past year?						
Yes, often	0.06	0.06	0.04	0.78	0.01	0.01
Yes, sometimes	0.05	0.07	0.05	0.10	0.93	0.07
Has threatened and divorced/remarried	0.01	0.01	0.01	0.59	0.85	0.67
No	0.88	0.86	0.90	0.34	0.08	0.00
Has your husband, another family member, or household resident verbally abused you in the past year?						
Yes, often	0.41	0.39	0.41	0.61	0.98	0.57
Yes, sometimes	0.26	0.25	0.34	0.75	0.02	0.01
No	0.33	0.36	0.25	0.42	0.01	0.00
Has your husband, another family member, or household resident physically abused you in the past year?						
Yes, often	0.21	0.20	0.22	0.80	0.68	0.51
Yes, sometimes	0.17	0.15	0.21	0.17	0.12	0.01
No	0.62	0.65	0.57	0.30	0.17	0.02
If any answer to questions above is YES, did you want to leave?						
Did you leave?	0.11	0.10	0.08	0.52	0.06	0.12
Yes, permanently	0.14	0.21	0.14	0.17	0.96	0.21
Yes, but I came back	0.56	0.60	0.62	0.62	0.49	0.83
No	0.30	0.19	0.25	0.14	0.49	0.36
If you did not leave permanently, why not?						
He was angry and didn't mean it	0.36	0.33	0.43	0.77	0.49	0.30
My husband and I came to an agreement	0.38	0.29	0.32	0.34	0.55	0.71
I could not support myself financially	0.01	0.02	0.00	0.87	0.32	0.31
My parents could not support me financially	0.04	0.03	0.06	0.85	0.48	0.40
I came back for my children	0.17	0.32	0.16	0.06	0.81	0.03
Because of social pressure	0.04	0.02	0.03	0.40	0.88	0.65

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Physical abuses are about half as prevalent as verbal abuses: 62 per cent of (L+N), 65 per cent of (L), and 57 per cent of (C) women report they have not been physically abused.

About 10 per cent of women who suffered any threat or abuse described above report they wanted to leave. Approximately 60 per cent of them did leave but eventually came back, between 14 and 21 per cent left permanently, and between 19 per cent and 30 per cent did not leave. For the women who did not leave permanently, the main reasons are that “he was angry and did not mean it” (between 33 per cent and 43 per cent of these women), “my husband and I came to an agreement” (between 29 per cent and 38 per cent of respondents), and “I came back for my children” (between 16 per cent and 32 per cent).

Comparing (L+N) and (L), all indicators related to domestic violence are balanced at the 5 per cent level. Women in the control groups show more significant differences from those in (L+N) and (L) groups, although the magnitudes of difference tend to be relatively small.

4.7.4 Women’s financial literacy

The Organisation for Economic Cooperation and Development and the International Network on Financial Education (INFE) define the term “financial literacy” as

‘A combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing’ (Hung, Yoong, and Brown 2012).

The baseline indicators of the financial literacy of women are summarized in Table 4.34. Approximately 95 per cent of women of all groups gave the correct answer to the question “what is 4+3?” Fifty-seven per cent of (L+N), 62 per cent of (L), and 63 per cent of (C) women, respectively, gave the correct answer to the question “What is 3 times 6?”

Approximately 30 per cent of women of all groups correctly answered the question: “What is one-tenth of 400?”, while about 15 per cent of women of all groups correctly answered the question: “How much is 15 per cent of 200 taka?”. Approximately 40 per cent of women of all groups chose the price/quantity combination that would maximise their earnings.

Forty-three per cent of (L+N) and 41 per cent of (L) women correctly answered the question on interest rate (i.e., A moneylender offers to lend a farmer 100 taka for one year. He will charge the farmer 10 per cent interest on this loan. In one year’s time, how much will the farmer have to give the moneylender to repay the loan and all the interest?). This is considerably less than the 51 per cent of (C) women who did so. Similarly, while 80 per cent of women of the (L+N) and (L) groups correctly computed the odds of pulling out a red and a white ball in an urn with 4 red balls and 1 white ball, 86 per cent of women of the (C) group did so, a much higher proportion.

Comparing (L+N) and (L) households, all indicators related to women’s financial literacy are balanced at the 5 per cent level. Control group women of the control group tend to look quite similar to UPPR

beneficiaries on these indicators, although they perform slightly but significantly better on questions related to interest rates and probabilities.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
What is 4+3?	0.94	0.95	0.95	0.19	0.23	0.95
What is 3 times 6?	0.57	0.62	0.63	0.06	0.03	0.68
What is one-tenth of 400?	0.27	0.31	0.31	0.24	0.21	0.90
How much is 15 per cent of 200 taka?	0.14	0.15	0.16	0.73	0.61	0.84
Which maximises price for each kg of rice: 10Kg for 50 taka or 15Kg for 60 taka?	0.38	0.38	0.43	0.93	0.09	0.11
Question on interest rate	0.43	0.41	0.51	0.64	0.00	0.00
Question on probabilities	0.80	0.80	0.86	0.92	0.01	0.01

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

4.7.5 Women's

Table 4.35 displays results for financial preferences tests. Approximately 62 per cent of the women of all groups exhibit some degree of preference for the present as they chose 100 taka today (the option A) rather than 110 taka in the future (the option B). When the amount of time between the two periods is increased to two months, the proportion of women who chose option A goes up to about 70 per cent.

There are no significant differences at the 5 per cent level between the financial preferences indicators for (L+N), (L), or (C) households.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Answer A to: Would you prefer to be given A. 100 taka today B. 110 taka in one month?	0.62	0.61	0.63	0.71	0.81	0.54
Answer A to: Would you prefer to be given A. 100 taka today B. 110 taka in two months?	0.72	0.69	0.71	0.25	0.59	0.55

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

4.7.6 Women control and agency

An important component of women's status is the ability to make choices. Agency is defined as the ability to define one's own goals and act upon them even in the face of opposition from others (Kabeer 1999).

The baseline indicators of women's control and agency are summarized in Table 4.36. For each statement, the table reports the percentage of women who agree (slightly agree, agree or strongly agree) with it. The statements for which almost or more than 70 per cent of women agree with are: "To a great extent my life is controlled by accidental chance happenings", "When what I get what I want, it is usually/mostly because I am lucky", "My experience in my life has been that what is going to happen will happen", "When I get what I want, It is usually because I worked hard for it", "My life is determined by my own actions". Clearly, apart from the last one, all these statements convey fatalist messages. The fact that women respondents tend to agree with these suggest a lack of control over their lives.

The statements that gather less than 50 per cent of agreement are: "I feel like what happens in my life is mostly determined by powerful people", "My life is chiefly controlled by other powerful people", "People like myself have very little chance of protecting our personal interest when they conflict with those of more powerful people", "I can mostly determine what will happen in my life", "In order to have my plans work, I make sure that they fit in with the desires of people who have power over me". Interestingly, all of these statements save one are about their life being determined by powerful people", So although it seems that women lack agency given their approval of fatalist statements we have discussed above; they also reject the idea that this lack of agency, if any, is due to specific powerful people having power over them.

Comparing (L+N) and (L), all of these indicators related to women's control and agency are balanced at the 5 per cent level. Control group women show some statistically significant differences from the (L) and (L+N) women but with relatively small magnitude.

In Table 4.37 the results of two additional tools about control and agency are displayed. The first one asks respondents to imagine a nine-step ladder, with people without rights at the bottom, and people with lot of power at the top. Respondents had then to position themselves on this ladder. On average (L+N) women answered 2.69, (L) women 2.73 and (C) women 2.87. Those are very low numbers, suggesting that women respondents feel largely powerless. There are no significant differences between these answers. The second tool asks respondents to imagine a nine-step ladder, with people totally unable to change their lives at the bottom, and people with full control over their own lives at the top. Respondents had then to position themselves on this ladder. On average, (L+N) women answered 3.02, (L) women 3.03 and (C) women 3.18. While still very low, these figures are a bit higher than for the first question. Again, there are no significant differences between these answers.

There are no significant differences at the 5 per cent level between these control and agency indicators for (L+N), (L), or (C) households.

Table 4.36. Baseline means of women's control and agency outcomes, by intervention arm—UPPR

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Percentage of women who slightly agree, agree or strongly agree to: To a great extent my life is controlled by accidental chance happenings	0.70	0.67	0.71	0.49	0.80	0.33
I feel like what happens in my life is mostly determined by powerful people	0.48	0.48	0.44	0.97	0.16	0.18
When I make plans, I am almost certain/guaranteed/sure to make them work	0.56	0.58	0.58	0.46	0.67	0.77
Often there is no chance of protecting my personal interest from bad luck happening	0.68	0.68	0.69	0.97	0.59	0.58
When what I get what I want, it is usually/mostly because I am lucky	0.76	0.72	0.79	0.10	0.15	0.00
My experience in my life has been that what is going to happen will happen	0.70	0.70	0.73	0.84	0.28	0.20
My life is chiefly controlled by other powerful people	0.44	0.45	0.42	0.53	0.61	0.27
People like myself have very little chance of protecting our personal interest when they conflict with those of more powerful people	0.49	0.53	0.46	0.14	0.28	0.02
It is not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune	0.58	0.59	0.56	0.64	0.58	0.35
Getting what I want requires making those people above me happy with me	0.56	0.58	0.55	0.44	0.84	0.36
I can mostly determine what will happen in my life	0.46	0.48	0.47	0.62	0.74	0.90
I am usually able to protect my personal interests (I can usually look after what is important to me)	0.56	0.58	0.60	0.51	0.07	0.26
When I get what I want, It is usually because I worked hard for it	0.73	0.73	0.76	1.00	0.28	0.31
In order to have my plans work, I make sure that they fit in with the desires of people who have power over me	0.50	0.51	0.48	0.83	0.51	0.37
My life is determined by my own actions	0.70	0.72	0.73	0.66	0.43	0.74

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Table 4.37. Baseline means of women's control and agency outcomes, by intervention arm—UPPR

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Please imagine a nine-step ladder, where on the bottom, the first step, stand people who are completely without rights, and step 9, the highest step, stand those who have a lot of power On which step are you?	2.69	2.73	2.87	0.73	0.13	0.23
Please imagine a nine-step ladder, where on the bottom, the first step, are those who are totally unable to change their lives, while on step 9, the highest step, stand those who have full control over their own life On which step are you?	3.02	3.03	3.18	0.91	0.21	0.25

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

4.7.7 Summary

Given evidence that women's intra-household bargaining power is strongly associated with their children's outcomes, women's autonomy may play an important role in this evaluation in terms of mediating how livelihoods and direct nutrition interventions affect children's nutrition. This section examines baseline trends related to women's status across several areas: women's earning and spending decisions, reproductive decisions, domestic violence, financial literacy, women's financial preferences, and women's control and agency.

Few women in UPPR beneficiary households report working (about 27-29 per cent), most among those report that their decision to work was made jointly between themselves and their husbands (about 70 per cent), and nearly all among those report working either only inside the home (about 70 per cent) or only outside the home (about 25 per cent). Virtually none report that there were objections to their working. Most give some or all of the money they earn (about 50 per cent and 15 per cent, respectively) to their husbands or other family members, but about 35 per cent keep all of their earnings themselves. The (L+N) and (L) groups show no statistically significant differences at the 5 per cent level in these characteristics. In the (C) group, responses regarding location of work, objections to work, and keeping earnings are similar to the (L) and (L+N) groups. However, a slightly but significantly lower share of women in the (C) group report working (22 per cent).

Across a range of spending decisions (how to spend their own earnings; how to spend on food, housing, healthcare, education, and clothing), the most common response among women in UPPR beneficiary households and control households is that the decisions are made jointly between themselves and their husbands. About 60-70 per cent of women in both UPPR beneficiary households and control households report that they themselves control the money needed to buy food, clothes, medicine, or cosmetics for

themselves. A large majority of women in all groups (about 80 per cent) also report that the decision to take loans and the decision on how to spend loans is made jointly by themselves and their husbands. In most cases, differences are not statistically significant between women in (L+N) and (L). The exceptions are differences between (L+N) and (L) in the proportion of women reporting specific categories of decisionmakers for decisions on spending the money they themselves earn, spending money on food, spending money on housing, spending money on education, spending money on clothing, taking a loan, and spending money from the loan. In all cases, the difference is fairly small in magnitude, but can nonetheless potentially be controlled for in the eventual impact analysis. Although there are more statistically significant differences between (C) households on one hand and (L+N) and (L) households on the other, the magnitudes of difference tend to be fairly small.

A large majority of women (more than 80 per cent) in UPPR beneficiary and control households report having ever used birth control, and a large majority (more than 80 per cent) report that the decision was made jointly by themselves and their husbands. A large majority of women (more than 80 per cent) in beneficiary and control households also report that their husbands have not threatened them with divorce or taking another wife in the past year. There are no statistically significant differences at the 5 per cent level between women in (L+N) and (L). While there are some statistically significant differences between responses in the (C) households on one hand and responses in the (L+N) and (L) households on the other, the magnitudes of the differences are small.

However, most women (about 65 per cent) in UPPR beneficiary and control households report that they were verbally abused sometimes or often in the past year. A substantial proportion of women (about 35 per cent) in beneficiary and control households report that they were physically abused sometimes or often in the past year. In all three groups, only a very small share report wanting to leave, with the most common reasons for not leaving being that their husbands did not mean it and that they and their husbands came to an agreement. While the shares reported are similar across beneficiary and control women, slightly but significantly lower shares in the (C) group reports “no” to the questions on experiencing verbal abuse and physical abuse than in the (L) or (L+N) groups. There are no significant differences at the 5 per cent level between (L) and (L+N).

On questions of financial literacy, nearly all women in all three groups were able to perform basic addition, but relatively few were able to answer more complex questions. There are no statistically significant differences at the 5 per cent level in these responses between the (L) and (L+N) groups, and the few significant differences between the (C) group and the (L) and (L+N) groups are fairly small in magnitude. Women in all three groups also respond very similarly on average to questions of time preference, with 60-70 per cent preferring a small transfer now to a larger one a month later.

In terms of direct questions regarding women’s own perceptions of their control and agency, the majority of women in all three groups tend to agree with statements suggesting a lack of control over their lives but tend to disagree with statements suggesting that this lack of control is due to specific powerful people having control over them. When asked to imagine themselves on a ladder where those on step 1 have no rights and those on step 9 have a lot of power, women in all three intervention arms place themselves on average just below step 3, indicating that they perceive themselves to have limited power. Similarly, when asked to imagine themselves on a ladder where those on step 1 are totally unable to change their

lives and those on step 9 have full control of their lives, women in all three intervention arms place themselves on average just above 3, indicating that they perceive themselves to also have limited ability to change their lives. These characteristics are balanced at the 5 per cent level across the (L), (L+N), and (C) groups.

Overall, the analysis suggests that women's status tends to be fairly low in the UPPR sample, despite most women reporting that they make decisions jointly with their husbands. Randomization appears to achieve balance between (L+N) and (L) households in many indicators related to women's status, with the remaining differences possible to control for in the eventual impact analysis. While women in (C) households are similar in many of these dimensions, they show some small but significant and potentially meaningful differences from those in (L+N) and (L) households. In particular, slightly but significantly fewer women in (C) households work, slightly more report that they control money needed to buy items for themselves, and very slightly more report verbal or physical abuse.

4.8 Nutrition practices and services

In this section, we review baseline quantitative information on nutrition-relevant practices and services. We start with experiences during pregnancy with a focus on access and use of ante-natal care as well as an examination of birth weights. We then move onto an exploration of sources of information available to mothers on good nutrition practices. We look at what mother's know, with a particular focus on infant and young child feeding. We end by examining mothers' nutrition, health and sanitation behaviors with respect to the index child in these data. Throughout we pay particular attention to the presence of meaningful differences in these characteristics and outcomes across intervention arms.

4.8.1 Access and use of antenatal care

Antenatal care (ANC) can play an important role in producing healthy babies and healthy mothers through the provision of information on healthy pregnancy, screening for risk factors, by providing health inputs for mothers and babies, and preparations for safe delivery (Pervin et al. 2012). The World Health Organisation (WHO) recommends a minimum of four antenatal sessions with a trained health worker (WHO 2014). The baseline quantitative survey asked women to describe their experiences with antenatal care services with reference to the index child (i.e., a child 24 months or younger whose anthropometry is described in 2.6 above). In this section, we describe mothers' access and use of antenatal care.

Table 4.38 shows that in urban areas, access to antenatal care is widespread with around 89 per cent of women attending at least one antenatal session and around 45 per cent attending at least four sessions, the minimum as set out by WHO. In the UPPR study areas, these sessions were offered by a wide range of providers. These measures of access to antenatal care are considerably higher than that observed in the rural settings where we are studying the CLP and the Shiree programmes. There are no statistically significant differences at the 5 per cent level across intervention arms.

Table 4.38. Baseline means of antenatal visits, by intervention arm—UPPR

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Any antenatal care	0.89	0.89	0.88	0.94	0.69	0.62
Number antenatal visits	3.84	3.84	3.76	0.98	0.53	0.49
Made at least for four ANC visits	0.45	0.46	0.44	0.88	0.87	0.74

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Table 4.39 gives some information on advice and actions received during these ANC sessions. Around 85 per cent of mothers report they are weighed. Conditional on being weighed at least once, on average women are weighed three times during the course of this pregnancy. Between 68 and 76 per cent of women had been given advice on foods to cook or consume. Most women (~92 per cent) state that they were able to follow this advice though the majority report that they do so only once a week or less. Few women, less than 5 per cent, were provided a food supplement through the ANC services that they had accessed. Comparing (L+N) and (L), there are no significant differences at the 5 per cent level in these indicators.

Table 4.39. Baseline means of ANC advice and actions, by intervention arm—UPPR

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Weighed during pregnancy	0.85	0.84	0.86	0.75	0.60	0.41
Number times weighed	2.90	2.97	2.82	0.58	0.51	0.16
Rec'd advice on food to eat	0.70	0.68	0.76	0.61	0.09	0.02
Followed advice	0.90	0.92	0.94	0.35	0.02	0.12

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

As reported in Bhutta et al. (2013), a Cochrane review by Pena-Rosas et al. (2012) showed that daily iron supplementation during pregnancy reduced anemia at term by 70 per cent and the incidence of low birth weight by 19 per cent. WHO recommends daily iron supplementation during pregnancy in at risk populations such as those in the UPPR study area (WHO 2012). Table 4.40 shows that ~67 per cent of women in the UPPR study area took iron supplements when pregnant with the index child. On average, women began taking this supplement around the fourth month of pregnancy and took these iron supplements for just under three months. While the likelihood that women received these supplements is similar to what we observe in some of the rural areas in our study (e.g., CLP), these urban women receive these supplements somewhat earlier in their pregnancy than women in rural areas. There are no statistically significant differences in access to or duration of use by women across intervention arms. On average, women taking iron supplements did so for 25 days per month, with no significant difference at the 5 per cent level across treatment arms.

Table 4.40. Baseline means of iron supplement outcomes, by intervention arm—UPPR

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Rec'd iron supplement	0.68	0.70	0.67	0.51	0.57	0.17
Month received supplement	4.84	4.77	4.76	0.46	0.32	0.87
Number months took supplement	3.12	3.17	3.29	0.60	0.08	0.22

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Neonatal tetanus, often arising from non-sterile procedures used during the cutting of the umbilical cord after delivery, can be prevented if the mother is vaccinated during pregnancy. In Bangladesh, where women may not have previously been vaccinated against tetanus, two vaccinations during pregnancy are recommended. When women have been vaccinated before, only one vaccination may be needed (NIPORT 2013). Table 4.41 indicates that around 60 per cent of women in the UPPR study areas received the tetanus toxoid vaccine during their pregnancy. This is somewhat lower than what we see in the CLP study sites; however, it is possible that these urban women may have been more likely to have had pre-pregnancy vaccinations for tetanus. Vitamin A capsules are sometimes given to women after childbirth in order to increase vitamin A status in newborns through breast milk. Between 38 and 47 per cent of women were given vitamin A after giving birth to the index child with no differences across treatment arms. However, recent systematic reviews indicate no beneficial impacts of providing vitamin A on infant morbidity or mortality linked to vitamin A deficiency (Gogia and Sachdev 2010) and the WHO does not recommend this supplementation (WHO, 2014). Comparing (L+N) and (L), there are no significant differences at the 5 per cent level in these indicators.

Table 4.41. Baseline means of Tetanus Toxoid vaccines and access to vitamin A at birth, by intervention arm—UPPR

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Received tetanus toxoid vaccine	0.63	0.63	0.60	0.89	0.23	0.32
Number tetanus toxoid vaccines	0.95	0.95	0.90	0.88	0.42	0.35
Received vitamin A at birth	0.47	0.44	0.38	0.34	0.00	0.06

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

In contrast to what we see in rural areas, birth at home is much less common. Between 20 and 25 per cent of births occur in a government health facility and another 20 per cent occur in a private clinic. Information is also collected on who attends these births; in particular, it is instructive to see whether a trained health worker (doctor, nurse, midwife, trained traditional birth attendant) was present. Results are shown in Table 4.42.

Table 4.42 indicates that around three quarters of index child births are attended by a trained health professional with no significant differences at the 5 per cent level in this percentage across treatment arms. Again, this is a much higher figure than that observed in rural areas, especially when we consider the percentage of births attended by a doctor or midwife.

Table 4.42. Baseline means of assistance at birth, by intervention arm—UPPR

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Birth attended by doctor	0.42	0.45	0.43	0.40	0.73	0.67
Birth attended by midwife or nurse	0.49	0.50	0.50	0.68	0.74	0.94
Birth attended by village doctor	0.00	0.01	0.00	0.66	0.52	0.33
Birth attended by trained traditional birth attendant	0.26	0.22	0.26	0.21	0.87	0.11
Birth attended by any trained person	0.75	0.73	0.76	0.34	0.73	0.20
Birth attended by mother or mother-in-law	0.43	0.42	0.42	0.56	0.71	0.83
Birth attended by neighbour or friend	0.23	0.22	0.23	0.61	0.91	0.72

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Table 4.43 indicates that between 12 and 20 per cent (depending on the intervention arm) of babies were weighed immediately after birth.

Table 4.43. Baseline means of birth weight outcomes, by intervention arm—UPPR

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Child weighed	0.48	0.50	0.47	0.48	0.79	0.33
Birth weight	2.80	2.79	2.86	0.92	0.14	0.06
Low birth weight (<2.5kg)	0.20	0.19	0.16	0.87	0.20	0.20

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Around half the index children in our sample were weighed with mean birth weights around 2.8kg. Just under 20 per cent had low birth weight, approximately half the prevalence since in the CLP study sites. There are no statistically significant differences at the 5 per cent level across treatment arms.

4.8.2 Sources of information on good nutrition practices

Section 4.8.1 indicates that a variety of antenatal services are available to some women in the UPPR study area? What about access to nutrition services, specifically access to information on good nutrition practices after the child is born. Table 4.44 describes access to various sources of information.

Comparing (L+N) and (L), nearly all of these indicators balance at the 5 per cent level. The exception is a small difference between (L+N) and (L) in the share of women who report receiving advice on pre- or post-lacteals (significant at the 4 per cent level), which can potentially be controlled for in the impact analysis though is unlikely to affect results given the small magnitude. However, a notable feature of Table 4.44 is the statistically significant difference between the (L+N) and (L) intervention arms and mothers in the control group in the likelihood that they had been exposed to any source of information about nutrition. This is driven by greater participation in group meetings about nutrition and home visits. Exposure via mass media, television and radio, is similar across treatment arms and higher than what we see in rural areas. In addition, conditional on receiving any home visit, mothers in the livelihood intervention arms (L+N or L) received more frequent home visits, around 3 ½ in the previous six months

compared to 2.8 for households in control groups (not shown). The vast majority of the visits to households in all treatment arms were by BRAC health workers (~75 per cent).

Table 4.44. Baseline means of sources of information about IYCF, by intervention arm—UPPR

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Exposed to any source of information about nutrition	0.67	0.67	0.60	0.89	0.03	0.02
Did HW give advice on IYCF?	0.23	0.23	0.17	0.97	0.07	0.04
Attend group meeting	0.09	0.08	0.03	0.46	0.00	0.00
Any home visit or group meeting	0.27	0.27	0.18	0.95	0.01	0.01
Heard nutrition messages on radio	0.01	0.01	0.01	0.87	0.72	0.59
Saw nutrition messages on TV	0.58	0.58	0.53	0.89	0.20	0.16
Any exposure to nutrition via media	0.58	0.58	0.54	0.85	0.20	0.15

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Mothers were asked to describe the advice they received from health workers during the last visit. Table 4.45 summarizes their responses; the sum of the mean values exceeds one because mothers could describe more than one item of advice. Exclusive breastfeeding is the most frequently offered advice and, more generally, we see more examples of advice around breastfeeding than about feeding children older than six months. Unlike access to information, conditional on receiving a home visit, mothers in all treatment arms receive similar information. Conditional on receiving a home visit, there is little difference in the type of information provided to mothers by treatment arm. In particular, there are no significant differences at the 5 per cent level in these indicators between (L+N) and (L), and only one significant but small difference between (C) and the beneficiary groups.

Table 4.45. Baseline means of advice given during home visits, by intervention arm—UPPR

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Exclusive breastfeeding to 6m	0.50	0.51	0.43	0.91	0.19	0.16
Feed mashed foods after 6m	0.39	0.41	0.39	0.66	0.95	0.76
Put baby to breast immediately after birth	0.33	0.34	0.23	0.92	0.07	0.07
Feed children animal source foods	0.31	0.31	0.35	0.98	0.41	0.38
Give only colostrums	0.26	0.18	0.26	0.06	0.97	0.13
Wash hands before food prep or feeding baby	0.17	0.15	0.17	0.60	0.95	0.71
Attachment during breastfeeding	0.13	0.15	0.11	0.57	0.40	0.15
Adding sprinkles	0.08	0.09	0.09	0.63	0.77	0.91
No pre- or post-lacteals	0.05	0.10	0.11	0.04	0.04	0.58
Positioning during breastfeeding	0.10	0.09	0.09	0.73	0.57	0.80
Adding oil when cooking	0.05	0.04	0.06	0.71	0.70	0.45
Extra feeding during and after illness	0.07	0.08	0.07	0.69	0.93	0.79

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

4.8.3 What have mothers and adolescents heard about infant and young child feeding

To what extent does knowing about practices translate into acting on this information? For six topics, mothers were asked whether they had ever heard of these practices, the source of this information, and whether they had attempted to follow this practice. Results are shown in Table 4.46.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Heard about commencing BF within 1 hour of birth	0.96	0.96	0.96	0.95	0.41	0.50
Heard about exclusive BF	0.96	0.96	0.97	0.81	0.43	0.58
Heard about feeding practices for children 6-24 months	0.93	0.93	0.93	0.73	0.87	0.85
Heard about feeding animal source foods to children 6-24 months	0.88	0.88	0.89	0.86	0.72	0.87
Heard about ways of getting children with poor appetites to eat	0.60	0.61	0.59	0.61	0.83	0.50
Heard about ways in which fathers can give mothers enough time to feed children	0.43	0.45	0.42	0.54	0.77	0.37
Heard and acted on information about commencing BF within 1 hour of birth	0.97	0.97	0.97	0.67	0.89	0.79
Heard and acted on information about exclusive BF	0.83	0.85	0.82	0.64	0.66	0.34
Heard and acted on information about feeding practices for children 6-24 months	0.90	0.92	0.91	0.27	0.53	0.64
Heard and acted on information about feeding animal source foods to children 6-24 months	0.67	0.72	0.70	0.24	0.52	0.65
Heard and acted on information about ways of getting children with poor appetite	0.96	0.97	0.97	0.10	0.16	0.73
Heard and acted on information about ways in which fathers can give mothers enough	0.90	0.93	0.91	0.15	0.78	0.34

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

Virtually all women had heard about the importance of commencing breastfeeding (BF) within an hour of giving birth and had heard about the importance of exclusive breastfeeding. Knowledge about feeding practices and about the importance of animal source foods is also widespread. Conditional on knowing about these practices, take up of this knowledge is widespread. There are no statistically significant differences at the 5 per cent level across treatment arms for any of these baseline means.

We triangulated this information by giving mothers and their adolescent daughters a short test on their knowledge of good nutrition practices. This included questions on breastfeeding, on the introduction of complementary foods, on hygiene and on knowledge of specific foods such as iodized salt. The mean total scores (maximum of 10) as well as answers to specific questions are given in Tables 4.47 and 4.48.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Score on test of nutrition knowledge, mother	7.46	7.53	7.61	0.28	0.03	0.26
Number of answers of how to encourage child to eat, mother	1.74	1.76	1.84	0.47	0.01	0.10
Number of answers of how to treat child with diarrhea, mother	1.20	1.22	1.24	0.51	0.16	0.42
Number of answers, when to wash hands, mother	2.55	2.54	2.58	0.73	0.36	0.24
When should a baby start getting breast milk	0.92	0.90	0.93	0.21	0.60	0.10
What should mother do with colostrum	0.86	0.85	0.92	0.55	0.00	0.00
At what age babies should be given other foods	0.74	0.75	0.77	0.72	0.36	0.52
What seasoning is fortified with iodine	0.56	0.62	0.63	0.05	0.04	0.87

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

	Means			P-values of differences		
	(L+N)	(L)	(C)	(L+N) - (L)	(L+N) - (C)	(L) - (C)
Score on test of nutrition knowledge, adolescent	6.74	6.94	7.27	0.31	0.01	0.11
Number of answers of how to encourage child to eat, adolescent	1.50	1.53	1.50	0.77	0.99	0.79
Number of answers of how to treat child with diarrhea, adolescent	1.12	1.13	1.13	0.81	0.72	0.90
Number of answers, when to wash hands, adolescent	2.31	2.38	2.39	0.22	0.17	0.81
When should a baby start getting breast milk	0.73	0.74	0.75	0.81	0.68	0.87
What should mother do with colostrum	0.68	0.71	0.77	0.68	0.15	0.29
At what age babies should be given other foods	0.58	0.63	0.68	0.33	0.04	0.34
What seasoning is fortified with iodine	0.71	0.76	0.74	0.28	0.62	0.65

Note: (L+N) = households receiving both the livelihoods and nutrition interventions, (L) = households receiving the livelihoods intervention only, (C) = control group households.

There are a number of salient results. First, adolescent girls' scores on these questions tend to be somewhat lower than that of their mothers. This holds across all treatment arms and for all topics. Mothers' overall score is around 7.4-7.6 with these scores slightly higher in control areas relative to

livelihood localities. Mother's knowledge of breastfeeding practices is high in all treatment arms. While knowledge of certain complementary feeding practices is somewhat lower than knowledge about breastfeeding practices, it is high relative to what we observe in rural areas. Comparing (L+N) and (L), nearly all knowledge indicators for both mothers and adolescent girls are balanced at the 5 per cent level; the exception is a small difference in the share of mothers knowing what seasoning is fortified with iodine (significant at the 5 per cent level), which could be controlled for in the impact estimation though would be unlikely to affect results. While there are some statistically significant differences between the beneficiary groups and the control group, the magnitudes of these differences are small, particularly as mean values are high.

4.8.4 Summary

Nutrition over the first 1,000 days, *in utero* and in the first two years of life, has lifelong effects. In this section, we assess baseline characteristics associated with this in the UPPR study zone. We are interested in access to antenatal care, access to information about breastfeeding and complementary feeding practices and the extent to which this knowledge has been assimilated and acted on. We want to assess whether there are systematic and statistically significant pre-intervention differences between households in livelihood only localities and those households randomized into livelihood plus nutrition localities. Finally, we would like to see if there are systematic and statistically significant pre-intervention differences between households in livelihood localities and non-randomly selected control localities.

Access to antenatal care is widespread with just under 90 per cent of women attending at least one session. After conditioning on attendance at least one session, relatively few women, about 45 per cent attended at least four sessions, the minimum as set out by WHO. This figure is considerably higher than that observed in rural areas. More than 85 per cent of mothers reported being weighed. The percentage of women receiving the tetanus toxoid, around 63 per cent, is lower than what we observe in rural areas. This may reflect higher levels of pre-pregnancy immunization. Iron supplements are received earlier in pregnancy in urban areas than in the rural localities where the CLP and Shiree programs are being studied.

Virtually all women, >96 per cent, had heard about commencing breastfeeding within one hour of birth and on the importance of exclusive breastfeeding. Conditional on having this information, 96 per cent of all mothers reported that they had commenced breastfeeding within one hour of birth and ~85 per cent stated that they had practiced exclusive breastfeeding. Mothers also appear knowledgeable about good feeding practices for their infants. One possible consequence of this is that it may prove difficult for UPPR to improve on these baseline figures; there is simply very little room for further improvement.

In this section, we compare 69 aspects of access to antenatal care, to information about the utilization of this information between mothers in localities randomized to receive livelihood interventions and localities randomized to receive livelihood and nutrition interventions. There are only two outcomes where we observe a statistically significant difference at the 5 per cent level – pre- and post lacteals and what seasoning is fortified with iodine – and the magnitudes of these differences are small. There is no statistically significant difference in birth weights or in the vast majority of reported child feeding practices.

There are 10 outcomes where there are statistically significant differences between the (L+N) and (C) households at the 5 per cent level and six outcomes where there are statistically significant differences between the (L) and (C) households. Some of these differences are trivially small – e.g., 90 per cent of mothers in (L+N) areas reported acting on advice regarding maternal food consumption during pregnancy compared to 94 per cent in control localities – and others, such as differences in access to vitamin A at birth are not important. The one difference worth remarking on is that women in (L+N) and (L) localities were more likely to have had a home visit from a health worker or attend a group meeting to discuss nutrition. However, these differences do not translate into differences in scores on tests of nutritional knowledge or on self-reported practices.

5 SUMMARY OF QUANTITATIVE BASELINE FINDINGS

Looking across the quantitative baseline analysis of all three programmes in Sections 2 through 4, several observations emerge regarding the evaluation design and beneficiary characteristics. This section summarizes these key findings.

5.1 Summary of findings regarding the evaluation design

5.1.1 Baseline balance between the beneficiary groups

As described in Section 1.2, an important element of the quantitative evaluation design is that the (L) and (L+N) households should be well balanced prior to the introduction of any nutrition intervention. The randomised assignment of beneficiary areas to (L) or (L+N) aims to achieve this balance. However, empirical tests are necessary to confirm whether randomisation in fact achieves balance.

The analysis in Sections 2 through 4 shows empirically that the randomisation is quite successful in all of the programmes. Across all three programmes and across nearly all indicators within a wide range of categories, there is statistical balance between the (L) and (L+N) arms. In the isolated cases where statistically significant average differences in indicators are found between (L) and (L+N), the magnitudes of differences tend to be quite small. It is worth noting that given the large numbers of indicators over which tests of statistical significance are conducted in Sections 2 through 4, it is expected that some statistically significant differences may appear by chance due to multiple testing. Because this baseline report's purpose in analysing statistically significant differences in baseline indicators is illustrative, to broadly assess patterns of similarity or difference rather than to estimate individual impacts, no formal tests are conducted in this report to adjust for multiple testing. Adjustments for multiple testing (such as use of Bonferroni corrections or tests of joint significance) will be made during the estimation of quantitative impacts to be presented in the final report. Moreover, even the small baseline differences found here between (L) and (L+N) can be controlled for in the eventual impact analysis.

This pattern of similarity across (L) and (L+N) includes receipt of other social programmes, as shown in Sections 2.3.2, 3.3.2, and 4.3.2. As would be expected in Bangladesh, a country with considerable NGO

presence and government support, both (L) and (L+N) beneficiaries in all three programmes report receiving a number of other social programmes in addition to the livelihoods interventions that are the focus of this evaluation. However, because coverage of these other programmes tends to be well balanced across (L) and (L+N) groups, any average effects from exposure to their benefits should affect the two groups similarly; the small baseline differences between (L) and (L+N) in coverage of certain social programmes can moreover be controlled for in the eventual impact analysis. Therefore, despite there being several other social programmes operating in the (L) and (L+N) areas, their presence does not complicate the *comparison* of (L) and (L+N), and therefore does not complicate attribution in estimating the relative impact of adding the nutrition interventions to the livelihoods interventions.

Overall, the analysis of the quantitative baseline data gives confidence that statistically significant differences between the (L+N) and (L) groups later found at endline can be causally attributed to the additional nutrition component, rather than any pre-existing differences between the two groups. In addition to there being good statistical balance on nearly all baseline characteristics, the eventual impact estimation will control for any baseline difference in each outcome of interest through the double-difference or ANCOVA specification, and can further control for any small statistically significant baseline differences that are found in other characteristics.

For CLP, these additional baseline covariates could potentially include the following, in which statistically significant but typically small baseline differences were found between (L) and (L+N): household head's education; any household member's loss of employment in preceding 5 years; value of livestock assets received by CLP; share of adolescent girls who consumed meat in the preceding 7 days; decisionmaker on whether women work, how to spend money on education, how to spend money on clothing; duration of receiving iron supplements conditional on receiving them.

For Shiree Concern, these additional baseline covariates could potentially include the following, in which statistically significant but typically small baseline differences were found between (L) and (L+N): women's occupation; death of a household member in preceding 5 years; receipt of financial training from Shiree; receipt of dairy cows from Shiree; receipt of the external Vulnerable Group Feeding safety net programme; ownership of productive assets such as a hammer and mason's equipment; dimensions of dietary diversity for households, mothers, and adolescent girls; weight for age among children age 0-5 years; decisionmaker on whether women work, how to spend money on clothing, whether to take a loan; reason for women not working; control over money to buy food at the market; reasons for not using birth control; frequency of husbands' threats of taking another wife; women's ability to do simple addition; women's receipt of antenatal care; index child's birth attended by a friend or neighbour; adolescent girls' knowledge of when a baby should start getting breast milk and what seasoning is fortified with iodine.

For UPPR, these additional baseline covariates could potentially include the following, in which statistically significant but typically small baseline differences were found between (L) and (L+N): education of the index child's mother/caregiver; occupation of the household head; household access to a sanitary latrine; access to the Maternity Allowance Programme for Poor Lactating Mothers; ownership of consumer durables such as a trunk/suitcase; ownership of productive assets such as hammers; some dimensions of adolescent girls' dietary diversity; whether a child is stunted; whether a child is severely underweight; decisionmaker on spending the money women earn, spending money on food, spending

money on housing, spending money on education, spending money on clothing, taking a loan, and spending money from the loan; receipt of advice on pre- or post-lacteals; mothers' knowledge of what seasoning is fortified with iodine.

To summarize, although the baseline balance between (L+N) and (L) is likely strongest for UPPR, followed by CLP and then by Shiree, the evaluation design appears strong across all three programmes, with respect to identifying relative impacts of the combined livelihoods and nutrition intervention, over and above the livelihoods intervention only.

5.1.2 Baseline comparability of the control groups

As also described in Section 1.2, in order to estimate absolute impacts of the livelihoods intervention relative to no intervention or of the combined intervention relative to no intervention, it is necessary to find a comparable control group at baseline. Because none of the three livelihoods interventions in this study was originally rolled out following a randomised control trial design, the control groups for this evaluation could only be selected nonrandomly. Therefore, it is not expected that the full (C) group sampled for each programme will be statistically balanced with the (L) and (L+N) groups. However, the smaller the average differences between the (L) and (L+N) groups on one hand and the (C) groups on the other, the more likely it is that a comparable subset can be found within the programme's control group (using techniques such as matching) that will be statistically balanced with the programme's beneficiary groups.

In Sections 2 through 4, the average similarity is assessed of the control groups with the beneficiary groups, for all three programmes. Results indicate that the similarity of the control groups to the beneficiary groups differs by programme.

In particular, Section 2 shows that in the CLP sample, the full control group tends to look quite different on most indicators from the beneficiary groups. Average differences for many indicators are statistically significant, and these differences tend to be fairly substantial in magnitude. The differences are particularly pronounced in the analysis of socioeconomic characteristics, demographics, and dwelling conditions shown in Section 2.2. Looking across these and other indicators analysed in Section 2, it appears that it may be unlikely that a subset of the CLP control group can be found that will be statistically balanced with the CLP beneficiary groups, although further analysis using matching techniques will nonetheless be conducted to attempt finding one.

Section 3 shows that the Shiree/Concern sample's full control group appears somewhat similar on some indicators to the beneficiary groups, although there are many indicators for which average differences are statistically significant, and in some cases these mean differences are meaningful in magnitude. Looking across all of the categories of indicators analysed in Section 3, it appears feasible that further analysis using matching techniques will be able to identify a comparable subset of the Shiree/Concern control group. However, this subset may be fairly small and may need to be carefully selected.

Most promisingly, Section 4 shows that in the UPPR sample, the full control group appears quite similar on a range of indicators to the beneficiary groups. Although there are many indicators for which average differences are statistically significant, the mean differences tend to be quite small in magnitude. Looking across all of the categories of indicators analysed in Section 4, it appears promising that further analysis using matching techniques may be able to identify a subset of the UPPR control group that will be statistically balanced with the UPPR beneficiary groups.

This pattern includes exposure to other social programmes as well, as shown in Sections 2.3.2., 3.3.2, and 4.3.2. In all three programme samples, receipt of other social programmes is well balanced between the (L) and (L+N) groups, but different to varying degrees in the (C) group. In particular, in the UPPR and Shiree/Concern (C) groups, there is higher or lower coverage of certain social programmes than among the (L) and (L+N) groups, although these social programmes are accessed to some degree by all three intervention arms. In these cases, the observation indicates that it will be important to account for differential exposure between the control and beneficiary groups when constructing the counterfactual.

The additional exploratory analysis in Appendix G supports a similar pattern of findings. For CLP – where only riverine chars appear in the treatment group and only mainland chars remain in the control group after exclusion of Cohort 2.6 – the treatment and control groups exhibit almost literally no overlap in propensity scores based on observables. This lack of overlap reflects that observable characteristics are very different for CLP treated and control households, showing quite conclusively that the control group without Cohort 2.6 cannot serve as a proxy for the treatment group. For Shiree – where the programme had nearly blanket coverage of areas meeting its eligibility criteria – the distributions of propensity scores for the treatment and control groups exhibit a small amount of overlap, but over a very small proportion of the sample. The implication is that the Shiree control group is not an ideal proxy for the treatment group; although it might be possible to find a very small subset of control households to serve as a proxy for a very small subset of the treatment group, in practice these matched samples with common support in observables might be too small for meaningful impact estimation. For UPPR – which covers only a subset of the many urban slums in Bangladesh – the distributions of propensity scores for the treatment and control groups exhibit a considerable amount of overlap, over a small but potentially meaningful proportion of the sample. This overlap indicates that there is reasonable potential for a subset of the UPPR control group to serve as a proxy for a subset of the treatment group; although the matched samples with common support are likely considerably smaller than the full sample, they might be sufficient for impact estimation on some outcomes.

These findings are largely as expected, given the discussion in Section 1.3 on scope for identifying non-intervention areas similar to intervention areas for each programme. However, it is important to note that factors other than the matching analysis will also play a role in the final determination of which programmes' control groups should be included in the impact evaluation. Although for CLP the analysis makes quite clear that the control group without Cohort 2.6 is not comparable and should not be included, for Shiree Concern and UPPR the value of including the control group depends on the size of impact that could reasonably be expected from the respective programme. The smaller we expect the impact to be, the larger we would need the overlapping control group subset to be in order to statistically detect that impact. Therefore, relevant factors for this decision in Shiree Concern and UPPR would include the

evolving quality of implementation in each programme component, as well as the timing of each component's start and end relative to the evaluation's study period. As details of these and other features of the implementation develop between baseline and endline, decisions will be finalized on how best to design the sampling of the endline.

5.2 Summary of findings regarding beneficiary characteristics

In addition to assessing the validity of the evaluation design, the analysis in Sections 2 through 4 also provides insight into the characteristics of the beneficiary households in each programme prior to the introduction of any nutrition intervention. These characteristics serve as useful context for the evaluation, particularly in terms of indicating potential for impact given initial conditions.

Based on Sections 2 through 4, a general pattern emerges that at baseline, UPPR beneficiaries tend to have the “best” indicators related to nutrition, CLP beneficiaries tend to fall somewhere in between, and Shiree/Concern beneficiaries tend to have the “worst” indicators related to nutrition.

Table 5.1 below highlights these differences over a subset of key indicators. The pattern described above holds consistently in terms of anthropometric indicators, including in the height-for-age Z-score (the key outcome measure in this evaluation). It also holds in terms of dwelling conditions, education, dietary diversity, nutrition practices and services, etc.

These characteristics align with what might be expected given the environments of each of the three programmes. UPPR beneficiaries live in urban areas and have the strongest linkages, while Shiree/Concern beneficiaries live in perhaps the most challenging setting of the three programmes (both remote and flooded for several months of the year), with corresponding implications for access to infrastructure, education, food, services, etc.

As simple descriptives, the baseline differences seen across programmes are not intended to show conclusively which factors are the key determinants of undernutrition in each context. However, they do provide support for the relationships described in the evaluation's theory of change. For example, the analyses show that the context with the lowest ‘intermediate outcomes’ (such as the lowest dietary diversity, the lowest access to services, the lowest knowledge of feeding practices, the lowest perceived empowerment of women) is also the context with the lowest ‘final outcome’ of height-for-age Z-scores, and vice versa. While it cannot be concluded which if any of these low ‘intermediate outcomes’ is the dominant factor underlying low ‘final outcomes,’ if the nutrition intervention is able to meaningfully increase such an ‘intermediate outcome,’ there may be potential for meaningful impact on the ‘final outcome.’

As such, these baseline conditions, along with the intensity of the eventual nutrition interventions, are likely to shape the potential for impact in each programme. For example, if an equally intensive nutrition intervention were to be provided within all programmes and if underlying constraints to nutrition were addressed by the intervention, then Shiree/Concern beneficiaries would have the greatest potential scope for improvement given their lowest starting point. As part of the mixed methods approach of this

evaluation, analysis drawn from the exploratory/explanatory component will help illuminate how intensively and effectively each of the programmes' nutrition interventions does in fact reach its beneficiaries.

Table 5.1. Baseline means of anthropometric indicators and selected household characteristics among beneficiaries, by programme			
	CLP	Shiree	UPPR
ANTHROPOMETRIC INDICATORS			
Height-for-age Z-score (HAZ) for children under 5	-1.33 to -1.30	-1.74 to -1.65	-0.97 to -1.08
Proportion stunted (HAZ<-2)	0.32 to 0.35	0.45	0.25 to 0.28
Proportion severely stunted (HAZ<-3)	0.11 to 0.12	0.19 to 0.22	0.08 to 0.10
Weight-for-age Z-score (WAZ) for children under 5	-1.41 to -1.39	-1.71 to -1.62	-1.13 to -1.06
Proportion underweight (WAZ<-2)	0.29 to 0.31	0.38 to 0.41	0.22 to 0.23
Proportion severely underweight (WAZ<-3)	0.07 to 0.08	0.12 to 0.13	0.04 to 0.06
Weight-for-height Z-score (WHZ) for children under 5	-0.91 to -0.92	-1.00 to -0.97	-0.75 to -0.73
Proportion wasted (WHZ<-2)	0.15	0.16 to 0.18	0.13 to 0.15
Proportion severely wasted (WHZ<-3)	0.02 to 0.03	0.04	0.03
Body Mass Index (BMI) for mothers of index children	19.33 to 19.34	19.05 to 19.13	21.47 to 21.57
Proportion underweight (BMI<18.5)	0.40	0.44 to 0.45	0.21 to 0.22
Proportion overweight (BMI>25)	0.02	0.02	0.16 to 0.18
HOUSEHOLD DEMOGRAPHIC AND SOCIOECONOMIC CHARACTERISTICS			
Household size	4.4	5.5	5.3
Age of male household head	34	37 to 38	38 to 39
Female headed household (%)	10 to 11	9 to 11	8 to 10
Age of female household head	32	36 to 37	45 to 46
Number of children < 2 years	1.0	1.0	1.0
Dependency ratio	1.1	1.4 to 1.5	0.8 to 0.9
Head's years of schooling	1.3 to 1.6	0.9 to 1.0	3.4 to 3.5
Child's mother/caregivers' years of schooling	2.1 to 2.3	1.2 to 1.4	4.6 to 5.1
Child's mother/caregiver in a non-earning occupation (%)	19 to 20	41	68 to 69
Dirt floor (%)	100	100	56 to 58
Tin wall (%)	54	55 to 56	40 to 43
Other non-permanent wall (%)	46	43	18 to 19
Tin roof (%)	95	93 to 94	91
Other non-permanent roof (%)	4	5 to 6	3
Access to electricity (%)	4	9 to 16	91
Access to sanitary latrine (%)	35	8 to 10	50 to 57
Access to safe drinking water (%)	99	96	99
Loss of home to river erosion, last 5 years (%/)	11 to 12	1	-
Loss of crops/assets to floods, last 5 years (%)	14	5	0.5
Loss of livestock to illness/ theft, last 5 years (%)	8	6	2
Loss of crops/assets to storms/drought/theft, last 5 years (%)	4	7 to 8	1 to 2
HOUSEHOLD ASSET OWNERSHIP (numbers owned)			
Bicycle	0.1	-	0.2
Metal Cooking Pots	4.8	6.8	12.4
Bed/Khat/Chowki	1.3	1.0	1.8

Armoire/Cabinet/Alna	0.4	0.2	1.3
Table / chair	1.0	0.5	1.9
Electric fan	0.0	0.1	1.4
Wall clock /watch	0.1	0.0	0.4
Television (Color)	-	-	0.5
Solar energy panel	0.1	0.1	-
Sewing machine	-	-	0.5
Rickshaw	-	-	0.1
Boat	0.0	0.2	-
Mobile phone set	0.6	0.5	1.3
Hammer	0.1	0.1	0.2 to 0.3
Fishing net	0.3	0.7	0.1
Spade (Kodal)	0.5	0.3	0.2
Axe(Kural)	0.1	0.1	0.2
Shabol	0.1	0.1	0.2
Hoe	0.7	0.1	0.1
Winnower	0.9	0.7	0.1
Hand tube well	0.4	0.0	0.2
Bulls/oxen	0.2	0.1	0.1
Milk Cow	0.2	0.1	0.1
Goat	0.1	0.1	0.1
Sheep	0.1	0.3	0.0
Chicken	2.8	2.2	0.7 to 1.1
Duck	0.5	2.1 to 2.8	0.3
Total amount of current cash savings (Tk)	3,600 to 3,900	1,200	4,800 to 5,100
HOUSEHOLD DIETARY DIVERSITY			
Household consumed cereal in last 7 days (%)	100	99 to 100	100
Household consumed vitamin A-rich vegetables in last 7 days (%)	41 to 44	7 to 8	47 to 48
Household consumed white tubers/roots in last 7 days (%)	91 to 93	93	97 to 98
Household consumed green leafy vegetables in last 7 days (%)	87 to 88	72 to 73	81 to 83
Household consumed other vegetables in last 7 days (%)	33 to 34	15 to 17	62
Household consumed vitamin A-rich fruits in last 7 days (%)	99 to 100	99 to 100	100
Household consumed other fruits in last 7 days (%)	5 to 7	4	7 to 8
Household consumed meat in last 7 days (%)	48 to 49	48 to 52	62
Household consumed eggs in last 7 days (%)	24 to 26	14 to 15	53 to 54
Household consumed fish in last 7 days (%)	89	99	95 to 96
Household consumed beans peas lentils in last 7 days (%)	29 to 32	17 to 20	39 to 41
Household consumed dairy in last 7 days (%)	70 to 72	69 to 70	95 to 96
Number of groups (of 12)	7.2	6.4	8.4
WOMEN'S STATUS			

Women's perceived position on a 9-step "power" ladder (people on Step 1 are completely without rights, people on Step 9 have a lot of power)	2.43 to 2.57	2.31 to 2.24	2.69 to 2.73
Women's perceived position on a 9-step "control" ladder (people on Step 1 are totally unable to change their lives, people on Step 9 have full control over their own lives)	2.85 to 2.97	2.54 to 2.69	3.02 to 3.03
NUTRITION PRACTICES AND SERVICES			
Any antenatal sessions	0.70	0.41 to 0.50	0.89
Number antenatal sessions	2.74 to 2.88	2.38	3.84
Received advice on food to eat	0.81	0.40 to 0.41	0.68 to 0.70
Followed advice	0.86 to 0.88	0.78	0.90 to 0.92
Received iron supplement	0.68 to 0.69	0.35 to 0.40	0.68 to 0.70
Birth attended by: Doctor	0.05	0.05	0.42 to 0.45
Birth attended by: Midwife or nurse	0.05	0.04 to 0.05	0.49 to 0.50
Birth attended by: Any trained person	0.38 to 0.41	0.34 to 0.40	0.73 to 0.75
Exposed to any source of information about nutrition	0.75 to 0.78	0.25 to 0.27	0.67
Did health worker give advice on IYCF during home visit?	0.52 to 0.55	0.10 to 0.11	0.23
Attend group meeting	0.55 to 0.58	0.10 to 0.12	0.08 to 0.09
Any home visit or group meeting	0.77	0.16 to 0.17	0.27
Score on test of nutrition knowledge (of 10), mother	7.40 to 7.42	6.39 to 6.47	7.46 to 7.53
Knows when should a baby start getting breast milk, mother	0.90 to 0.91	0.83 to 0.84	0.90 to 0.92
Knows what should mother do with colostrum, mother	0.85 to 0.86	0.87 to 0.89	0.85 to 0.86
Knows at what age babies should be given other foods, mother	0.63	0.53	0.74 to 0.75
Knows what seasoning is fortified with iodine, mother	0.57	0.26 to 0.27	0.56 to 0.62
Score on test of nutrition knowledge (of 10), adolescent	6.48 to 6.68	5.65 to 6.09	6.74 to 6.94
Knows when should a baby start getting breast milk	0.65 to 0.68	0.54 to 0.67	0.73 to 0.74
Knows what should mother do with colostrum, adolescent	0.60 to 0.73	0.62 to 0.65	0.68 to 0.71
Knows at what age babies should be given other foods, adolescent	0.54 to 0.56	0.43 to 0.46	0.58 to 0.63
Knows what seasoning is fortified with iron, adolescent	0.66 to 0.72	0.37 to 0.54	0.71 to 0.76

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