Ghana LEAP 1000 Programme: Baseline Evaluation Report

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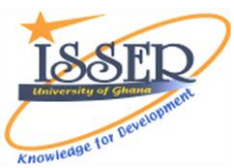

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Abbreviations

ADL	Activities of Daily Living
ARI	Acute Respiratory Infection
AE	Adult Equivalent
ANC	Antenatal Care
BCG	Bacille Calmette-Guuérin (anti-tuberculosis vaccine)
CIDA	Canadian International Development Agency
CAPI	Computer Assisted Personal Interviewing
DHS	Demographic and Health Survey
DSW	Department of Social Welfare
DTP-HepB-Hib	Diphtheria, Tetanus Toxoid, Pertussis - Hepatitis B - *Haemophilus Influenza* Type B
GLSS	Ghana Living Standards Survey
GH₵	Ghanaian Cedi
GPS	Global Positioning System
HFIAS	Household Food Insecurity Access Scale
IYCF	Infant and Young Child Feeding
ISSER	Institute of Statistical, Social and Economic Research
ILO	International Labour Organization
IPV	Intimate Partner Violence
HAZ	Length/Height-for-Age Z-Score
LEAP	Livelihood Empowerment Against Poverty
MOS	Medical Outcomes Scores
MoGCSP	Ministry of Gender, Children and Social Protection
MICS	Multiple Indicator Cluster Survey
NHIS	National Health Insurance Scheme
NHRC	Navrongo Health Research Centre
NGO	Non-Governmental Organization
NR	Northern Region
ORS	Oral Rehydration Salts
ORT	Oral Rehydration Therapy
OVC	Orphans and Vulnerable Children
PSS	Perceived Stress Scale
PWD	Person With a Disability
PMT	Proxy Means Test
RDD	Regression Discontinuity Design
SD	Standard Deviations
SPRING	Strengthening Partnerships, Results and Innovations in Nutrition Globally
TZ	Tuo Zaafi
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
UNC-CH	University of North Carolina at Chapel Hill
UER	Upper East Region
WAZ	Weight-for-Age Z-Score
WHZ	Weight-for-Length/Height Z-Score
WHO	World Health Organization

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Executive Summary

This report presents results from the baseline survey of the impact evaluation of LEAP 1000 (Livelihood Empowerment Against Poverty), a sub-component of the wider Ghana LEAP programme, which explicitly targets poor households with pregnant and lactating women or women with a child under the age of 12 months. The programme will provide cash transfers, initially reaching 6,000 households in ten districts in Northern Ghana. The benefit structure and associated services such as the National Health Insurance Scheme (NHIS) enrolment are identical to the main LEAP programme.

The UNICEF Office of Research, the University of Ghana, University of North Carolina and Navrongo Health Research Centre have designed a rigorous mixed-methods impact evaluation to estimate the effects of LEAP 1000. The evaluation compares households which are just below the proxy means test cut-off score (and thus eligible for LEAP) to those just above the cut-off score (and thus not eligible for LEAP). These households are likely to be very similar as they have virtually identical proxy means test scores. The group of households above the cut-off can thus serve as a valid comparison group for households below the cut-off who receive the cash transfers. This evaluation strategy is known as a *discontinuity design*, as it exploits the discontinuity of eligibility at exactly the cut-off point. The study sample consists of 1,262 households below and 1,235 above the line, for a total of 2,497 households. The qualitative study sample consists of 20 treatment households who were administered in-depth interviews.

The discontinuity design successfully generated a valid comparison group to measure programme impacts. We performed over 500 statistical tests for mean (or proportional) differences between the treatment and comparison group across all potential impact domains ranging from consumption and food security to children's schooling and nutrition and agricultural activity. We found very few (less than five per cent) statistically significant differences across the two groups and conclude that the discontinuity design was successful at creating a valid comparison group.

LEAP 1000 households are very different from typical LEAP households. As is to be expected given the targeting criterion for LEAP 1000, these households are much younger with many more pre-school children, more prime-age adults and fewer elderly household members compared to typical LEAP households. For example, 26 per cent of LEAP 1000 household residents are under age 5 compared to only 9 per cent in LEAP. On the other hand almost 25 per cent of LEAP household members are aged 60+ compared to only 5 per cent in LEAP 1000 households. LEAP 1000 households are also significantly larger (6 versus 4 members on average) compared to LEAP households.

The poverty rate among LEAP 1000 households is 91 per cent and the poverty gap is 54 per cent. These figures are much higher than the poverty rate and poverty gap among all rural households in the Northern and Upper East Regions of 59 and 24 per cent respectively taken from the Ghana Living Standards Survey (GLSS). The large discrepancy in the poverty gap highlights the fact that the LEAP programme manages to identify households that are quite far below the poverty line, and is an indication of very effective targeting performance.

Consistent with the high rates of poverty, LEAP 1000 households are extremely food insecure and median consumption is Ghanaian cedi (GH₵) 76 per adult equivalent (AE) per month, approximately 62 US cents per person per day. Almost nine out of ten (close to 90 per cent)

households worried about food in the four-week reference period, and 43 per cent of households had at least one member who went without food for an entire day in the four-week reference period. Three-fourths of households reported that a child under age five was not always given enough food in the reference period. Median consumption is significantly lower than the GLSS median of GH₵ 145 per AE per month, and the budget share devoted to food is correspondingly higher at 78 per cent compared to only 60 per cent in the GLSS comparison sample.

LEAP 1000 beneficiary women are extremely vulnerable: 80 per cent have not completed primary school; 20 per cent married before the age of 18; and 82 per cent experience controlling behaviour from their partner. And while 31 per cent of respondents are in polygamous unions, the qualitative interviews suggest that co-wives are an important source of support for the beneficiary, exchanging information, providing advice and helping prepare food and care for children. On the other hand, 38 per cent of respondents had experienced physical intimate partner violence in their lifetime compared to 21 per cent in the Demographic and Health Survey (DHS), and a total of 67 per cent of women had experienced any physical, emotional or sexual violence in their lifetime, compared to only 41 per cent in the DHS. Moreover, 17 per cent of respondents indicated that their partner is sometimes or often drunk, an important risk factor for intimate partner violence.

Agriculture is the primary livelihood source for LEAP 1000 households, with close to 75 per cent of household members aged 15+ engaged in land preparation or planting and a similar proportion engaged in weeding or non-harvest work in the last season. Close to 80 per cent of households purchased agricultural inputs, mostly seeds (62 per cent) followed by tools and equipment (50 per cent), while 24 per cent hired labour. There is some indication of non-farm activity, with 20 per cent of households engaged in an enterprise, primarily petty trade, food preparation and home brewing – 64 per cent of these enterprises are operated by women. Less than 3 per cent of household members are engaged in wage work.

The nutritional status of young children in LEAP 1000 households appears no worse than the population as a whole, but rates of morbidity are worse. Stunting, wasting and underweight are respectively 28, 16 and 19 per cent. Only the wasting rate is higher than in comparable DHS samples suggesting that acute food insecurity may be a problem in the target population as wasting is a short-term indicator that responds quickly to changes in food intake due to food shortage or sickness. In terms of morbidity, LEAP 1000 children do worse than children from the comparable DHS sample, diarrhoea rates are 37 per cent (versus 15 per cent in DHS) and fever is 23 per cent (versus 15 per cent in DHS) which may explain the higher rates of wasting. Interestingly though, LEAP 1000 children were more likely to sleep under a bed net (67 per cent versus 42 per cent in DHS) and to live in households that disposed of stools safely (24 per cent versus 14 per cent in DHS).

The LEAP transfer level is slightly on the low side of international best practice, and suggests that impacts of the programme may be limited to a few core domains such as food security, unless the transfer size is adjusted for inflation. The mean transfer size as a share of consumption is only 16 per cent and the median is even lower at 12 per cent, much lower than international best practice which suggests a target benefit level of about 20 per cent of pre-programme consumption. Though the benefit size was increased recently, these estimates suggest that a systematic approach that links the transfer size to inflation might be necessary to ensure that the programme has an impact on beneficiaries.

Ghana LEAP 1000 Programme: 2015 Baseline Evaluation – Summary

	LEAP 1000 Treatment	National comparison*
Poverty, consumption, food security		
Poverty rate	91.1	58.9
Poverty gap	48.3	23.6
Extreme poverty rate	67.0	29.1
Extreme poverty gap	26.7	9.2
Median household expenditure per adult equivalent, per month (GH₵)	76.25	144.76
Food share as % of total household consumption	77.8	60.2
Number of meals per day, mean	2.6	
Worried about food security, % of households	88.4	
% households with 1+ members who went without food for a day, last 4 weeks	43.3	
Had a child U5 not given enough food, % households	75.1	
Household economic activity		
Spent time in land preparation or planting, % people age 15+	72.2	
Engaged in wage, salary, payment in-kind labour, % people age 15+	6.7	
Operates non-farm enterprise, % of households	20.5	
Owns goats, % of households	31.2	40.0
Chicken ownership, % of households	42.8	55.7
Has 1+ outstanding debt, last 12 months, % of households	38.0	5.9
Housing conditions and WASH		
Mean number of persons per room	2.6	2.8
Electricity - source of lighting	26.1	22.2
Mud/earth - outer wall material	96	81.7
Metal sheet - roof material	64.3	64.8
Cement/concrete - floor material	74	72.7
Wood/firewood - type of cooking fuel	89.5	94.1
Tube well, borehole - source of drinking water	56.5	60.2
Unprotected well or spring - source of drinking water	17.9	9.4
Does something to make water safer to drink?	4.8	9.1
No facility, bush, field - type of toilet	87.9	81.8
Child health		
Antenatal care from skilled provider	97.4	93.73
Antenatal care 4 times or more	83.6	82.94
Delivery with assistance from skilled provider[1]	62.1	48.1
Delivery in health facility	61.4	47.2
Size of baby at birth small or very small	27.3	17.2
Low birth weight < 2500 gram	8.4	11.9
Diarrhoea last 2 weeks	37	15
Received ORS during episode of diarrhoea, among those with diarrhoea	59.8	50.5
Fever last 2 weeks	23.3	15
Slept under bed net yesterday	67.4	42
Safe disposal of child stools	24.4	13.86
All basic vaccinations	84.8	72.8
Child nutrition		
Stunted (HAZ < -2 SD)	28.2	28.5
Severely Stunted (HAZ < -3 SD)	12.3	8.9
Wasted (WHZ < -2 SD)	15.5	7.1
Severely Wasted (WHZ < -3 SD)	6.3	1.5
Underweight (WAZ < -2 SD)	19.4	17.7
Severely Underweight (WAZ < -3 SD)	7.2	3.3
Women's vulnerability		
Married before age 18	20.1	
Education, some primary or less	87.3	
% Experienced controlling behaviours - 12 months	81.9	73
% Experienced emotional/physical/sexual IPV - 12 months	67.3	

* GLSS 6 indicators from rural households in Northern and Upper East Regions for poverty, consumption, economic activity and housing. Ghana DHS 2014 or 2008, Northern and Upper East Regions for toilet facilities, child health and nutrition, and women's vulnerability. [1] Skilled provider includes doctor, nurse, midwife, auxiliary midwife or community health worker

1. Introduction and background

This is the baseline evaluation report of the Ghana Livelihoods Empowerment Against Poverty (LEAP) 1000 cash transfer programme. This mixed methods evaluation is led by UNICEF's Office of Research, in collaboration with the University of North Carolina at Chapel Hill and two local counterparts: the Institute of Statistical, Social and Economic Research (ISSER) at the University of Ghana for the quantitative evaluation and the Navrongo Health Research Centre (NHRC) for the qualitative study.

The LEAP 1000 is an extension of the mainstream LEAP programme, Ghana's flagship poverty alleviation programme implemented since 2008 by the Department of Social Welfare (DSW) at the Ministry of Gender, Children and Social Protection (MoGCSP). The LEAP programme provides cash payments to extremely poor households with orphans and vulnerable children, the destitute elderly and persons with acute disability. As of October 2015, the programme reaches more than 116,000 extremely poor families in all ten regions of Ghana.

The targeting approach of mainstream LEAP, focused on households with orphans and vulnerable children and the elderly poor and disabled, leads to very few eligible families with young children. Indeed the average age of the typical LEAP beneficiary is 61, over 60 per cent are females and 39 per cent are widowed. In contrast, among all rural poor families in Ghana and based on data from GLSS, mean age of the household head is only 48, 83 per cent are male-headed, with many fewer orphans (who tend to be older) and a higher proportion of children under five years. LEAP thus captures a unique segment of the extreme poor in Ghana, but excludes a large portion of other vulnerable households which also need support, particularly households with young children. Early childhood is a key development window, with long-term implications for health and well-being. Evidence shows that almost all stunting takes place before a child's second birthday – a period commonly referred to as the first 1,000 days (from conception to 24 months).

The LEAP 1000 programme will use the LEAP implementation structure to target poor and vulnerable households with pregnant woman and infants under 12 months of age.[1] The programme, which aims to reduce stunting in Ghana, will have a direct contribution to this goal by supporting children in the first 1000 days of their life. Families enrolled in LEAP 1000 will receive support for three years.

LEAP 1000 targeted a total of ten districts in Northern Ghana (three districts in Upper East region and seven districts in Northern region). Districts have been selected in collaboration with USAID's Strengthening Partnerships, Results and Innovations in Nutrition Globally (SPRING) Initiative that applies a criteria based on the high proportion of poor people within a district, combined with a high incidence of poor nutrition.

Communities within these ten districts were targeted using official poverty rankings established at district level. Poverty rankings of communities in Ghana are based on a validation of census data by district assembly members (District Social Welfare Officers, District Health Officials, and District Chief Executives). Once the poorest communities were identified using the district ranking, priority was

[1] Due to difficulty to establish exact ages of young children, children up to 15 months were accepted into the programme at the time of targeting.

given to the poorest communities which were not already covered by mainstream LEAP (i.e. non-LEAP).

In total, LEAP 1000 enrolled 6,220 poor households with pregnant women and infants. To be eligible to apply, pregnant women and households with infants under 15 months had to present proof of either: (a) antenatal cards, if pregnant; or (b) birth certificates and weighing cards, if they have an infant below 15 months. Women unable to present either document during the targeting process were advised that if selected, the necessary documentation should be provided during enrolment. Targeting of beneficiaries commenced in March 2015 and ended in July 2015 using a demand-driven approach. In the ten selected districts, mobile units were deployed to advertise the programme and encourage potentially eligible women to apply to enter the programme. All those who applied were then subjected to the standard LEAP proxy means test (PMT) to ensure they meet the poverty criterion. Those that meet the poverty criterion (that score below the designated threshold), are enrolled into the programme.

Women who are enrolled into the programme will receive bi-monthly payments of cash for three years in alignment with the mainstream LEAP. The amount of the cash transfer depends on the number of eligible household members as follows:[2]

- One eligible household member: GH₵ 64
- Two eligible household members: GH₵ 76
- Three eligible household members: GH₵ 88
- Four or more eligible household members: GH₵ 106

If not yet enrolled, beneficiaries are entitled to free health insurance through the National Health Insurance Scheme (NHIS), giving them access to free out-patient and in-patient services, dental services, and maternal health services. Enrolment in the NHIS also covers children and dependents below 18 years.

2. Conceptual framework

This section describes the conceptual framework for the LEAP 1000 impact evaluation. It identifies the relevant household and individual level indicators, presents them in a framework and hypothesizes potential pathways of impact.

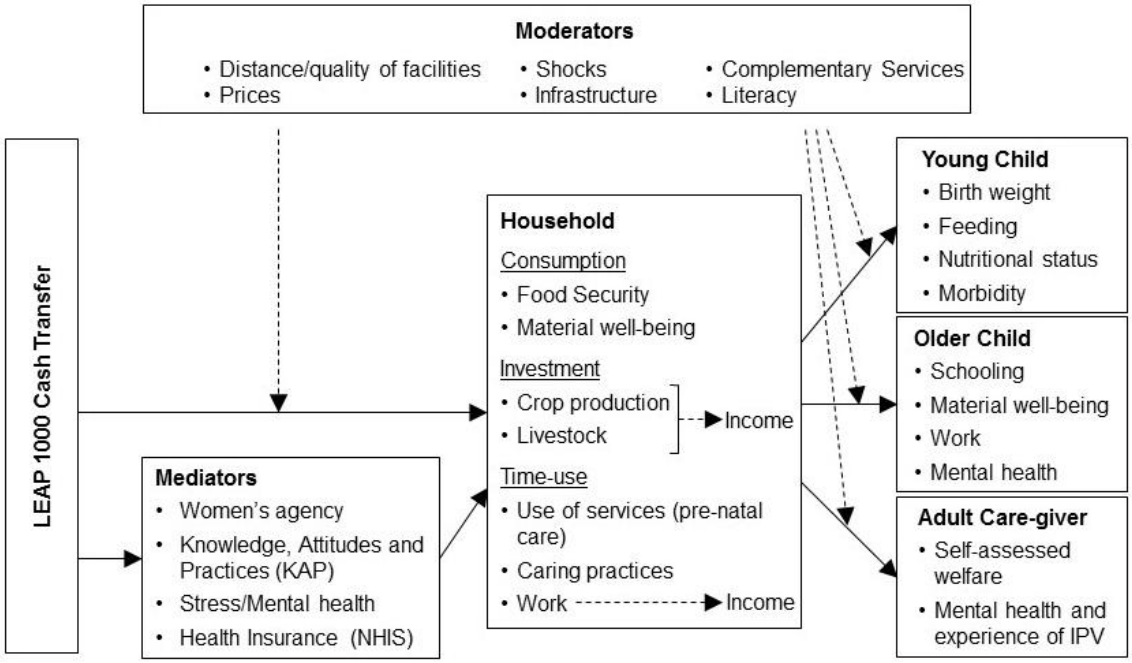
LEAP 1000 provides a cash transfer to extremely poor households with pregnant women and infants. In addition, beneficiaries are enrolled in the NHIS. As in most cash transfers targeted to the extremely poor households, the immediate impact of cash programmes are typically to raise spending levels, particularly basic spending needs for food, clothing, and shelter, some of which will influence children's health, nutrition, and material well-being. Once immediate basic needs are met, and possibly after a period of time, the influx of new cash may then trigger further responses within

[2] Note that the demographic groups of the wider LEAP programme also count as eligible household members for this calculation. A pregnant woman and a caregiver with a child under 1 year both count for 2 beneficiaries, one mother/caregiver and one infant. The minimum amount a LEAP 1000 household receives is therefore by definition GH₵ 76.

the household economy, for example, by providing room for investment and other productive activity, the use of services, and the ability to free up older children to attend school.

These ideas are brought together in a conceptual framework in Figure 2.1 showing how LEAP 1000 may affect household activity, the causal pathways involved, and the potential moderator and mediator factors. The figure is read from left to right. We expect a direct effect of the cash transfer on household consumption (food security, diet diversity), on the use of services and possibly even on productive activity after some time. An important component of LEAP 1000 is the enrolment of participants in the NHIS. This enrolment will itself directly trigger potential behaviour change in terms of inducing households to use health services and is thus considered a potential mediator or mechanism through which the effect of LEAP 1000 is felt at the household level. Sociological and economic theories of human behaviour suggest that the impact of the cash may work through several mechanisms (mediators), including a woman's agency, her level of stress, and her knowledge and attitudes. Similarly, the impact of the cash transfer may be weaker or stronger depending on local conditions in the community. These moderators include access to markets and other services, prices and shocks. Moderating effects are shown with dotted lines that intersect with the solid lines to indicate that they can influence the strength of the direct effect.

Figure 2.1, Conceptual framework LEAP 1000 programme evaluation



The next step in the causal chain is the effect on children, which we separate into older and younger children because of the programme's focus on very young children and because the key indicators of welfare are different for the two age groups. It is important to recognize that any potential impact of the programme on children must work through the household and caregiver through spending or time allocation decisions (including use of services). The link between the household and children can also be moderated by environmental factors, such as distance to schools or health facilities, as indicated in the diagram, household-level characteristics themselves such as the mother's literacy,

and the presence or absence of complementary services in the community. Note that from a theoretical perspective, some factors cited as mediators may actually be moderators and vice-versa (such as women's agency). We can test for moderation versus mediation through established statistical techniques and this information will be important to help us understand the actual impact of the programme on behaviour. In Figure 2.1 we list some of the key indicators along the causal chain that we will analyse in the Ghana LEAP 1000 evaluation.

3. Study design and sampling

3.1. Study design

The evaluation study consists of a quantitative evaluation using regression discontinuity design (RDD) methods and an embedded qualitative study. The RDD exploits the use of a threshold applied to a continuous eligibility index. Two conditions are required for the RDD: 1) a continuous eligibility index and 2) a clearly defined and exogenously determined threshold. Both of these conditions hold in the case of the LEAP 1000 programme.

As discussed in the introduction, the PMT was calculated for all women who applied to the LEAP 1000 programme using data collected about their household during registration. The household score on the PMT formula is a proxy measure for household well-being and is calculated based on indicators including household composition, educational attainment, agricultural assets, housing, durables ownership, and location. This score constitutes the continuous eligibility index required for the RDD. In addition, the LEAP Management Unit from the DSW has set a threshold, or cut-off point, which is used to determine if a household meets the poverty criterion to be enrolled into the programme. A key criteria for this cut-off point is that it must be exogenous and not related to the outcomes of the LEAP 1000 programme. In this case, the cut-off was determined by ranking all households in order of their PMT score and choosing the cut-off at the point for which approximately 6,000 household scored lower than the cut-off. The number of 6,000 households refers to the number of households for which budget is available in the LEAP 1000 pilot intervention. We consider this an exogenous criterion and as a result, the second condition for implementing an RDD holds.

In the absence of randomization, RDD is a widely used approach in the impact evaluation literature and is the preferred approach for this impact evaluation. In fact, a study in Mexico on PROGRESA has demonstrated that the impacts calculated using RDD were similar to impacts calculated using a randomized control trial design in a context where both approaches could be employed on the same data.[3]

A baseline quantitative, multi-topical survey was conducted prior to receiving the first payment, and a follow-up survey will be conducted with the same households after 24 months. The survey instrument is based on the programme's evaluation framework (Figure 2.1) and measures key outcome and impact indicators (e.g. anthropometry) as well as intermediate outcomes, those that lie along the causal pathway (e.g. food consumption and diet diversity). Wherever possible validated survey items from existing national survey instruments such as the Ghana Living Standards Survey

[3] Buddelmeyer, H., and E. Skoufias. (2004). An Evaluation of the Performance of Regression Discontinuity Design on PROGRESA. Vol. 827. World Bank Publications. World Bank: Washington, D.C

(GLSS), Multiple Indicator Cluster Survey (MICS) and Demographic and Health Survey (DHS) were utilized in designing the instrument. Table 3.1.1 provides an overview of the main topics in the household survey questionnaire.

Table 3.1.1, Topics in household survey questionnaire

Household	LEAP 1000 beneficiary	Children of LEAP 1000 beneficiary
• Household roster, education and health of all household members • Housing conditions and WASH • Food security • Time use and employment • Productive livelihoods • Non-farm enterprises • Reproductive health (Females 12–49 years) • Household consumption	• Birth history • Contraception and fertility preferences • Women's agency, stress and preferences • Nutrition and feeding knowledge • Intimate partner violence	• Maternal and newborn health (0–36 months) • Child health (0–59 months) • Immunizations (0–59 months) • Child nutrition and feeding (0–59 months) • Birth registration and child development (0–59 months) • Anthropometry (0–59 months)

In addition to the household questionnaire, health facility and community price questionnaires were administered at baseline. The health facility questionnaire was conducted with the administrator of each primary health facility in the sample area to capture information on facility characteristics, equipment, services, drugs and medical supplies and personnel. Findings from this survey are reported in Appendix 5. The community price questionnaire was administered in each major market in the sampling area to gather detailed price information on more than 120 frequently purchased items, including food.

For the embedded qualitative component of the evaluation, 20 treatment households were selected to participate in three rounds of in-depth, semi-structured interviews with the LEAP 1000 beneficiary scheduled to occur at baseline, 12 months, and 24 months. In addition, the qualitative study employs an observational component to document the context of the household and larger community during the visit for the qualitative interview. Baseline qualitative interview guides focus on the composition and dynamics of the households and a description of the household situation in terms of the key outcomes targeted by LEAP 1000, including food security, child nutrition, economic well-being, access to health care, and gender dynamics. In addition, an inventory of sources of social support and social capital, as well as stresses on the household is elicited. The two follow-up interviews will focus on monitoring changes in these outcomes and eliciting stories, experiences, and explanations for how and why changes do or do not occur.

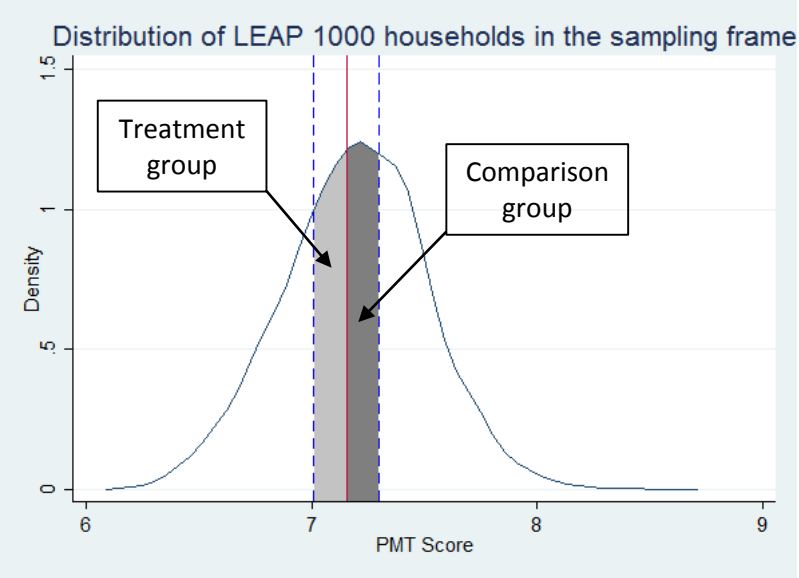
Ethical approval for the quantitative study was granted by the Ethics Committee for the Humanities of the University of Ghana and for the qualitative study by the University of North Carolina at Chapel Hill (UNC-CH) Institutional Review Board and the NHRC Institutional Review Board.

3.2. Sample design

For the quantitative evaluation, the sampling frame for the selection of households is the targeting data provided by the MoGCSP. We selected five of the 10 districts to conduct the evaluation: Yendi, Karaga and East Mamprusi in the Northern Region and Bongo and Garu Tempane in the Upper East Region. The frame includes 8,058 households from 189 different communities who applied for LEAP 1000 in the five districts to be used for the evaluation. Using the cut-off score determined by the MoGCSP, 3,619 (44.9 per cent) of the households qualify as beneficiaries while 4,439 (55.1 per cent) do not qualify. To achieve the desired sample size of 2,500 households as derived from power computations (see Appendix 1), the task was to select 1,250 households each from the treatment and comparison arms.

The sampling criteria adopted selected the first 1,250 households from either side of the cut-off. This is considered ideal for the RDD since observations closest to the cut-off are likely to be "most similar". Based on their PMT score, households were sorted in ascending order for the comparison group and in descending order for the treatment group, and the first 1,250 top ranked households for each group were selected as the initial sample (Figure 3.2.1).

Figure 3.2.1, Distribution of LEAP 1000 treatment and comparison households in the sampling frame



It was also considered necessary to include a reserve sample consisting of about 10 per cent of the desired sample (125 households in each arm) which would be used for replacement of selected households in case of refusals or inability to locate sampled households during fieldwork. For practical fieldwork and budgetary considerations also, it was considered inefficient to include communities with less than 3 selected households since this could substantially increase travel time and search costs. Therefore, communities with only one or two selected households were dropped from the initial sample. Ten communities had only one household in the sample while six communities had two sampled households each. Thus in all, 22 households (13 comparison and 9 treatment) in the initial sample had to be dropped in order to satisfy this restriction.

This meant that 138 and 134 new households had to be added to the comparison and treatment arm samples respectively. This additional sample was also based on the total score ranking for each

arm (i.e. households ranked 1,251 and further), but with the additional restriction that the household belonged to a community in which three or more households had already been selected.

This sampling design proved to be an effective approach to select households very close to either side of the cut-off. All sampled households are within approximately two per cent of the cut-off. The overall sample characteristics did not change after removing households in villages in which only one or two were initially selected. The distribution of sampled households across the five districts was similar to the distribution of all households in the sampling frame. More details about the sampling procedure are reported in Appendix 2.

3.3. Data collection

Quantitative study

Data collection was carried out using Computer Assisted Personal Interviewing (CAPI) by ISSER with technical support from the Office of Research. A one-week training for enumerators was held in July 2015, which consisted of a detailed discussion on the household survey instrument, training and practice on collecting anthropometric data, training and practice on CAPI and a pilot test. After the training, four teams were deployed to the five evaluation districts, each team comprised of a male supervisor and four female enumerators. Enumerators were selected based on their language skills, computer literacy and prior experience conducting surveys. Each enumerator was fluent in at least one of the major local languages spoken in the evaluation districts (Dagbani, Mampruli, Frafra, Hausa, Kussal).

Anthropometric measurements of children aged 4–59 months were taken using digital standing scales and portable measuring boards. GPS coordinates for each household, local market and health facility were collected as well.

Data collection commenced on 21 July and was completed by 25 September 2015. The final number of completed surveys was 2,497 (Table 3.3.1). Furthermore, Table 3.3.1 shows that in total 150 households of the replacement sample were used, constituting about six per cent of the original sample. Replacement was more prevalent in the East Mamprusi district where 60 replacements were made which constituted about seven per cent of the original sample of 810. Replacements made in the comparison sample were slightly higher than replacements used in the treatment sample; 6.3 per cent and 5.7 per cent respectively.[4]

The ISSER team implemented three phases of data quality control. The first phase was the in-office review of rolling data; second, in-office review of full data, accompanied by callback to respondents to clarify data; and third, cleaning and consistency checks. The first phase of the quality control checks of the survey data started in the first week of fieldwork when the first batch of data from completed interviews was sent to the office. In cases where data was incomplete, largely due to lapses on the part of the CAPI programme, two approaches were undertaken to fix the data. The first was to have the enumerators return to the households since in most cases they were still in the

[4] In several communities, enrolment of beneficiaries and the baseline survey occurred within the same time frame, which in some cases led to disappointments for households that did not meet the PMT criteria and therefore being assigned to the comparison group. However, the data collection team did everything in their power to convince comparison households to participate in the survey, but the slightly higher replacement rate might be due to a higher rate of refusal among comparison households.

same community. Where it was not economically and practically wise to return to the households, the in-office quality control callback assistants did the follow-up calls to fix the gaps. As data came in, ISSER continuously and regularly made calls to the field to update or give feedback to enumerators on issues that needed attention.

Table 3.3.1, Sample completion rate by district

District	Comparison		Treatment		Total
	Original	Replacement	Original	Replacement	
East Mamprusi	385	26	365	34	810
Karaga	242	12	222	7	483
Yendi	173	11	193	11	388
Bongo	179	15	213	12	419
Garu-Tempane	178	14	195	10	397
Total	1,157	78	1,188	74	2,497

Most of the time after the fieldwork was devoted to review of the full dataset. The office assistants continued with the callbacks to the enumerators to clarify inconsistencies and also to respondents to validate or confirm certain responses.

Qualitative study

For the qualitative sample, in October 2015 we purposively selected 20 treatment households from the baseline targeting sample, ten in the Karaga district in Northern Region (NR) and ten in the Bongo district in Upper East Region (UER).[5] Within each district, we selected ten households across five communities (Table 3.3.2). Within each community, we selected one woman who was pregnant with her first child at targeting or who has just one child under one and women who have three or more children, including one child under one. The use of parity as a stratum for sampling was based on the assumption that the target outcomes of LEAP 1000 could be different based on the level of experience and number of children. Based on review of the targeting data we identified 97 women in Bongo and Karaga who met our sampling criteria, 74 women with three children or more and 23 first time mothers. Due to the small number of first-time mothers, the presence of at least one in a community was used to determine the final selection of communities for the qualitative sample. In Karaga, the communities were rural and quite far from larger market areas. In contrast, the communities in Bongo were closer to an active market town and economic centre. In addition to conducting individual interviews, the team also conducted observations of the context of the communities that were documented in an observation guide.

We consulted with the community focal person in each selected community to identify women who were participating in LEAP 1000. Without access to specific participant ID numbers from the survey, participation in LEAP 1000 was confirmed with self-reported participation, visual confirmation with the survey, informed consent from the survey and/or confirmation of LEAP 1000 payment, which had been made in September 2015. Each potential household was visited one day prior to the

[5] Two of the women included in the qualitative sample were cash transfer recipients but did not participate in the quantitative survey.

intended interview to confirm eligibility and then visited the next day at a mutually agreed upon time.

Table 3.3.2, Sampling scheme for qualitative evaluation (N=20)

Region	UPPER EAST										NORTHERN									
District	Bongo										Karaga									
Community	1		2		3		4		5		1		2		3		4		5	
Household/ Woman	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10

Training of the data collection team was facilitated by UNC and NHRC with active participation by UNICEF Ghana. The training included an overview of the foundations and principles of qualitative research, review of in-depth interviewing techniques (i.e. active listening, probing), review, revision and practice of the interview guides, and a pre-test. Through this approach, the UNICEF team, the NHRC team and the interviewers made useful inputs to refine the interview guide. The pre-test interview allowed each interviewer to practice and apply skills gained during training and to make final revisions to the guide. Following the pre-test, the lead investigators from UNC and NHRC met with the interviewers to review their overall experience and provide detailed feedback on their interview and field notes.

All interviews were audio recorded. Detailed field notes were taken about key themes related to study outcomes in addition to general observations about the context of the interview and the dynamic with participants. The field note form was intentionally structured to facilitate rapid analysis of key themes during data collection and for the report. Audio recordings were transcribed verbatim and translated to English.

3.4. Notes on the analysis

The objective of the baseline analysis is twofold. First, to present baseline values of key indicators for the LEAP 1000 programme and second, to assess the degree of balance between the non-experimental treatment and comparison group. In other words, to evaluate if the study design has resulted in an appropriate comparison group for our treatment households. We therefore present baseline indicator values for comparison and treatment group separately, and for each indicator a p-value of the comparison test. We define statistical significance as a p-value lower than 0.05.

Given the evaluation design (the RDD), it is common practice to control for the eligibility score (PMT score in our case) in the analysis. This is due to the fact that the eligibility score is used to divide our sample in treatment and comparison group, and the eligibility score itself is composed of several important household characteristics. It may be that these household characteristics correlate with outcomes we are interested in, especially as the PMT score attempts to measure the degree of consumption poverty of a household, and outcomes may be related to the poverty status of the household. To overcome this issue, we control for the PMT score in all of the comparisons made between treatment and comparison group.

Finally, we present comparison figures of national data for each indicator whenever possible. We draw from several recent surveys for these comparisons: the Ghana Living Standards Survey (GLSS) 2012/2013, the Ghana Demographic and Health Survey (GDHS) 2014 and 2008 and in a few

instances, the Multiple Indicator Cluster Survey (MICS) 2011. For the GLSS, unless otherwise stated, our comparison sample constitutes all rural households that are below the extreme poverty line. For the DHS and the MICS we draw directly from the published reports and we use a weighted average of the Northern and Upper East Regions as comparison.

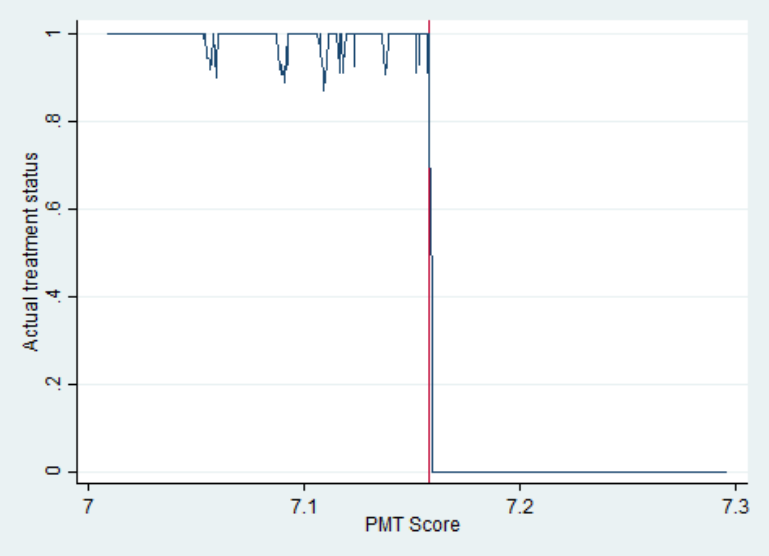
4. Sample description

4.1. Success of study design

Before presenting the main results of the baseline study, this section shows if the regression discontinuity design was implemented successfully. That is, whether households with a PMT score below the threshold were actually enrolled into LEAP 1000 and those above were not, and whether there are any significant differences between treatment and comparison group for a set of key impact indicators.

Figure 4.1.1 illustrates the implementation of the study design using actual programme monitoring data. The red line indicates the programme threshold and we would expect all households below the threshold to be enrolled into LEAP 1000 (i.e. a value of 1) and those above the threshold not enrolled (a value of 0). It is evident from the Figure that the RDD was implemented very successfully. The likelihood of being enrolled into the programme drops dramatically just before the threshold and becomes zero just after it. In fact, the actual programme data shows that only 10 households in our sample with a score below the threshold were not enrolled into LEAP 1000, while all of the households with a score above the threshold were not enrolled. The small drops in the graph before the threshold are explained by these 10 households.[6]

Figure 4.1.1, Relation between actual treatment status and PMT score



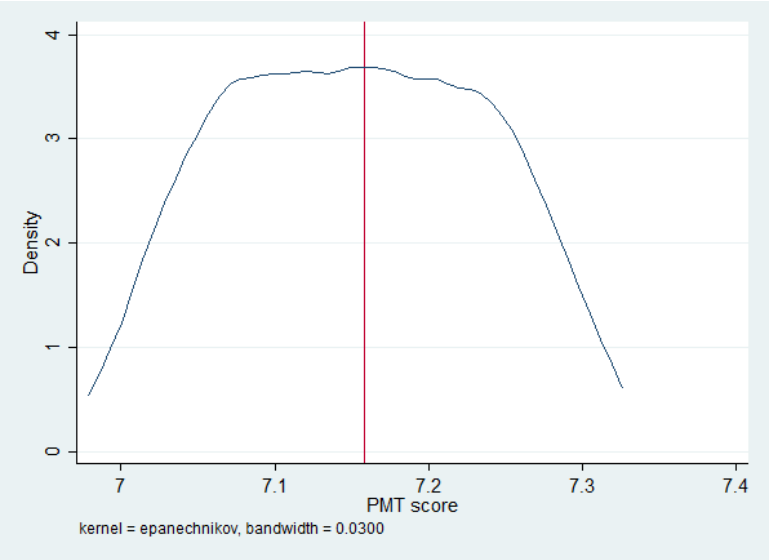
Note: red line indicates PMT threshold.

Another useful test of the success of the RDD implementation, is an assessment of the distribution of the population by the PMT score. If there is no manipulation of the score, we should not see a higher proportion of people on just the eligible side of the threshold. The distribution of the sample

[6] The list of 10 households has been shared with the implementing institution and their status will be verified.

population by the PMT score is depicted in Figure 4.1.2. Although there is a larger fraction of the population below the threshold (52.4 per cent to be exact), there is no peak in the distribution just below the threshold. This result provides further corroborating evidence that the implementation of the RDD strategy in the LEAP 1000 evaluation was successful.

Figure 4.1.2, Distribution of sample population by PMT score



Note: red line indicates PMT threshold

In the sub-sections below, we provide summary statistics (means, frequency distributions, etc.) of key variables collected in the baseline survey across all potential domains of impact as set-out in the conceptual framework. For each indicator we provide statistical tests for mean (or proportional) differences across the treatment and comparison group to check whether the two groups are equivalent across a wide range of domains. Overall we perform more than 500 statistical tests and find very few (less than five per cent) statistical differences across the two groups, and so conclude that the RDD was successful at creating a valid comparison group to measure programme impacts.

4.2. Sample characteristics

The Ghana LEAP 1000 baseline survey defined a household as a person or a group of related or unrelated persons who usually live together in the same dwelling and eat from the same pot. It includes visitors who have lived with the group for six months or more, and those usual members who are away visiting, in a hospital, at boarding schools or studying, or are temporarily away for other reasons. This definition is similar to that used by the GLSS6 and the Ghana DHS 2014.

The LEAP 1000 baseline study interviewed a total of 2,497 households with 16,493 members. There are slightly more females than males (52.4 per cent and 47.6 per cent respectively) in the sample, without any significant differences between treatment and comparison households. The household population is particularly young. About one in four household members are younger than five years old and one third is between five and 19 years old. There are very few older people in the LEAP 1000 sample (Table 4.2.1). This is also shown by Figure 4.2.1, which depicts a population pyramid of the LEAP 1000 households. The LEAP 1000 population has a high share of very young children and a high share of women of reproductive age, especially women in their twenties and thirties. This distribution is expected given the targeting frame of the LEAP 1000 programme.

The key rationale for expanding the LEAP programme to pregnant and lactating women is that they constitute a particular and unique segment which is not captured due to LEAP's focus on households with elderly, people with a disability, and orphaned and vulnerable children. Column 4 in Table 4.2.1 and Figure 4.2.2 show this difference in population demographics. In the LEAP population (Figure 4.2.2), there are relatively few very young children, but a high share of older children and adolescents. Furthermore, there are few adults of so-called working age (18–64) and relatively a lot of elders. Such a composition is typical of a population in labour-constrained households, with high dependency ratios.[7]

Another comparison is made to the GLSS extremely poor, rural sample in column 5 of Table 4.2.1 and in Figure 4.2.3. This population also shows a pyramid-shaped demographic composition with many children, but not as much as in the LEAP 1000 sample. There are also many more teenagers in the GLSS comparison sample.

Table 4.2.1, Sex and age of household population

Variable	LEAP 1000		p-value	LEAP 2010 sample	GLSS 2012/2013
	Comparison	Treatment			
Sex					
Male	47.6	47.8	0.09	44.2	50.9
Female	52.4	52.2	0.09	55.8	49.1
Age group					
0 - 4	25.9	25.0	0.17	9.3	14.3
5 - 9	16.8	19.0	0.11	13.4	17.3
10 - 19	14.9	17.1	0.18	27.3	27.6
20 - 29	15.1	11.6	0.47	9.6	10.9
30 - 39	12.3	12.4	0.56	5.6	9.4
40 - 49	6.5	6.8	0.79	5.5	8.5
50 - 59	3.1	2.8	0.68	5.8	5.1
60 - 69	2.6	2.4	0.84	6.0	2.9
70 - 79	1.8	1.8	0.77	10.3	2.7
80+	1.0	1.0	0.71	7.1	1.3
N	7,776	8,717		2,648	9,940

Note: GLSS extremely poor, rural sample.

[7] A dependency ratio is the number of working age adults (typically 18–64 years old) divided by the number of children and elders in the household. A high dependency ration implies that few household members are able to generate income for the household, making the household particularly vulnerable.

Figure 4.2.1, Male and female population by age (LEAP 1000 sample)

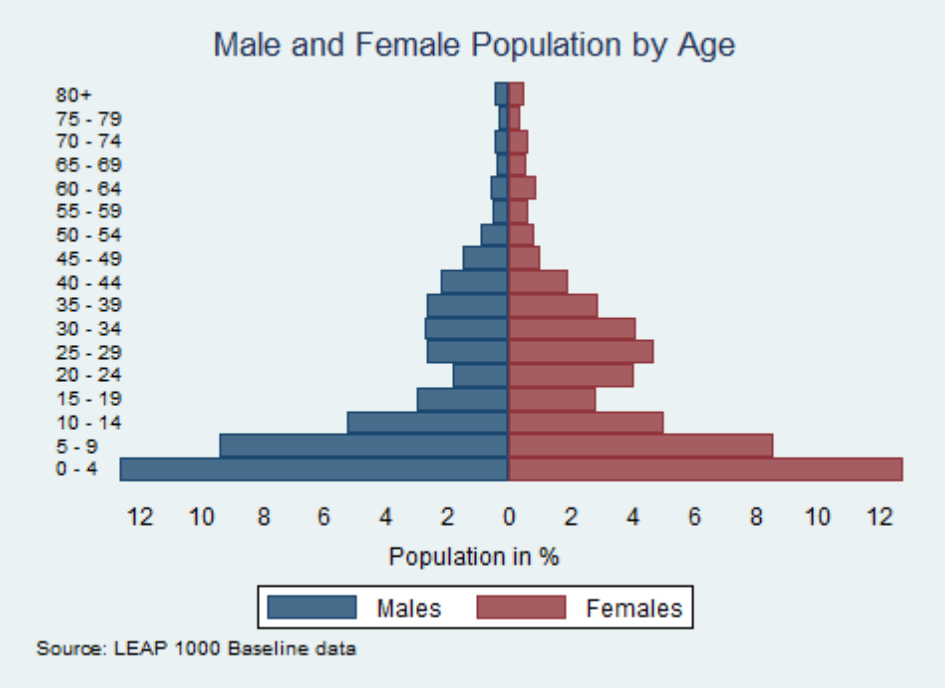


Figure 4.2.2, Male and female population by age (LEAP 2010 evaluation sample)

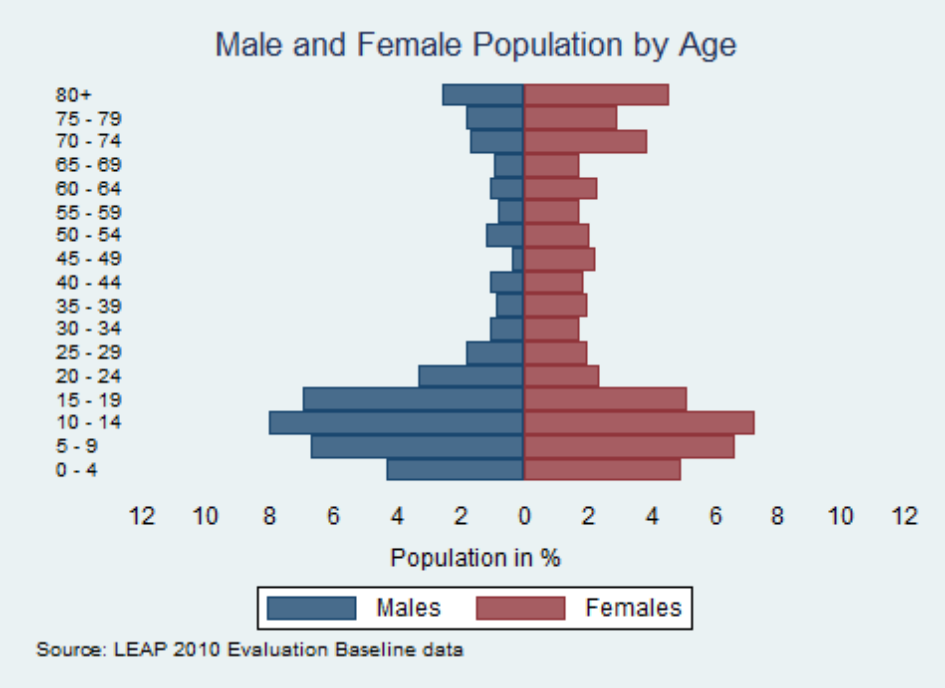


Figure 4.2.3, Male and female population by age (GLSS rural extremely poor population)

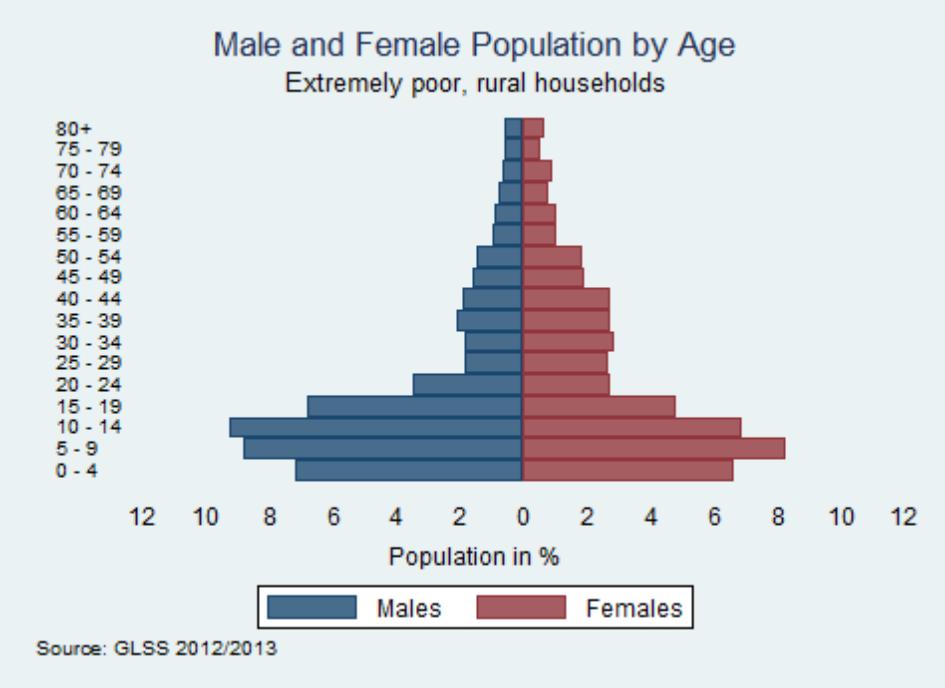


Table 4.2.2, Marital status and age at first marriage of population 12 years and older

Variables	Comparison	Treatment	p-value	GLSS 2012/2013
Marital Status				
Married/Union – Monogamous	46.0	42.8	0.60	47.6[1]
Married/Union – Polygamous	26.1	25.7	0.67	
Separated/Divorced	0.8	0.8	0.30	2.6
Widowed	4.7	4.8	0.37	6.1
Never married	22.5	25.9	0.49	43.7
N	4,132	4,391		6,218
Age at first marriage - Females	19.9	19.8	0.51	19.8
Married before 18 - Females	18.2	17.4	0.62	21.8
N	1,880	1,935		2,095
Age at first marriage - Males	24.0	24.1	0.38	24.1
Married before 18 - Males	2.9	3.8	0.26	2.6
N	1,323	1,319		1,377

Note: GLSS extremely poor, rural sample.

[1] GLSS does not differentiate between polygamous and monogamous marriage

Table 4.2.2 provides information on the marital status of the household population aged 12 years and older. The highest share in both the treatment and comparison households is in a monogamous marriage or union (46 per cent and 42.8 per cent) and about one quarter of the population is in a polygamous marriage or union. Another quarter of the sample has never been married and only five per cent of the sample is widowed. Males tend to marry at a much older age than females, with an

average age difference of about four years. In addition, 17–18 per cent of ever married females were younger than 18 years when they first got married or started living together. For males, this is much lower at three to four per cent. There are no significant differences between treatment and comparison group for the age of marriage and the rate of marrying before age 18. Compared to the GLSS extremely poor rural population, the LEAP 1000 sample is more often married or in a union, and a lower share of the LEAP 1000 population has never been married. This is probably due to the age composition of the LEAP 1000 sample, with fewer adolescents (10–19 years old) compared to the GLSS sample. The age at first marriage is similar between the GLSS sample and the LEAP 1000 sample but the share of ever-married females who first married or started living together before 18 is higher in the GLSS sample with 21.8 per cent.

Education

The LEAP 1000 baseline survey asked about current school enrolment or, if not in school, educational attainment of all household members three years and older. Table 4.2.3 presents the results of key educational indicators by sex and age group.

Table 4.2.3, Enrolment and educational attainment

Variables	Comparison	Treatment	p-value	GLSS 2012/2013
School enrolment - girls 5–12 years	73.0	74.0	0.91	77.1
N	874	1,123		1,269
School enrolment - girls 13–17 years	67.7	67.4	0.56	70.7
N	235	301		567
School enrolment - boys 5–12 years	73.1	75.0	0.46	74.4
N	926	1,238		1,458
School enrolment - boys 13–17 years	70.7	66.7	0.93	73.5
N	266	330		763
Females 18 years and older				
Less than primary	82.3	83.6	0.62	64.8
Some primary	5.5	5.7	0.47	11.3
Completed primary	2.1	1.7	0.88	6.2
Some secondary	8.3	7.1	0.75	13.2
Completed secondary or higher	1.8	1.8	0.78	4.6
N	1,961	2,020		2,425
Males 18 years and older				
Less than primary	73.7	75.1	0.87	45.5
Some primary	6.9	6.7	0.34	12.4
Completed primary	3.7	3.3	0.85	6.5
Some secondary	10.1	9.2	0.89	24.3
Completed secondary or higher	5.6	5.8	0.46	11.4
N	1,500	1,527		2,097

Note: GLSS extremely poor, rural sample.

About three in four girls of primary school age are currently in school, and about two thirds of girls of secondary school age are enrolled. These figures are similar for boys. The enrolment rates are comparable to the GLSS comparison sample, although the secondary enrolment rate is slightly higher in the GLSS sample. Of the female adult population, a large majority has attained less than primary education and only 12.2 and 10.6 per cent of adult females have completed primary school or higher in the comparison and treatment groups respectively. The same holds for the adult male population, although 18.3–19.4 per cent has attained primary school or higher. Compared to the GLSS sample, the LEAP 1000 adult population has attained considerably less education. None of the results are significantly different between the treatment and comparison group.

Health

The LEAP 1000 baseline survey asked a series of health-related questions for each household member aged five years or older. The results are presented in Table 4.2.4. About one quarter of the LEAP 1000 sample reported an illness or injury in the two weeks preceding the survey. The risk of morbidity in the LEAP 1000 sample is higher than the GLSS comparison group, with a share of 10.6 per cent. If respondents reported an illness, they were asked where and whom they consulted for care. Just over half (55 per cent) of the household members who reported an illness or injury sought any care. This is in line with the GLSS comparison group. Among those seeking care, 83.6 per cent and 77.7 per cent of members in the comparison group and treatment group respectively sought care with a health professional. The majority sought care at a public facility.

Table 4.2.4, Health indicators of household members five years and older

Variables	Comparison	Treatment	p-value	GLSS 2012/2013
Illness or injury in last 2 weeks	22.8	22.8	0.82	10.6
N	5,742	6,525		8,554
Sought care for illness in last 2 weeks	54.8	54.7	0.50	53.5
N	1,311	1,485		863
Sought care with health professional[1]	83.6	77.7	0.24	76.1
Sought care at public facility	80.4	74.0	0.30	54.4
N	719	812		524
Disabled	1.8	1.6	0.96	2.3
N	5,762	6,539		8,526
Disability: Sight	29.1	27.1	0.70	29.6
Disability: Hearing	16.5	19.6	0.35	18.2
Disability: Speech	5.8	19.6	0.36	6.4
Disability: Physical	39.8	35.5	0.85	27.4
Disability: Intellect	8.7	7.5	0.29	15.2
Disability: Emotional	5.8	4.7	0.11	1.9
N	103	107		208

Note: GLSS extremely poor, rural sample.

[1] Includes doctor, dentist, nurse, medical assistant, midwife and pharmacist

Just under two per cent of our sample is living with a disability, which is similar to the rate observed in the GLSS comparison sample. Physical, sight and hearing disabilities are the most common types, and a higher share of individuals in the treatment sample reported a speech disability while the other types of disabilities are comparable across groups. The different types of disabilities are also similar to the GLSS comparison group, although physical disabilities are less often reported and intellectual disabilities slightly more in the GLSS.

Household composition

In this sub-section, we again add a comparison to the general LEAP households, to illustrate how LEAP 1000 targets a unique segment of poor households not previously served by the LEAP programme. The LEAP 1000 households have an average of about 6.3 and 6.9 household members in the comparison and treatment group respectively, which is in the same range as the average rural extremely poor household from the GLSS, but much higher than LEAP households (Table 4.2.5). Due to the targeting criteria, there is a comparatively higher number of children under the age of 12 months in the LEAP 1000 sample, compared to the GLSS and LEAP. As also shown in the population pyramids above, there are relatively fewer children of primary school age, and more adults in their mid-twenties to mid-thirties. Furthermore, about seven to eight per cent of households in the LEAP 1000 sample have a person with a disability (PWD) among their members and about seven per cent of the households have at least one single or double orphan. The share of households with a PWD in the LEAP 1000 sample is lower than in the GLSS sample. The share of households with an orphan is unsurprisingly much higher in the LEAP sample, compared to the LEAP 1000 sample.

Table 4.2.5, Household composition

Variables	LEAP 1000		p-value	LEAP 2010	GLSS
	Comparison	Treatment		sample	2012/2013
Household size	6.3	6.9	0.07	3.8	6.3
# of children aged 0-11 months	0.6	0.6	0.12	0.0	0.1
# of children aged 12-23 months	0.3	0.4	0.10	0.1	0.2
# of children aged 24-35 months	0.2	0.2	0.87	0.1	0.2
# of children aged 36-47 months	0.3	0.3	0.99	0.1	0.2
# of children aged 48-59 months	0.3	0.3	0.84	0.1	0.3
# of children aged 60-71 months	0.2	0.3	0.36	0.1	0.2
# of children 6-12	**1.2**	**1.6**	**0.01**	0.8	1.6
# of children 13-17	0.4	0.5	0.74	0.5	0.8
# of adults 18-24	0.6	0.5	0.65	0.4	0.7
# of adults 25-34	1.0	0.9	0.59	0.3	0.6
# of adults 35-44	0.6	0.7	0.75	0.2	0.6
# of adults 45-54	0.3	0.3	0.88	0.2	0.4
# of adults 55-64	0.2	0.2	0.98	0.2	0.2
# of adults 65 and more	0.2	0.3	0.61	0.8	0.3
# of women 12-49 years	1.6	1.6	0.31	0.8	1.5
% of households with PWD	7.3	7.7	0.61	-	11.0
% of households with orphans	6.7	7.3	0.68	27.3	-
N	1,235	1,262		697	1,525

Note: GLSS extremely poor, rural sample.

The baseline balance tests show that none of the differences between the treatment and comparison group are significant at the 1 per cent significance level, while there is only one difference at the 5 per cent level.

The characteristics of the head of household are presented in Table 4.2.6. In the comparison group, 8.1 per cent of households are headed by females, compared to more than 10 per cent in the treatment group. Next, nearly all heads are married or in a union and the mean age of the head is around 40 years. The majority of heads have not enjoyed any formal schooling and about one in 12 heads in the comparison group and one in 10 heads in the treatment group worked for a wage in the seven days before the survey. Compared to the GLSS extremely poor, rural sample, household heads in the LEAP 1000 sample are less often female, more likely to be married, younger, with lower educational attainment and more often involved in salaried work in the seven days before the survey.

We observe a significant difference between the treatment and comparison groups in terms of the sex of the head of household, but not for the other head characteristics.

Table 4.2.6, Characteristics of the head of household

Variables	Comparison	Treatment	p-value	GLSS 2012/2013
Head is female	**8.1**	**10.5**	**0.03**	20.7
Head is married	95.9	95.1	0.63	78.3
Age of head (in years)	38.3	40.4	0.80	48.9
Head no formal schooling	78.1	82.1	0.58	59.6
Head worked for wage or salary in last 7 days	8.4	10.0	0.19	2.3[1]
N	1,235	1,262		1,525

Notes: GLSS extremely poor, rural sample.

[1] Number refers to share of heads who worked in the formal sector in the seven days before the survey.

Characteristics of the LEAP 1000 eligible woman

The main respondents to the LEAP 1000 baseline survey were the eligible women of the selected household. In other words, a pregnant women or mother of a child under 12 months in the household. Table 4.2.7 presents some key characteristics of these women. Their average age is 28.5 and 30.1 years old for comparison and treatment households respectively. The large majority of eligible women is in a marriage or union and one in five eligible women married or first started living with their partner before turning 18 years old. In terms of educational attainment, four in five eligible women achieved less than primary schooling and about 15 per cent completed primary or higher. There are no significant differences between treatment and comparison women, except for one of the marital status indicators, but the difference is small in magnitude.

Table 4.2.7, Characteristics of the LEAP 1000 eligible woman

Variables	Comparison	Treatment	p-value
Age (in years)	28.5	30.1	0.51
Marital Status			
Married/Union - Monogamous	66.2	65.1	0.99
Married/Union - Polygamous	29.4	31.1	0.62
Separated/Divorced	**0.9**	**0.8**	**0.02**
Widowed	0.9	0.6	0.86
Never married	2.7	2.4	0.74
N	1,235	1,262	
Age at first marriage	19.4	19.5	0.94
Married before 18	21.9	20.1	0.45
N	1,202	1,232	
Educational attainment			
Less than primary	77.9	79.6	0.38
Some primary	7.5	7.7	0.42
Completed primary	2.8	2.3	0.96
Some secondary	9.8	8.6	0.66
Completed secondary or higher	1.9	1.9	0.82
N	1,235	1,262	
Note: Bold indicates statistically significant difference at the 5 per cent level.			

4.3. Consumption, poverty and food security

The targeting procedure of the LEAP 1000 programme is designed to identify the poorest households in the selected districts. The common measure of poverty is household consumption and we present the baseline findings on consumption in this section. More information on the construction of the consumption aggregates is provided in Appendix 3. Consumption for each household is converted to prices for Greater Accra, September 2015, to allow for fair comparison across the two regions and three months in which the baseline survey took place. We compare our estimates to rural households in the Northern and Upper East Regions from the GLSS and the poorest quintile of GLSS.

Total household consumption and food consumption

The household's expenditure is aggregated to obtain a monthly consumption estimate. The estimates are converted to adult equivalent (AE) units as is common in consumption analysis. The baseline results are presented in Table 4.3.1. The mean AE monthly expenditure for households in the comparison group is just over GH₵ 95, compared to nearly GH₵ 90 in the treatment group. Due to the design of the study, it is expected that the average level of consumption is somewhat higher in the comparison group because of their higher score on the PMT. However, the difference between the groups is not significant, which suggests that the implementation of the study design was successful. This level of consumption translates to about US$ 0.77 and 0.72 per AE per day in comparison and treatment group respectively.[8] The greater part of the household budget is devoted

[8] The exchange rate used is from 15 September 2015: GH₵ 1 = US$ 0.2448337399.

to food, with a mean expenditure of almost GH₵ 74 in the comparison group and GH₵ 69 in the treatment group. The remainder (GH₵ 21) is spent on non-food items.

Compared to the GLSS rural households in the Northern and Upper East Regions, households in the LEAP 1000 sample consume considerably less. The households in GLSS spent on average about GH₵ 189 per adult equivalent per month, of which GH₵ 109 on food and GH₵ 80 on non-food items. Compared to the poorest quintile of the GLSS households, the overall expenditure for LEAP 1000 households is identical, but the GLSS household spent more on non-food.

The bottom panel of Table 4.3.1 shows the median consumption values. These medians follow the same patterns as the means: overall consumption is slightly higher in the comparison group, but the difference is small. Interestingly, the median value for the poorest quintile of the GLSS households is higher than the median for LEAP 1000 households, indicating that while the mean consumption between these groups is similar, a higher share of LEAP 1000 households is further to the left side of the consumption distribution.

Table 4.3.1, Adult equivalent household consumption (in GH₵)

Variables	Comparison	Treatment	p-value	GLSS6[1]	GLSS6[2]
Mean					
AE household expenditure per month	95.16	89.66	0.75	189.14	89.16
AE food expenditure per month	73.68	68.86	0.81	109.20	50.30
AE non-food expenditure per month	21.48	20.79	0.20	79.94	38.86
Median					
AE household expenditure per month	80.78	76.25		144.76	92.23
AE food expenditure per month	61.98	58.37		83.01	50.33
AE non-food expenditure per month	15.31	15.28		51.68	36.76
Number of households	1,214	1,235		2,293	3,312

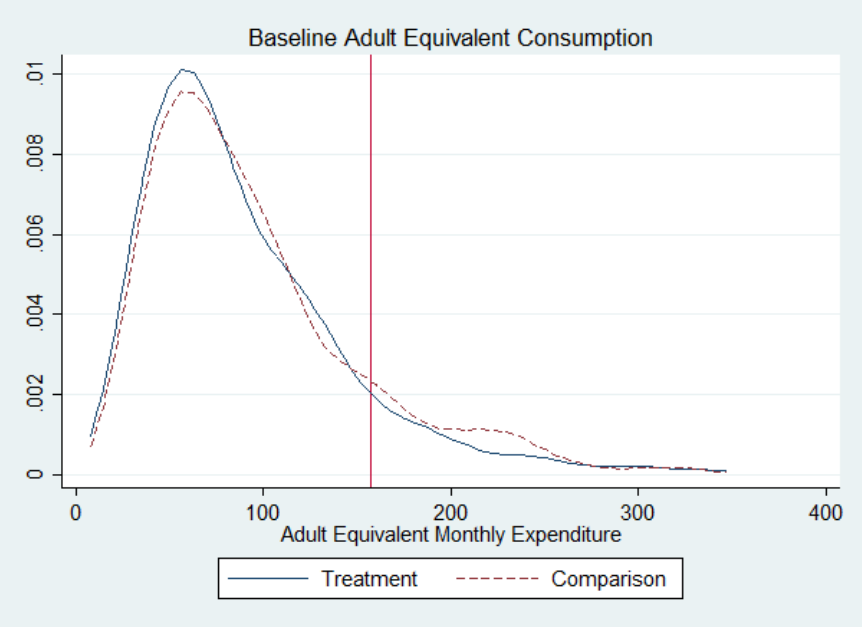
Note: all values in constant Greater Accra September 2015 prices

[1] GLSS rural households in Northern and Upper East Regions; [2] GLSS poorest quintile

Bottom and top 1% dropped from analysis

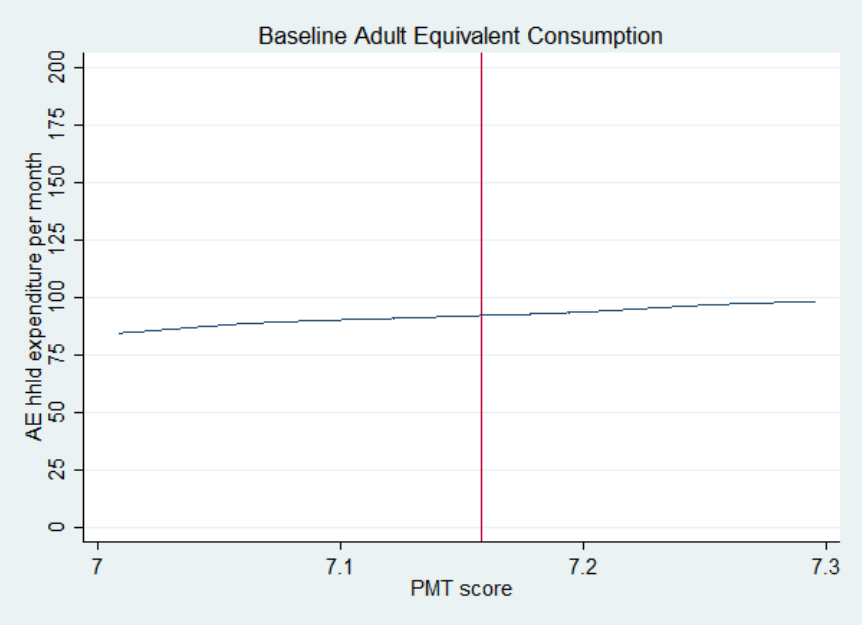
The distribution of the consumption is further shown graphically in Figure 4.3.1 and Figure 4.3.2. The first Figure shows that the distribution of consumption in both groups is very similar, corroborating the results in Table 4.3.1. The second graph is a verification of the success of the study design. Note that the RDD requires an exogenous criterion that determines the threshold which divides the population in treatment and comparison groups. We should therefore not expect a jump in key indicators of interest around the threshold. Figure 4.3.2 shows that the mean level of consumption is very smooth around the threshold. Moreover, the line is slowly rising with the PMT score, which is exactly what is expected given that the PMT formula is designed to reflect a proxy of household consumption.

Figure 4.3.1, Density plot of adult equivalent monthly consumption by treatment status



Note: top and bottom 1% excluded. Red line indicates the poverty line.

Figure 4.3.2, Relation between PMT score and adult equivalent monthly consumption



Note: top and bottom 1% excluded. Red line indicates the PMT threshold.

Next, we look at the shares of various subgroups of consumption items in the total household expenditure. The households in the LEAP 1000 sample spend more than three quarters of their household budget on food (Table 4.3.2). The next largest share is a mere five per cent for housing, services and items, which includes items like matches and candles, and services for repairs to the

dwelling. Around four per cent of the budget is spent on medicines and health supplies.[9] Households only devote marginal shares to the remaining subgroups. For example, about 2.8 per cent is spent on clothes and another 3 per cent is spent on education. There are no significant differences between comparison and treatment households for any of the consumption shares.

Compared to the GLSS households, the LEAP 1000 households spend more of their monthly budget on food and health, and less on the other items in the consumption basket.

Table 4.3.2, Consumption shares (in % of total household consumption)

Variables	Comparison	Treatment	p-value	GLSS 2012/2013
Food	78.3	77.8	0.13	60.2
Tobacco & alcohol	0.3	0.3	0.44	2.9
Housing services	5.3	5.3	0.66	5.7
Housing	1.8	1.6	0.74	5.0
Clothes	2.9	2.7	0.07	8.0
Health	3.9	4.4	0.19	1.1
Education	2.9	3.3	0.07	4.5
Transport	0.7	1.0	0.12	3.9
Communication	1.1	0.9	0.15	2.8
Recreation & culture	1.4	1.4	0.99	2.4
Miscellaneous goods & services	1.5	1.4	0.57	3.5
N	1,214	1,235		2,293

Note: GLSS rural households in Northern and Upper East Regions.
Bottom and top 1% dropped from analysis.

We further disaggregate the food consumption in major food groups (Table 4.3.3). More than half of the food budget is devoted to cereals, which includes the most common staple foods in Ghana such as corn, millet and rice. Another 15 to 16 per cent is spent on vegetables and 10 per cent on condiments and spices. This last group includes pepper, salt, and sugar, but also condiments like Maggi. The remainder of the food budget is spent on meat (7 per cent), pulses and nuts (5 per cent), starches (4.5 per cent), and oil and fats (3 per cent). The other items form only a small fraction of the overall food consumption. There are no significant differences between treatment and comparison for the food consumption shares. Compared to the GLSS, LEAP 1000 households spent a higher share on cereals and spices, but much less on meats, pulses and nuts and starches. The distribution of the LEAP 1000 households therefore points to a rather monotonous diet with an emphasis on just two food groups.

[9] Note that recent health expenditures for household members who were sick are not included in this category. For more details on the construction of the consumption aggregate, see Appendix 3.

Table 4.3.3, Food consumption shares (in % of total food consumption)

Variables	Comparison	Treatment	p-value	GLSS 2012/2013
Cereal	53.6	52.6	0.47	33.4
Meat	6.7	6.9	0.28	14.5
Dairy products and eggs	0.7	0.6	0.70	1.4
Oil and fats	3.1	2.8	0.67	4.4
Fruits	0.5	0.7	0.80	1.0
Vegetables	15.6	16.0	0.65	15.3
Condiments and spices	10.2	10.1	0.76	5.4
Starches	4.3	4.7	0.13	9.9
Pulses and nuts	5.0	5.0	0.58	7.7
Non-alcoholic beverages	0.3	0.3	0.96	2.4
Food outside the home	0.1	0.2	0.33	4.6
N	1,214	1,235		2,293

Note: GLSS rural households in Northern and Upper East Regions.
Bottom and top 1% dropped from analysis.

Poverty

The LEAP 1000 programme aims to target the extremely poor population. Individuals are regarded as poor if the per adult equivalent consumption of the household to which they belong falls below the national poverty line (which is also expressed in per adult equivalents). The Ghanaian poverty lines are updated to the September 2015 price level for this exercise. Table 4.3.4 shows that the poverty rate among individuals in the LEAP 1000 sample is around 90 per cent, with a slightly higher, but not significant, rate in the treatment group. This rate is much higher than the comparison group from the GLSS (58.9 per cent). Moreover, the poverty gap index, which is the average distance of the poor to the poverty line expressed as a share of the poverty line, is more than 45 per cent in the LEAP 1000 sample, compared to 23.6 per cent in the GLSS. This indicates that the consumption shortfall is higher among individuals in the LEAP 1000 households. The squared poverty gap index is a measure of poverty severity and gives more weight to individuals further from the poverty line. It is about twice as large in the LEAP 1000 sample compared to the GLSS (29 vs 12 per cent).

A similar pattern emerges for extreme poverty. Nearly two-thirds of the individuals in the LEAP 1000 sample are regarded as extremely poor because their household consumption falls below the food poverty line. This is more than double the rate found in the GLSS. The extreme poverty gap and extreme poverty gap squared are much higher in the LEAP 1000 sample than the GLSS, suggesting that the LEAP 1000 programme has captured a population that is considerably poor, but also that among the poor, LEAP 1000 households are much worse off than the average poor individual. This is further evidence that the targeting approach of LEAP 1000 has been highly effective in finding the poorest among the poor.

The poverty measures in Table 4.3.4 reflect poverty in the total population of the LEAP 1000 sample. It is also interesting to look at the poverty rate among children, as children are often disproportionately affected by household poverty. The child poverty rate is the share of children

(under 18 years) living below the poverty line. In the LEAP 1000 sample, the child poverty rate is almost identical to the general poverty rate, at 89.0 and 91.1 per cent in the comparison and treatment group. The extreme poverty rate among children is 64.2 and 67.4 per cent (results not shown). The similarities between the full population and children are probably due to the demographic composition of the LEAP 1000 population, with a very high share of children, and also because the poverty rate is already very high. In the GLSS comparison group, the child poverty rate is 62.5 and 31.5 per cent for overall and extreme poverty respectively.

Table 4.3.4, Poverty measures

Variables	Comparison	Treatment	p-value	GLSS 2012/2013
Poverty headcount	88.8	91.1	0.82	58.9
Poverty gap index	46.3	48.3	0.54	23.6
Poverty gap index squared	28.2	29.8	0.45	12.2
Extreme poverty headcount	63.8	67.0	0.55	29.1
Extreme poverty gap index	24.7	26.7	0.49	9.2
Extreme poverty gap index squared	12.3	13.5	0.50	3.9
Number of individuals	7,636	8,526		12,393
Note: GLSS rural households in Northern and Upper East Regions. Bottom and top 1% dropped from analysis.				

Food security

Increased household consumption and food expenditure should normally translate into improved food security. Food security in this context means that "all people at all times have both physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life".[10] We present five food security indicators in Table 4.3.5 below. First of all, on average households in our sample eat 2.6 meals per day. Disaggregating this mean value shows that the majority of households eats three meals per day (54.8 and 55.2 per cent in comparison and treatment group) and nearly 40 per cent of households have two meals per day. A small fraction of households have either one or four or more meals. The differences between comparison and treatment group are not significant at the five per cent level for this indicator.

Next, we assess a selection of indicators from the Household Food Insecurity Access Scale (HFIAS). The statements in the table are worded positively, so a higher rate indicates higher levels of food security in the sample. First of all, only 12.6 and 11.6 per cent of households in the comparison and treatment group respectively never worried about food in the four weeks before the survey. This is a measure of anxiety and uncertainty about the household's food supply and it appears to be high in the sample. Furthermore, over half of the households had no household member who had to go without food for a whole day and night. This means that the remaining households (i.e. more than

[10] Coates, J., Swindale, A., & Bilinsky, P. (2007). Household Food Insecurity Access Scale (HFIAS) for measurement of food access: indicator guide. Washington, DC: Food and Nutrition Technical Assistance Project, Academy for Educational Development.

40 per cent) *did* have a member who went without any food for 24 hours due to a lack of resources. This is an indication of severe food insecurity and it seems common in the LEAP 1000 sample.

Finally, we look at two food security indicators specifically aimed to children aged under five years. In about one in ten households, the children under five always received nutritious and healthy food. There is a small but significant difference on this indicator, suggesting that the treatment group is slightly worse off. In approximately one in four households, children under five years old always received enough food in the four weeks before the survey. This rate is not significantly different between comparison and treatment group. Unfortunately, none of the indicators presented here appear in the national level comparison data, so we are unable to put these figures into a national context.

Table 4.3.5, Food security among households

Variables	Comparison	Treatment	p-value
Mean number of meals per day	2.6	2.6	0.08
1 meal per day	1.9	2.3	0.67
2 meals per day	38.1	37.9	0.08
3 meals per day	54.8	55.2	0.27
4 or more meals per day	5.3	4.6	0.28
Never worry about food (last 4 weeks)	12.6	11.6	0.36
All household members sufficient food (last 4 weeks)	58.9	56.7	0.85
Number of households	1,235	1,262	
Children under 5 always nutritious food (last 4 weeks)	**11.5**	**9.6**	**0.04**
Children under 5 always given enough food (last 4 weeks)	24.3	24.9	0.55
Number of households with children under 5	1,185	1,231	

Note: Bold indicates statistically significant differences between treatment and comparison groups.

Food insecurity was a salient theme in the qualitative interviews. Most of the food consumed by participants came from what they could produce, which meant their diets were more diverse during the productive season but potentially very limited during the lean season. A first-time mother in Karaga explained:

> *In the farming season it's easy to get food and we were even able to cook in large quantity to eat well but in the lean season it is hard for us to get food and we cook in small quantity in order to ration the food we have or leave it for the children alone to eat.*

Some participants specifically mentioned only having one acre for their farming, which they considered insufficient for the food needs of the family. When the food they produced ran out, they would buy food in the market, which usually entailed borrowing money, or would ask for food from family or neighbours. Another first-time mother in Karaga described her coping process when food ran out:

> *When the food stock finishes and we have money we buy from the market and if we don't have money we borrow from other people and pay back after harvest in the next farming season.*

Participants also described relying on others, family or friends, to provide food during the lean season, as described by this mother of three in Karaga who was part of a very large polygamous family and also relied on friends and her own birth family:

> ***Interviewer:*** *If it happens you don't just have food in your house the people you can run to help you?*
> ***Participant****: Oooo if I don't have food at all in the house I will run to that my friend I mentioned to you earlier (name) to give me food and if she does not have food I will ask to borrow money to go buy food.*
> ***Interviewer****: And who?*
> ***Participan****t: And my brother, apart from them is my husband.*

This woman had a very robust social network which provided her with several people to whom she could turn in times of food scarcity. While participants frequently had people they turned to when they lacked food, sometimes these support networks were not able to provide, and participants described missing meals, going to bed hungry, and foraging in the bush, as described below by a first time mother in Karaga:

> ***Participant:*** *When our food gets finished and we go to my uncle and he tell us that he does not have food to give to us at that moment and tells us to go home he will try and get us something; we will just come home and cope with that.*
> ***Interviewer:*** *how do you cope?*
> ***Participant****: we go and pick the shea nut fruits and eat that as part of our meals.*

Running out of food was a cause of concern and stress that affected many women; while a few women described their households as "eating well", the majority worried about food and described missing meals or going to bed hungry.

While the women in NR spoke more about overall food scarcity, in UER, some women spoke more about their concerns with the lack of variety and nutritional value of their diet, rather than an absolute lack of food. A mother of six children explained:

> ***Interviewer****: So what food do you frequently eat in this household? What food do you prepare most of the time?*
> ***Participant****: Rice and soup, we prepare that more than the TZ because when you prepare TZ every day you will get fed up. So we prepare that most of the time and when we don't have rice we prepare TZ.*[11]

Another woman in UER who was a first time mother and mostly ate TZ reflected her understanding that a more diverse diet would give more "blood" to her children:

> *Beans is the food that gives blood and soup, when you cook vegetables and add groundnut and give to him to eat that will give blood.*

[11] TZ is Tuo Zaafi, a ball of cooked maize and cassava dough, which is a staple food in Northern Ghana.

Women in both regions specifically mentioned a desire to cook more beans as a source of nutrition for their children. Other foods that women mentioned they wished they could provide more often include fish and rice.

Women in both regions mentioned breastfeeding children as a way to protect small children from the negative effects of food insecurity, but they also explained that their milk production was reduced if they themselves were not eating enough. A first-time mother from NR described how she tried to cope with lean times by finding porridge for herself to drink to maintain her milk supply,

> ***Participant**: Ahaa, whenever food is insufficient, invariably the breast milk will also not be sufficient for him.*
> ***Interviewer**: In that case what do you do?*
> ***Participant**: When there isn't sufficient food such that I can eat enough to induce breast milk for him to feed, what I do then is that I look for porridge to drink so as to induce the milk.*

With regard to gender dynamics and food security, there were no indications of strong norms favouring male or female children. Age was a more salient determinant of food allocations than gender in women's narratives. Participants described that during lean times, children, boys and girls, were prioritized for food over adults. Some participants specifically mentioned that men would wait to be the last to eat while others indicated it would be the women.

4.4. Household economic activity

As discussed in the conceptual framework section, we expect the cash transfer to have an immediate direct effect on consumption. Once basic needs are met, and possibly after a relatively short period of time, we expect the transfer to have further effects on a household's economic activities, including investments in assets, as well as on household members' time allocation. The LEAP 1000 baseline survey included modules on time use, ownership of animals and poultry, expenditures on agricultural inputs, debts and credits, and non-farm enterprises conducted by household members. This section summarizes the results in those areas in the treatment and comparison households. We compare the results to the GLSS6 extremely poor and rural sample whenever the indicators are similar.

Time use

The LEAP 1000 baseline survey collected information on the amount of time allocated to different activities by each household member. Because time allocation decisions vary for children and adults and by sex, we present the results disaggregated by those dimensions. In this section we use age 7 to 14 to define children as the ILO Convention 138 (Minimum age convention, 1973) has established that those aged under 15 should not be engaged in any form of work. Ghana enacted the Children's Act in 1998 which is compatible with the ILO Convention 138.[12] The age range of 7 to 14 is also used by the GLSS6.

Table 4.4.1 presents the percentage of children doing domestic chores in the 24 hours before the interview and the average time spent in each activity. About a third of children (35.7 per cent) collected water in the last 24 hours, but with important differences by sex: whereas 17.1 per cent of males collected water, more than half of the females (55.7 per cent) did so. It is important to note

[12] Ghana Statistical Service (2014) Ghana Living Standards Survey Round 6 (GLSS6) Main Report. Ghana Statistical Service: Accra.

that the GLSS6 reported a much higher percentage of males collecting water (43.7 per cent) but it gave a somewhat similar level for females (62.8 per cent). A likely explanation is that the GLSS6 asked about doing the activity in the last 7 days whereas the LEAP 1000 surveys asked for the last 24 hours. The different results between surveys suggest that collecting water is a regular daily activity for most girls while it is done on a less regular basis by boys.

Table 4.4.1, Time use, domestic chores, last 24 hours, children age 7-14

Variable	Comparison	Treatment	p-value	GLSS 2012/2013[1]
Collecting water				
Percentage doing the activity:				
Male	13.5	17.1	0.85	43.7
Female	56.0	55.7	0.97	62.8
Total	34.4	35.7	0.61	52.2
Average time spent last 24 hours (in hours)				
Male	0.2	0.3	0.36	0.1
Female	1.0	0.9	0.22	0.3
Total	0.6	0.6	0.07	0.2
Collecting firewood or other fuel[2]				
Percentage doing the activity:				
Male	6.6	9.4	0.84	21.2
Female	22.0	21.5	0.24	34.2
Total	14.2	15.2	0.29	27.0
Average time spent last 24 hours (in hours)				
Male	0.1	0.2	0.36	0.1
Female	0.5	0.5	0.17	0.1
Total	0.3	0.3	0.41	0.1
Taking care of children, cooking or cleaning				
Percentage doing the activity:				
Male	18.5	21.2	0.10	30.5
Female	59.6	60.2	0.54	54.0
Total	38.7	39.9	0.91	41.0
Average time spent last 24 hours (in hours)				
Male	0.5	0.6	0.32	0.1
Female	1.9	2.1	0.57	0.4
Total	1.2	1.3	0.51	0.2
N(Males)	724	997	1,721	1,460
N(Females)	696	926	1,622	1,174
N(Total)	1,420	1,923	3,343	2,634

Note: GLSS6 extremely poor, rural sample.

[1] The GLSS6 collected data using 'the last 7 days' as the time period of reference, whereas the Ghana LEAP 1000 Survey collected information on 'the last 24 hours'. For the GLSS6, we present average time per day, in hours.

[2] The GLSS6 question only asks about collecting firewood, not other fuel.

Children have an important role in taking care of children, cooking or cleaning the household; about 40 per cent participated in this activity, mainly girls (60.2 per cent) whereas there is much less participation of boys (21.2 per cent). There are no differences between treatment and comparison households in the pattern of time allocation to domestic chores.

Table 4.4.2, Time use, domestic chores, last 24 hours, persons age 15 and older

Variable	Comparison	Treatment	p-value	GLSS 2012/2013[1]
Collecting water				
Percentage doing the activity:				
Male	4.8	5.8	0.31	25.8
Female	63.7	63.7	0.33	70.2
Total	**37.7**	**38.2**	**0.05**	48.7
Average time last 24 hours (in hours)				
Male	0.1	0.1	0.67	0.1
Female	1.1	1.1	0.53	0.3
Total	0.6	0.6	0.22	0.2
Collecting firewood or other fuel[2]				
Percentage doing the activity:				
Male	5.2	6.9	0.82	25.2
Female	40.6	41.3	0.14	64.9
Total	25.0	26.1	0.09	45.7
Average time last 24 hours (in hours)				
Male	0.1	0.1	0.98	0.1
Female	1.1	1.0	0.56	0.3
Total	0.6	0.6	0.42	0.2
Taking care of children, cooking or cleaning				
Percentage doing the activity:				
Male	19.6	16.5	0.71	34.4
Female	82.3	83.3	0.49	87.9
Total	54.7	53.8	0.39	62.0
Average time last 24 hours (in hours)				
Male	0.6	0.5	0.58	0.2
Female	3.6	3.6	0.49	1.4
Total	2.3	2.2	0.42	0.8
N(Males)	1,655	1,717	3,372	2,521
N(Females)	2,097	2,175	4,272	2,746
N(Total)	3,752	3,892	7,644	5,267

Notes: GLSS6 extremely poor, rural sample. Bold indicates statistically significant differences between treatment and comparison groups.

[1] The GLSS6 collected data using 'the last 7 days' as the time period of reference, whereas the Ghana LEAP 1000 Survey collected information on 'the last 24 hours'. For the GLSS6, we present average time per day, in hours.

[2] The GLSS6 question only asks about collecting firewood, not other fuel.

Domestic chores are overwhelmingly activities done by female adults with low participation of males, as shown in Table 4.4.2. Almost two-thirds of females (63.7 per cent) collected water the previous day whereas only 5.8 per cent of males did so. A comparison with the GLSS 6 results suggests that collecting water is a regular daily activity for females but is infrequent for males. A similar pattern of high and regular participation of females, and low and irregular for males, is observed for collecting firewood and for taking care of children, cooking or cleaning. There are no significant differences between LEAP 1000 treatment and comparison households.

The LEAP 1000 baseline survey also asked about participation in agricultural activities in the last farming season. Table 4.4.3 shows that just over one-third of children aged 7-14 participated in land preparation and planting (37.9 per cent) and in weeding, fertilizing or other non-harvest work (37.9 per cent). There was a relatively higher participation of boys than girls, even though over 30 per cent of female children participated in these activities. Comparison households showed a similar pattern of participation.

Table 4.4.3, Time use, agricultural activities, last farming season, children age 7-14

Variable	Comparison	Treatment	p-value	GLSS 2012/2013[1]
Land preparation or planting				
Percentage doing the activity:				
Male	41.7	43.3	0.56	
Female	30.5	32.0	0.55	
Total	36.2	37.9	0.87	
Average time spent last farming season (in days)				
Male	3.0	3.0	0.57	
Female	1.8	1.9	0.59	
Total	2.4	2.5	0.53	
Weeding, fertilizing or other non-harvest work				
Percentage doing the activity:				
Male	42.3	43.5	0.39	
Female	28.9	31.7	0.59	
Total	35.7	37.9	0.27	
Average time spent last farming season (in days)				
Male	3.5	3.1	0.15	
Female	1.8	2.3	0.21	
Total	2.7	2.8	0.87	
N(Males)	724	997	1,721	
N(Females)	696	926	1,622	
N(Total)	1,420	1,923	3,343	

Note: GLSS6 extremely poor, rural sample.

[1] The GLSS6 survey did not collect this information.

Agricultural activities in the last farming season engaged over 70 per cent of the adult LEAP 1000 population as shown in Table 4.4.4. Over 80 per cent of males were engaged in these activities as well as also almost two-thirds of female adults.

Table 4.4.4, Time use, agricultural activities, last farming season, persons age 15 and older

Variable	Comparison	Treatment	p-value	GLSS 2012/2013[1]
Land preparation or planting				
Percentage doing the activity:				
Male	84.0	83.1	0.35	
Female	62.8	63.6	0.72	
Total	72.1	72.2	0.90	
Average time spent last farming season (in days)				
Male	10.0	10.2	0.84	
Female	6.2	6.4	0.42	
Total	7.9	8.1	0.68	
Weeding, fertilizing or other non-harvest work				
Percentage doing the activity:				
Male	79.6	80.1	0.50	
Female	61.1	62.9	0.76	
Total	69.2	70.5	0.91	
Average time spent last farming season (in days)				
Male	11.6	11.6	0.76	
Female	6.3	6.6	0.50	
Total	8.7	8.8	0.68	
N(Males)	1,655	1,717	3,372	
N(Females)	2,097	2,175	4,272	
N(Total)	3,752	3,892	7,644	

Note: GLSS6 extremely poor, rural sample.

[1] The GLSS6 survey did not collect this information.

Participation in non-agricultural or non-fishing household businesses during the previous week was very low for children (1.8 per cent) and also low for adults (6.2 per cent), as shown in Tables 4.4.5 and 4.4.6. Participation in livestock-related activities, such as herding or preparing fodder, was more prevalent, engaging about 15 per cent of children and a very similar percentage of adults (16 per cent). This activity seems to be mostly done by boys or adult males.

Table 4.4.5, Time use, other work activities, last week, children aged 7-14

Variable	Comparison	Treatment	p-value	GLSS 2012/2013[1]
Run or help in non-agricultural business				
Percentage doing the activity:				
Male	1.5	1.2	0.85	1.2
Female	2.9	2.5	0.22	2.7
Total	2.2	1.8	0.48	1.9
Average time spent last 7 days (in hours)				
Male	0.1	0.1	0.96	0.2
Female	0.1	0.2	0.30	0.5
Total	0.1	0.1	0.47	0.4
Livestock-related activities (herding, preparing fodder)				
Percentage doing the activity:				
Male	19.6	21.5	0.63	
Female	5.9	7.2	0.47	
Total	12.9	14.6	0.61	
Average time spent last 7 days (in hours)				
Male	1.6	1.5	0.17	
Female	0.3	0.4	0.55	
Total	1.0	0.9	0.25	
N(males)	724	997	1,721	1,460
N(females)	696	926	1,622	1,174
N(total)	1,420	1,923	3,343	2,634

Note: GLSS6 extremely poor, rural sample.

[1] The GLSS6 survey did not collect information on percentage engaged in and time use for livestock-related activities. For non-agricultural businesses, it collected information through different questions. There were questions on main and secondary occupation in the last 7 days. For running or helping in a non-agricultural business, we summarize information for those who reported the status of their main/secondary occupation as non-agricultural and self-employed (with employees and without employees) or as a contributing family member.

Table 4.4.6, Time use, other work activities, last week, persons aged 15 and older

Variable	Comparison	Treatment	p-value	GLSS 2012/2013[1]
Run or help in non-agricultural business				
Percentage doing the activity:				
Male	4.7	4.3	0.39	6.5
Female	8.7	7.8	0.54	17.3
Total	6.9	6.2	0.43	12.1
Average time spent last 7 days (in hours)				
Male	0.6	0.6	0.11	2.7
Female	1.1	0.8	0.13	12.1
Total	**0.8**	**0.7**	**0.03**	4.5
Livestock-related activities (herding, preparing fodder)				
Percentage doing the activity:				
Male	23.6	25.2	0.75	
Female	8.0	8.6	0.37	
Total	14.9	16.0	0.63	
Average time spent last 7 days (in hours)				
Male	1.6	1.3	0.07	
Female	0.3	0.3	0.72	
Total	**0.8**	**0.7**	**0.05**	
N(males)	1,655	1,717	3,372	2,521
N(females)	2,097	2,175	4,272	2,746
N(total)	3,752	3,892	7,644	5,267

Notes: GLSS6 extremely poor, rural sample. Bold indicates statistically significant differences between treatment and comparison groups.

[1] The GLSS6 survey did not collect information on percentage engaged in and time use for livestock-related activities. For non-agricultural businesses, it collected information through different questions. There were questions on main and secondary occupation in the last 7 days. For running or helping in a non-agricultural business, we summarize information for those who reported the status of their main/secondary occupation as non-agricultural and self-employed (with employees and without employees) or as a contributing family member.

Participation of children in casual labour for anyone who is not a member of the household is low, at 6.4 per cent, in LEAP 1000 households, with almost no difference between boys and girls (see Table 4.4.7). A lower level (3.1 per cent) reported participating in wage or salary labour. However, these results were higher than we found in the GLSS6 for the extremely poor and rural, but the information was collected through different questions, which might explain the differences.

Table 4.4.7, Time use, other work activities, last week, children aged 7-14

Variable	Comparison	Treatment	p-value	GLSS 2012/2013[1]
Collecting nuts, fruits, honey, other food				
Percentage doing the activity:				
Male	3.7	3.4	0.14	
Female	9.8	7.0	0.07	
Total	**6.7**	**5.1**	**0.03**	
Average time spent last 7 days (in hours)				
Male	0.1	0.1	0.34	
Female	0.6	0.4	0.15	
Total	0.4	0.3	0.10	
Casual labour				
Percentage doing the activity:				
Male	5.1	6.5	0.96	
Female	4.0	6.3	0.98	
Total	4.6	6.4	0.99	
Average time spent last 7 days (in hours)				
Male	0.3	0.5	0.75	
Female	0.3	0.3	0.99	
Total	0.3	0.4	0.79	
Wage, salary, payment in kind labour				
Percentage doing the activity:				
Male	3.6	3.4	0.43	
Female	2.6	2.8	0.30	
Total	3.1	3.1	0.30	
Average time spent per day (in hours)				
Male	0.4	0.3	0.11	
Female	0.3	0.2	0.70	
Total	0.3	0.3	0.25	
N(males)	724	997	1,721	1,460
N(females)	696	926	1,622	1,174
N(total)	1,420	1,923	3,343	2,634

Notes: GLSS6 extremely poor, rural sample. Bold indicates statistically significant differences between treatment and comparison groups.

[1] The GLSS6 survey did not collect information on percentage engaged in and time use for livestock-related activities, and other labour questions were phrased differently and so are not comparable.

Participation by adults in casual labour for anyone who is not a member of the household in the last week is recorded at 12.2 per cent with a higher percentage for males. Participation in wage or salary labour is lower, at 6.7 per cent. These results reflect predominant work in the household's own household agricultural and livestock activities, but they could also reflect the particular stage of the agricultural season when the survey was conducted, during July–October 2015.

Table 4.4.8, Time use, other work activities, last week, persons aged 15 and older

Variable	Comparison	Treatment	p-value	GLSS 2012/2013[1]
Collecting nuts, fruits, honey, other food				
Percentage doing the activity:				
Male	2.2	3.3	0.25	
Female	14.7	13.6	0.37	
Total	9.2	9.0	0.32	
Average time spent last 7 days (in hours)				
Male	0.1	0.2	0.69	
Female	1.0	0.9	0.87	
Total	0.6	0.6	0.92	
Casual labour				
Percentage doing the activity:				
Male	15.0	15.8	0.44	
Female	10.4	9.3	0.22	
Total	12.4	12.2	0.78	
Average time spent last 7 days (in hours)				
Male	1.3	1.6	0.43	
Female	0.8	0.8	0.86	
Total	1.1	1.2	0.55	
Wage, salary, payment in kind labour				
Percentage doing the activity:				
Male	8.4	8.5	0.75	
Female	6.0	5.2	0.13	
Total	7.1	6.7	0.43	
Average time spent last 7 days (in hours)				
Male	1.0	1.3	0.20	
Female	0.7	0.5	0.44	
Total	0.8	0.9	0.52	
N(males)	1,655	1,717	3,372	
N(females)	2,097	2,175	4,272	
N(total)	3,752	3,892	7,644	

[1] The GLSS6 survey did not collect information on percentage engaged in and time use for livestock-related activities, and other labour questions were phrased differently and so are not comparable.

Productive livelihood

In order to have measures of productive renewable assets available to the households as well as potential sources of food, the LEAP 1000 baseline survey collected information about livestock and poultry owned by the households. Table 4.4.9 shows that almost 60 per cent of households do not own any livestock. This result is higher than the 48.3 per cent of the extremely poor and rural sample of the GLSS6 and it suggests lower productive conditions in LEAP 1000 households. In terms of

diversity of animals owned, it is as few as 30 per cent of households have only 1 or 2 types of livestock. Goats and sheep are the most prevalent animals available, but less than 31 per cent of households own them. The mean number of livestock in LEAP 1000 households is 2.8 which is less than half the mean of 6 animals in GLSS6 extremely poor and rural households. Comparison households are statistically similar to treatment households in availability and composition of livestock owned.

Table 4.4.9, Asset ownership – Livestock

Variable	Comparison	Treatment	p-value	GLSS 2012/2013
Per cent of households with:				
Livestock				
Types of livestock owned				
0	61.6	59.8	0.74	48.3
1	16.3	17.0	0.06	23.3
2	12.1	12.5	0.15	17.3
3	6.1	7.2	0.40	7.5
4+	3.9	3.5	0.22	3.6
Total	100.0	100.0		
Livestock owned				
Draught animals (donkey, horse, bullock)	5.3	5.9	0.47	3.8
Cattle	**11.2**	**10.4**	**0.01**	13.3
Sheep	20.5	21.3	0.29	23.8
Goats	29.6	31.2	0.73	40.0
Pigs	8.0	8.5	0.73	14.3
Rabbits	0.5	1.0	0.99	0.1
Number of animals owned				
0	61.6	59.7	0.74	48.4
1-2	12.0	12.8	0.17	7.6
3-4	8.2	9.6	0.47	8.3
5-6	4.9	5.1	0.21	8.1
7-9	5.6	5.2	0.07	6.6
10+	7.8	7.7	0.43	21.1
Total	100.0	100.0		100.0
Number of animals owned (mean)	2.9	2.8	0.64	6.0
N	1,235	1,262		1,525

Notes: GLSS6 extremely poor, rural sample. Bold indicates statistically significant differences between treatment and comparison groups.

The availability of poultry is not much different than for livestock. About 56 per cent of LEAP 1000 households do not own any poultry (see Table 4.4.10). This result is higher than 43.6 per cent found in the GLSS6 extremely poor and rural sample. An additional 30.7 per cent of households only has one type of poultry. This result, together with the low mean number of poultry owned (4.2),

suggests limited productive capacity for poultry in LEAP 1000 households. There is no difference with comparison households.

Table 4.4.10, Asset ownership – Poultry

Variable	Comparison	Treatment	p-value	GLSS 2012/2013
Per cent of households with:				
Types of poultry owned				
0	56.7	55.5	0.35	43.6
1	29.5	30.7	0.74	40.4
2	12.7	13.2	0.06	14.4
3+	1.1	0.6	0.76	1.6
Total	100.0	100.0		100.0
Poultry owned				
Chicken	40.9	42.8	0.56	55.7
Guinea fowl	14.8	14.0	0.07	15.6
Duck	2.3	1.7	0.63	2.5
Other poultry	0.4	0.7	0.98	0.4
Number of poultry owned				
0	56.7	55.5	0.35	43.6
1-2	10.9	11.0	0.74	3.9
3-4	8.5	8.6	0.94	5.2
5-6	6.0	5.8	0.96	5.9
7-9	3.9	5.9	0.81	4.5
10+	14.0	13.2	0.28	36.97
Total	100.0	100.0		100.0
Number of poultry owned (mean)	4.0	4.2	0.55	10.2
N	1,235	1,262		1,525

Note: GLSS6 extremely poor, rural sample.

Debts and access to credit

Households may use credit to smooth out consumption, maintain welfare, or engage in productive activities. The LEAP 1000 survey collected information on outstanding debts, basic information about the existing loans, and access to credit. Table 4.4.11 shows that one-third of LEAP 1000 households holds an outstanding debt and an additional five per cent of households has two outstanding debts. These figures are much higher than in the GLSS6 extremely poor and rural sample. Comparison households have a similar distribution of outstanding debts.

Relatives, friends and neighbours are the main sources of credit for LEAP 1000 households. As shown in Table 4.4.12, 56.1 per cent of the 1,027 outstanding loans were provided by them. This was echoed in the qualitative interviews, where extended family and to a lesser degree neighbours were identified as the main sources of borrowed money. The second source of credit are traders and

farmers (19.4 per cent), followed by Susu schemes[13] (9.6 per cent) and money lenders (8.3 per cent). A first time mother in UER described how her mother-in-law participated in a Susu scheme and received money from the group for funeral expenses following the death of a family member. Formal credit organizations such as banks or cooperatives are almost completely unused by LEAP 1000 households. This pattern is different to that observed for the GLSS6 loans, which had more reliance on Susu schemes and formal credit sources.

Table 4.4.11, Households' outstanding debts, last 12 months

Variable	Comparison	Treatment	p-value	GLSS 2012/2013[1]
Number of outstanding debts:				
0	65.4	62.0	0.17	94.1
1	29.9	33.0	0.20	5.2
2	4.7	5.0	0.79	0.7
Total	100.0	100.0		100.0
N (Households)	1,235	1,262		1,525

Note: GLSS6 extremely poor, rural sample.

[1] The GLSS6 survey collected information on the last loan granted to each member of the family, whereas the Ghana LEAP survey collected information on the last two outstanding debts that households owed to other households or institutions. A very small number of GLSS6 households has more than 2 loans; we present data on only 2 loans per household.

Almost half of the loans (45.6 per cent) were taken for meeting day-to-day expenses. In total, 72.2 per cent of loans were taken for covering family-related expenses. Only 27 per cent of loans were obtained for purchasing assets or for agricultural inputs. This pattern is different in the GLSS6 loans where half of the loans were for buying assets or productive inputs. There is no difference between the LEAP 1000 treatment and comparison loans. This was echoed in qualitative interviews where the main descriptions of loans were informal borrowing from family, friends and neighbours in times of food shortage.

Table 4.4.13 presents the average amount borrowed by the households by the number of outstanding loans held. Using the September 2015 exchange rate of GH₵ 4.08 per U.S. dollar, the average amount borrowed was US$44.63 for LEAP 1000 households with one loan. This is one of the indicators for which there is a statistical difference with the comparison households, even though the difference in the amounts is only 6 per cent. For households with two loans, the average amount borrowed was US$78.10. Table 4.4.14 presents the total amount outstanding. It is probable that the higher amounts shown in that table are due to the accumulation of interests on the principal amount borrowed.

[13] A Susu-scheme is a common form of saving in West Africa. It involves saving a regular, small amount of money over an agreed period to build a lump sum amount that may be withdrawn when needs arise. The saver pays a nominal fee to the collector for this service.

Table 4.4.12, Source and purpose of the loan, last 12 months

Variable	Comparison	Treatment	p-value	GLSS 2012/2013
Main source of loan:				
Bank, state or private	0.4	1.1	0.53	7.8
Coop., gov't agency, NGO	1.0	3.7	0.36	8.9
Money Lender	8.9	8.3	0.83	2.6
Susu scheme	10.3	9.6	0.18	32.2
Trader, farmer	15.7	19.4	0.40	3.1
Relative/Friend/Neighbour	60.4	56.1	0.93	41.3
Other[1]	3.3	1.8	0.62	4.1
Total	100.0	100.0		100.0
Primary purpose of loan:				
Day-to-day expenses	40.2	45.6	0.35	18.6
For family emergencies	24.1	21.4	0.14	14.1
Other family-related	5.6	5.2	0.95	12.2
For assets	1.9	1.5	0.29	2.8
Agriculture/fishing	22.7	21.0	0.50	32.1
Business	5.6	5.4	0.40	18.0
Other	0.0	0.0	-	2.2
Total	100.0	100.0		100.0
N (1,027 loans held by 906 households)	485	542		125[2]

Note: GLSS6 extremely poor, rural sample.

[1] "Other" includes business, firm, employer, savings and loans scheme.

[2] 125 loans held by 103 GLSS6 households.

Table 4.4.13, Total amount borrowed, last 12 months (mean, in Ghanaian Cedi)

Variable	Comparison	Treatment	p-value	GLSS 2012/2013
By number of loans				
0	0.00	0.00		0.00
1	**171.90**	**182.08**	**0.05**	420.55
2	297.22	318.64	0.26	251.03
Total	65.32	75.93	0.06	23.63
N (Households)	1,235	1,262		1,525

Notes: GLSS6 extremely poor, rural sample. Bold indicates statistically significant differences between treatment and comparison groups.

Table 4.4.14, Total amount outstanding, last 12 months (mean, in Ghanaian Cedi)

Variable	Comparison	Treatment	p-value	GLSS 2012/2013[1]
By number of loans				
0	0.00	0.00		
1	**150.23**	**167.33**	**0.04**	
2	293.74	342.85	0.26	
Total	58.68	72.27	0.07	
N (Households)	1,235	1,262		

Notes: GLSS6 extremely poor, rural sample. Bold indicates statistically significant differences between treatment and comparison groups.
[1] The GLSS6 survey did not collect information on amount outstanding, but on amount repaid.

To measure access to credit, the LEAP 1000 baseline survey also asked if in the last 12 months any member of the household purchased food or other goods on credit, and if the household could purchase goods on credit. Combining the positive answers we obtained that 57.3 per cent of LEAP 1000 households have access to credit. A similar level is obtained in comparison households (see Table 4.4.15).

Table 4.4.15, Debts and access to credit, last 12 months

Variable	Comparison	Treatment	p-value	GLSS 2012/2013[1]
Per cent of households				
- With outstanding debt	34.6	38.0	0.17	
- Purchased food/goods on credit	25.7	25.9	0.83	
- Could purchase on credit if asked	9.6	11.1	0.96	
With access to credit (any of the three conditions above)	52.9	57.3	0.11	
N (Households)	1,235	1,262		

Note: GLSS6 extremely poor, rural sample.
[1] The GLSS6 did not collect information on these variables.

Expenditures on agricultural inputs

Another area where we expect the cash transfer to have an impact is on investment in agricultural inputs. Basic information on whether the household bought specific inputs in the last agricultural season are summarized in Table 4.4.16. Almost two-thirds (61.6 per cent) of LEAP 1000 households bought seeds and 50 per cent bought equipment or tools; about 35 per cent bought weedicides or herbicides, and about 29 per cent bought fertilizers or manure. About one in four households (23.5 per cent) hired labour for planting, weeding or harvesting. We will examine how these expenditure patterns change after the household receives the cash transfers for a while. There was no difference between the treatment and comparison households.

Table 4.4.16, Expenditures on agricultural inputs, last agricultural season

Input	Comparison	Treatment	p-value	GLSS 2012/2013[1]
Any agricultural input				
% HH spending on agricultural inputs	79.3	78.6	0.70	73.83
Amount spent (mean, GH¢, all HH)	216.70	198.92	0.55	205.90
Amount spent (mean, GH¢)[2]	273.37	253.06	0.47	278.87
Seeds				
% HH spending on seeds	61.9	61.6	0.64	8.01
Amount spent (mean, GH¢, all HH)	38.26	37.21	0.79	3.68
Amount spent (mean, GH¢)[2]	61.84	60.35	0.99	46.02
Equipment or tools				
% HH spending on equipment	53.0	50.0	0.54	34.31
Amount spent (mean, GH¢, all HH)	38.58	34.24	0.36	26.74
Amount spent (mean, GH¢)[2]	72.86	68.48	0.46	77.94
Hired labour for production				
% HH spending on hired labour	22.8	23.5	0.19	31.82
Amount spent (mean, GH¢, all HH)	**22.64**	**22.34**	**0.05**	44.54
Amount spent (mean, GH¢)[2]	99.15	94.94	0.20	140.00
Fertilizer, manure				
% HH spending on fertilizer, manure	28.80	28.60	0.34	38.73
Amount spent (mean, GH¢, all HH)	85.81	73.33	0.26	73.35
Amount spent (mean, GH¢)[2]	297.7	256.35	0.43	189.41
Bags, containers, strings, packaging				
% HH spending on bags, etc.	8.0	10.9	0.10	19.42
Amount spent (mean, GH¢, all HH)	1.77	1.87	0.73	11.22
Amount spent (mean, GH¢)[2]	22.04	17.19	0.31	57.79
Pesticides				
% HH spending on pesticides	7.5	7.9	0.08	16.39
Amount spent (mean, GH¢, all HH)	4.84	4.88	0.22	14.14
Amount spent (mean, GH¢)[2]	64.29	61.56	0.94	86.28
Weedicides, herbicides				
% HH spending on weedicides, herbicides	34.7	34.9	0.92	45.57
Amount spent (mean, GH¢, all HH)	24.80	25.06	0.96	32.23
Amount spent (mean, GH¢)[2]	71.55	71.87	0.99	70.73
N (Households)	1,235	1,262		1,525

Notes: GLSS6 extremely poor, rural sample. Bold indicates statistically significant differences between treatment and comparison groups.

[1] The GLSS6 survey asks these questions for the last 12 months. The GLSS6 survey also collected information on other agricultural inputs such as irrigation. To maintain comparability with LEAP, which did not collect this information, we reported only those variables on which both surveys had data.

[2] Mean amount spent, for households that spent more than 0 cedi.

Non-Farm enterprises

The LEAP 1000 baseline survey collected information on household's economic activity conducted through non-farm enterprises. This includes any trade or services provided by any member of the household with the purpose of generating income. The period of reference was the 12 months prior to the time of the interview. Table 4.4.17 shows that about 18.4 per cent of LEAP 1000 households operate a non-farm activity and about 2 per cent conduct two enterprises. About 80 per cent did not have a non-farm operation or service. This pattern is similar in comparison households.

Table 4.4.17, Number of non-farm enterprises

Variable	Comparison	Treatment	p-value
Number of non-farm enterprises			
0	77.9	79.5	0.78
1	20.0	18.4	0.66
2	2.1	2.1	0.68
Total	100.0	100.0	
N (Households)	1,235	1,262	

Among the non-farm enterprises, the most prevalent is petty trading with about 42 per cent of all, followed by food preparation, home brewery or bar, with 15.1 per cent of the operations, and craft worker, with 8.1 per cent. There was a smaller percentage of craft workers in comparison households but, overall, the pattern of type of activity is similar in treatment and comparison households.

Table 4.4.18, Type of activity of the enterprise

Variable	Comparison	Treatment	p-value
Types of non-farm enterprise			
Petty trader	40.5	41.9	0.68
Food preparation, home brewery or bar	14.7	15.1	0.53
Charcoal burning or selling	9.7	7.4	0.34
Seamstress, tailor, clothes repair	7.0	7.4	0.65
Craft worker	**5.4**	**8.1**	**0.05**
Processing of shea butter	**5.4**	**4.9**	**0.05**
Miller, carpentry, metal works, bicycle repair	4.7	4.6	0.99
Hairdresser	3.7	1.8	0.44
Other	9.0	8.8	0.22
Total	100.0	100.0	
N (non-farm enterprises)	299	284	
Note: Bold indicates statistically significant differences between treatment and comparison groups.			

In discussions of non-farm enterprises in the qualitative interviews, most of the participants in UER had a family member or had themselves gone to work in the market in Kumasi and had sold firewood. However, one woman with a family living outside the community reflected the limited income-generating opportunities available even these larger areas saying, "*we have people there,*

but those who are there do not have jobs". Women also described challenges in balancing their household, farming, and caregiving activities with income generating activities in the market towns. No participants in NR mentioned migrating for work. One woman described that her co-wives were engaged in non-agricultural income generating activities and they pooled the profits to support the education and food needs of the children. Another woman sold Kuli-kuli in the market. All of the other NR participants indicated farming and harvesting shea nuts, dawadawa, and selling firewood as their sources of income.

Table 4.4.19, Sex of the main person responsible for the enterprise

Variable	Comparison	Treatment	p-value
Sex of main person:			
Male	38.5	36.3	0.25
Female	61.5	63.7	0.25
Total	100.0	100.0	
N (non-farm enterprises)	299	284	

About two-thirds of non-farm enterprises are conducted by females, as shown in Table 4.4.19, which suggests non-farm activities as areas for broadening economic opportunities for women. Table 4.4.20 shows that about 45 per cent of the enterprises have operated for at least 12 months, but that about 46 per cent have operated for 8 months or less, which suggests either seasonal operation of these enterprises or that they do not survive very long.

Table 4.4.20, Time of operation in last 12 months

Variable	Comparison	Treatment	p-value
Number of months in operation:			
1-4 months	23.7	18.7	0.83
5-8 months	20.7	27.1	0.62
9-11 months	7.7	9.2	0.80
12 months	47.8	45.1	0.65
Total	100.0	100.0	
N (non-farm enterprises)	299	284	

Table 4.4.21, Profits

Variable	Comparison	Treatment	p-value
Profit in the average month:			
1-10 GH₵	28.1	28.5	0.55
11-20 GH₵	29.4	30.3	0.67
21-40 GH₵	17.7	15.1	0.54
41-100 GH₵	18.1	19.4	0.16
101+ GH₵	6.7	6.7	0.68
Total	100.0	100.0	
Mean profit in average month (in GH₵)	49.20	42.77	
Median profit in average month (in GH₵)	20.00	20.00	
N (non-farm enterprises)	299	284	

The mean (GH₵ 42.77 or US$10.49) and median (GH₵ 20.00 or US$4.90) profit in an average month are probably the result of the small scale of the operations, and they also suggest that these enterprises provide a supplementary income to the household, rather than being the main source of income (see Table 4.4.21). In fact, further analysis shows that on average, profits are about equal to 10 per cent of monthly consumption. We will examine how the prevalence and composition of the non-farm enterprises change once the households receive the LEAP 1000 cash transfer.

4.5. Housing conditions and WASH

This section presents an overview of housing facilities and characteristics of the LEAP 1000 study population. It provides basic information on the living conditions of the households. Together with the previous sections on consumption, education and livelihoods, it provides basic information for understanding the socio-economic status of the LEAP 1000 households. This section also provides information on housing characteristics that are related to health such as access to drinking water, sanitation facilities, and hand washing facilities. The questions on the dwelling characteristics and household composition were obtained from the household head or another knowledgeable adult.

To examine the extent of crowding in the households, the baseline survey collected information on the number of rooms and number of persons in the household. Table 4.5.1 shows that 31.1 per cent of the LEAP 1000 households have 2 rooms and 24.2 per cent have 3 rooms. The distribution of number of rooms in comparison households is similar to the treatment households. The LEAP 1000 households have more availability of rooms than the GLSS6 extremely poor and rural population. The LEAP 1000 households have slightly less crowding (2.6 persons per room) than the GLSS6 households (2.8).

Table 4.5.1, Number of rooms

Variable	Comparison	Treatment	p-value	GLSS 2012/2013
Number of rooms				
1	15.5	12.0	0.37	27.4
2	28.2	31.1	0.99	27.6
3	24.7	24.2	0.15	18.5
4	15.0	15.0	0.29	11.6
5	8.6	9.2	0.25	5.7
6+	8.0	8.5	0.38	9.3
Total	100.0	100.0		100.0
Mean number of persons per room	2.5	2.6	0.52	2.8
N	1,235	1,262		1,525

Note: GLSS extremely poor, rural sample.

Housing conditions are indicators of socio-economic status and could also be related to the health of household members. Table 4.5.2 presents information on availability of electricity for lighting and dwelling materials. About one in four LEAP 1000 households (26.1 per cent) have electricity. This percentage is slightly higher in comparison households but not statistically different, and it is also slightly higher than in the GLSS6 extremely poor and rural households. Flashlights or torches are the

most prevalent sources of lighting in treatment (72 per cent) and comparison (68.3 per cent) areas. This characteristic is similar in the GLSS6 extremely poor and rural sample.

Almost all LEAP 1000 households have walls made of mud/earth (96 per cent), which is a higher percentage than the GLSS6 extremely poor and rural households (81.7 per cent). About two thirds of LEAP 1000 households use metal sheets for their roofs (64.3 per cent) and three out of four households (74 per cent) have floors made of cement or concrete. The materials of roofs and floors are similar to the GLSS6 extremely poor and rural households.

Table 4.5.2, Housing characteristics

Variable	Comparison	Treatment	p-value	GLSS 2012/2013
Source of lighting				
Electricity	29.9	26.1	0.78	22.2
Flashlight, torch	68.3	72.0	0.96	70.5
Kerosene lamp	1.0	0.8	0.26	6.4
Other	0.8	1.1	0.94	0.9
Total	100.0	100.0		100.0
Outer wall material				
Mud/earth	95.9	96.0	0.85	81.7
Cement blocks/concrete, bricks	3.4	3.3	0.58	16.5
Other	0.7	0.7	0.46	1.8
Total	100.0	100.0		100.0
Roof material				
Wood	0.5	0.6	0.33	4.6
Metal sheet	65.3	64.3	0.59	64.8
Slate/asbestos	0.1	0.2	0.40	1.1
Thatch/Palm leaves	32.9	33.3	0.63	21.0
Other	1.2	1.6	0.84	8.5
Total	100.0	100.0		100.0
Floor material				
Earth/Mud	24.9	25.0	0.50	22.5
Cement/concrete	74.5	74.0	0.53	72.7
Stone	0.2	0.5	0.95	2.7
Other	0.4	0.5	0.84	2.1
Total	100.0	100.0		100
N	1,235	1,262		1,525

Note: GLSS extremely poor, rural sample.

Cooking conditions are important for health as they affect household members' exposure to indoor pollution. They also affect daily households' time allocation as we saw in section 4.4. Table 4.5.3 indicates that almost all LEAP 1000 households use either wood/firewood (89.5 per cent) or straw/grass as cooking fuel (8.9 per cent). We suspect that the GLSS6 included "Straw/grass" in the "Wood/firewood" category, in which case the prevalence of cooking fuel types are similar between

the two populations. Almost all LEAP 1000 households cook in an open fire (98.6 per cent) and half of them do it outdoors (49.8 per cent). Only 11.5 per cent of LEAP 1000 households has a kitchen or separate room for cooking. 37.2 per cent cooks elsewhere in the house, which potentially increases the amount of indoor pollution. Similar conditions are found in the comparison households.

Table 4.5.3, Cooking

Variable	Comparison	Treatment	p-value	GLSS 2012/2013
Type of cooking fuel[1]				
Electricity, LPG, biogas, kerosene	0.0	0.2	0.10	0.2
Charcoal	1.7	1.0	0.66	3.3
Wood/firewood	88.3	89.5	0.92	94.1
Straw/grass	9.7	8.9	0.96	-
Other	0.3	0.4	0.86	2.4
Total	100.0	100.0		100.0
Type of stove[2]				
Cook open fire	98.6	98.6	0.43	-
Coal pot, closed/improved stove	1.4	1.4	0.43	-
Total	100.0	100.0		-
Place of cooking[3]				
Outdoors	47.7	49.8	0.60	-
Separate room/kitchen	11.2	11.5	0.80	-
Elsewhere in house	39.4	37.2	0.72	-
Other	1.7	1.4	0.76	-
Total	100.0	100.0		-
N	1,235	1,262		1,525

Note: GLSS extremely poor, rural sample.

[1] Type of cooking fuel - GLSS collected information on the use of gas, not biogas. We include it under “Electricity, LPG, biogas, kerosene”. “Straw/grass” was not an option under the GLSS.

[2] Type of stove: GLSS had no such question.

[3] Place of cooking: GLSS had no such question.

Water and sanitation

Access to safe water and sanitation are among the basic determinants of health. While the quality of the water was not assessed in the LEAP 1000 survey, the source of drinking water is considered an indicator of its suitability for drinking. Table 4.5.4 presents the distribution of households by source of drinking water. The most common source of drinking water for LEAP 1000 households is tube well or borehole (56.5 per cent). The other sources considered to be improved water sources (Ghana DHS 2014) are piped, public tap or standpipe, and protected well or spring, which in the LEAP 1000 treatment areas have low prevalence, only 3.9 per cent of households use those sources. Overall, about 61 per cent of households have access to an improved source. The GLSS6 extremely poor and rural population has a relatively higher access to improved water sources (about 69 per cent). About

39 per cent of households in LEAP 1000 obtain their water from unimproved sources, such as surface water, unprotected well or other. Comparison households are similar to treatment households.

However, accessing water from an improved source is not assurance of drinking uncontaminated water. The LEAP 1000 survey asked if the household does anything to make the water safer to drink. Less than 5 per cent takes any action to make water safer to drink. And, only 1.1 per cent boils, bleaches, chlorines, filters, or disinfects their water. Low prevalence of actions to make water safer are also observed in the GLSS6 extremely poor and rural households. Comparison households are similar to treatment households.

Table 4.5.4, Drinking water

Variable	Comparison	Treatment	p-value	GLSS 2012/2013
Source of drinking water				
Piped, public tap/standpipe	2.3	1.6	0.26	6.6
Tube well, borehole	52.7	56.5	0.94	60.2
Protected well or spring	4.2	3.3	0.21	1.9
Surface water (river, stream dam, lake, canal)	19.8	20.7	0.13	21.1
Unprotected well or spring	**20.7**	**17.9**	**0.05**	9.4
Other	0. 2	0.0	0.08	0.9
Total	100.0	100.0		100.0
Does something to make water safer to drink?	4.9	4.8	0.86	9.1
Boils, bleaches, chlorines, filters, or disinfects (solar) water	1.5	1.1	0.15	1.9
Source of water for general purposes				
Piped, public tap/standpipe	2.2	1.6	0.63	6.2
Tube well, borehole	50.9	55.2	0.61	56.0
Protected well or spring	3.8	3.1	0.19	2.5
Surface water	21.7	21.8	0.51	24.8
Unprotected well or spring	21.2	18.2	0.10	9.6
Other	0.2	0.1	0.13	0.9
Total	100.0	100.0		100.2
N	1,235	1,262		1,525

Notes: GLSS extremely poor, rural sample. Bold indicates statistically significant differences between treatment and comparison groups.

Toilet facilities considered improved are toilets that flush or pour flush into a piped sewer system, septic tank or pit latrine. Pit latrines with a slab are also considered improved toilets. As shown in Table 4.5.5, only 10.6 per cent of households use a flush or pit latrine. Most LEAP 1000 households, about 88 per cent, have no toilet facilities and use open fields or bush. Similar distribution of toilet types is reported in the Northern and Upper East Regions, rural sample, by the Ghana DHS 2014 survey.

Table 4.5.5, Toilet facilities

Variable	Comparison	Treatment	p-value	Ghana DHS 2014[1]
Type of toilet				
Flush	0.0	0.1	0.32	0.3
Pit latrine	10.0	10.5	0.97	17.9
Other	2.3	1.5	0.70	0.0
No facility, bush, field	87.6	87.9	0.91	81.8
Total	100.0	100.0		100.0
N	1,235	1,262		1,232

[1] Ghana DHS 2014. Northern and Upper East Regions, rural sample.

Hand washing is an important practice for preventing germs from spreading and for protecting people from acquiring a communicable disease. This practice is promoted by the Ghanaian government and a number of other organizations. There is an ongoing campaign in schools and communities to increase awareness of the importance of having a designated place for hand washing with running water and soap.

Table 4.5.6, Washing hands

Variable	Comparison	Treatment	p-value	Ghana DHS 2014[1]
Place for washing hands observed	72.7	70.6	0.27	29.8
N	1,235	1,262		1,120
Among households where place for washing hands observed:				
Soap and water[2]	9.6	9.8	0.67	38.9
Water and cleansing agent[3] other than soap only	0.1	0.1	0.32	0.1
Water only	7.7	9.7	0.26	19.3
Soap but no water[4]	12.6	11.6	0.40	10.6
Cleansing agent[3] other than soap only	0.2	0.1	0.48	0.0
No water, no soap, no other cleansing agent	69.8	68.8	0.79	31.1
Total	100.0	100.0		100.0
N	898	891		332

[1] Weighted average of Northern and Upper East Regions indicators reported in the Ghana DHS 2014 report, Table 2.6, page 19.

[2] Soap includes soap and detergent in bar, liquid, powder or paste form.

[3] Cleansing agent other than soap includes locally available materials such as ash.

[4] Includes households with soap only as well as those with soap and other cleansing agent.

The LEAP 1000 baseline survey used a procedure similar to the Ghana DHS 2014 to assess by direct observation the availability of water and soap or cleansing agents in the households. The results are presented in Table 4.5.6. In about 70 per cent of the LEAP 1000 treatment households the interviewers observed the place where members of the households most often wash their hands. This percentage is notably much higher than that obtained by the Ghana DHS 2014 in the Northern

and East Upper regions. However, among those observed households, availability of soap and water is low: in LEAP 1000 households, only 9.8 per cent have both soap and water. Another 9.7 per cent has water only, and 11.6 per cent has soap but no water. A high percentage of households, almost 70 per cent, where a place for washing hands was observed had no water, no soap and no other cleansing agent. The comparison group presents similar conditions. The different results obtained in the Ghana DHS 2014 are most probably due to the selectivity of the smaller sample of households observed. It is likely that the households observed were those with better hand washing conditions.

4.6. Child health and nutrition

This section will present the baseline results on child health and nutrition outcomes. These indicators are of particular interest for the LEAP 1000 programme, as the programme expects to improve the health and nutrition of children through its cash transfer intervention. This section tackles various issues: antenatal care (ANC), delivery care and birthweight, morbidity and care for illnesses, nutritional status and breastfeeding and complementary feeding. Whenever possible, a comparison to the findings of the DHS 2014 is presented. As mentioned before, the DHS comparison figures constitute the weighted average of outcomes from the Northern and Upper East Regions.

Antenatal care, delivery care and birthweight

The period of pregnancy is a critical time for the development of the foetus and therefore the child. LEAP 1000 targets pregnant women to support them during this crucial moment. The LEAP 1000 baseline findings on antenatal care, delivery care and birthweight are presented in Table 4.6.1. For more than nine in ten children under three years in the LEAP 1000 sample, the mother had received ANC at least once from a skilled provider. In terms of the number of ANC visits, the mothers of over 80 per cent of children under three years had attended the recommended four times or more. Both these indicators are in line with findings from the GDHS.

The place of delivery and assistance during delivery are important aspects of new-born health. In order to provide appropriate care during and after delivery, especially when unexpected complications occur, women are recommended to deliver at a health facility with the assistance of a skilled health care provider. Just over six in 10 children under three years were born in a health facility, and for a similar share of children, skilled assistance was available during the delivery process. These figures are more than 10 percentage points higher than the comparison sample of the GDHS.

Further to the place and assistance during delivery, respondents were asked to estimate the size of the baby. Answer options included very small, small, average, big or very big. The findings show that for about one in five infants, the size at birth was reported as small, and for another eight to nine per cent, a very small size was reported. Although this is a subjective measure, children that are perceived as small or very small may have a higher chance of childhood mortality. A similar share of infants was reported as very small in the GDHS, but a considerably higher share of infants in the LEAP 1000 sample was reported as small compared to the GDHS. Respondents were also asked to report the weight of the baby at birth. For just over half (53 per cent) of our under-three sample, we have information on the birthweight. In more than 95 per cent of the cases for which the birthweight was reported, the information was taken from the child health record, and the other cases were based on the mother's recall. Children with a birthweight of less than 2,500 grams have a higher than average risk of childhood mortality. In our sample, 6.5 and 8.4 per cent of infants for

which birthweight was reported in the comparison and treatment group respectively, had a birthweight of less than 2,500 grams. A higher finding (11.9 per cent) was reported in the GDHS.

None of the results presented in this sub-section are significantly different between the treatment and comparison group at the 5 per cent significance level.

Table 4.6.1, Antenatal care, delivery care and weight at birth (children 0–35 months)

Variables	Comparison	Treatment	p-value	GDHS 2014
ANC from skilled provider[1]	96.2	97.4	0.56	93.7[3]
ANC 4 times or more	82.0	83.6	0.37	82.9[4]
Delivery with assistance from skilled provider[1]	62.0	62.1	0.61	48.1
Delivery in health facility[2]	61.1	61.4	0.68	47.2
N	1,217	1,290		936
Size at birth small	20.7	18.3	0.83	8.9
Size at birth very small	7.9	9.0	0.94	8.3
N	1,134	1,232		936
Low birth weight < 2500 gram	6.5	8.4	0.08	11.9
N	635	692		355

Notes: GDHS figure constitutes weighted average of Northern and Upper East Regions.

[1] Skilled provider includes doctor, nurse, midwife, auxiliary midwife or community health worker.

[2] Health facility includes hospital, health facility or village health post.

[3] Last birth only, N = 658.

[4] All rural women N = 2,228.

Child health and care for illness

This sub-section discusses three common childhood illnesses: diarrhoea, acute respiratory infection and fever. The LEAP 1000 baseline survey asked the eligible woman these health questions for each of her children aged under five years. To give an indication of the health-seeking behaviour of the mother, the survey asked if the child was taken to a health facility in the past 12 months. The results show that about seven in ten children under five were taken to a health facility (Table 4.6.2) and children in comparison households were significantly more likely to be taken than children in the treatment group. This result is much higher than findings on a similar question in the GLSS (45.7 per cent). Roughly four in ten children (40.7 and 37.0 per cent in comparison and treatment group respectively) suffered from diarrhoea in the two weeks before the survey. The difference between comparison and treatment groups is significant. The rate of diarrhoea in the LEAP 1000 sample is considerably higher than the GDHS which indicated a diarrhoea incidence of 15 per cent in the Northern and Upper East Regions.

Table 4.6.2, Child health indicators and care for illness

Variables	Comparison	Treatment	p-value	GDHS 2014
Taken to a health facility in last 12 months	**72.4**	**69.7**	**0.04**	45.7[5]
Diarrhoea last 2 weeks	**40.7**	**37.0**	**0.01**	15.0
N	1,828	1,952		889
Received ORS during episode of diarrhoea	60.0	59.8	0.09	50.5
Received recommended home fluid during episode of diarrhoea[1]	**3.0**	**2.2**	**0.01**	3.9
Received ORT or increased fluids during episode of diarrhoea[2]	64.8	65.2	0.57	56.2
Received ORT or increased fluids with continued feeding during episode of diarrhoea	**28.8**	**32.8**	**0.00**	42.4
No treatment for diarrhoea during last episode	10.1	10.3	0.33	19.4
N	744	722		133
Symptoms of ARI last 2 weeks[3]	5.7	5.3	0.48	3.1
Fever last 2 weeks	**26.9**	**23.3**	**0.00**	15.0
Safe disposal of child stools[4]	19.9	24.4	0.62	13.8[6]
Slept under bednet yesterday	67.8	67.4	0.54	42.0
N	1,828	1,952		889

Notes: GDHS figure constitutes weighted average of Northern and Upper East Regions. Bold indicates statistically significant differences between treatment and comparison groups.

[1] Recommended home fluid includes: Coconut water, rice water and mashed kenkey.

[2] ORT is Oral Rehydration Therapy and involves giving children with diarrhoea ORS or a recommended home fluid.

[3] ARI is acute respiratory infection and symptoms include a cough accompanied by short, rapid breathing.

[4] Safe disposal includes a child used the toilet or latrine, stools were flushed through the toilet or latrine, or stools were buried.

[5] Figure based on GLSS extremely poor, rural sample, N = 1,240.

[6] Youngest child under 5 only, N = 636.

Among the children who suffered from diarrhoea, about 60 per cent received oral rehydration salts (ORS) and between two and three per cent received a recommended home fluid. Oral rehydration therapy includes receiving ORS or a recommended home fluid. ORT in combination with increased fluids is usually a simple and effective remedy to diarrhoea which can be managed at the home. In the LEAP 1000 sample, about two in three children (65 per cent) were treated with this home remedy, which is higher than in the GDHS comparison sample (56 per cent). In addition to ORT or increased fluids, it is generally recommended to continue feeding during an episode of diarrhoea to prevent any nutritional deficiencies. In our sample, 28.8 and 32.8 per cent of children with diarrhoea were treated with this combination in the treatment and comparison group respectively. The share of children receiving this combined home treatment is lower than the comparison group from the GDHS. It appears that in our sample, the continued feeding in particular is lacking, as more children were receiving ORT or increased fluids than the GDHS sample. Finally, one in ten children with

diarrhoea did not receive any treatment. No treatment means that the child was not given any ORS, no recommended home fluid, and no medicines. This rate is lower than among the GDHS comparison sample. We observe two significant differences with respect to the treatment methods of diarrhoea. Children in the comparison group are more likely to receive a recommended home fluid during an episode of diarrhoea, and children in the treatment group more often receive ORT or increased fluids with continued feeding.

The next common childhood illness is ARI. Symptoms of ARI are often considered a proxy for pneumonia and include a cough accompanied by short, rapid breathing or difficulty breathing that was chest-related. In the LEAP 1000 sample, between 5.3 and 5.7 per cent of children under five had showed such symptoms. This is slightly higher than in the GDHS, which showed a rate of 3.1 per cent. Just over one in four children aged under five suffered from fever, which can be an indication of malaria or another acute infection. This rate is considerably higher than found in the GDHS. The incidence of fever is significantly higher among children in the comparison group, while the incidence of symptoms of ARI is similar across groups in the LEAP 1000 sample.

Descriptions of children's health in the qualitative interviews echoed the same patterns of morbidity described in the surveys. While most participants described their children as being healthy overall, several children were sick with diarrhoea, vomiting, fever or ARI at the time of the interviews and these were the most commonly mentioned ailments described as affecting children. Participants also mentioned malaria and "convulsions" as commonly affecting children. These health conditions were linked to mosquitoes, hygiene (i.e. not washing hands), nutrition and weather. One mother of three in Karaga who felt that her children were frequently sick made a causal link between poverty, poor nutrition and her child's poor health:

> *I think what I have seen to be the cause (of sickness) is poverty. Sometimes the blood shortening [anemia] is (due to) not eating enough food. If I am supposed to feed my children twice or thrice in a day and I am not able to do it can make them loose some nutrients in their body. Also the convulsion is cold and if they don't eat well it will lead to fever and finally convulsion.*

This mother's limited resources lead to poor nutrition which she perceived to be the root cause of their ailments. She herself experienced chronic health problems, which, when serious enough, would lead her to seek out medication on credit from the drug store. Another mother linked the lack of food diversity in her household diet, which was anchored in TZ, to her children not eating well and therefore getting sick. A small number of participants mentioned other health complications including skin conditions and bladder conditions.

Finally, the LEAP 1000 survey asked about disposal of children's stools and whether the child slept under a bednet the night before the survey. Both are indicators of the health environment in which the child lives. Safe disposal of stool occurs when the child uses a toilet or latrine, when stools are flushed or rinsed down a toilet or latrine, or when stools are buried. Safe disposal happens for 24.4 and 19.9 per cent of children under five in the comparison and treatment groups respectively. However, both these rates are higher than reported in the GDHS (13.8 per cent). Bed nets are a cost-effective method of reducing the chance of mosquito-borne diseases. About two thirds of children under five slept under a bednet the night before the survey. Compared to findings from the GDHS,

more children were recorded as sleeping under bed nets. There is no difference between our comparison and treatment group for these two indicators.

A section of the qualitative interview was dedicated to registration in and perceptions of NHIS. Overall, the most common experience described was having at least some members of the family (usually the mother and some children) registered in NHIS. In the Upper East Region, 4 of the 10 participants had at least some family members actively enrolled and in the Northern Region 5 of the 10 participants were active with some or all of their children. It was rare for an entire family to be registered with male heads of household the least likely to be insured. Of note, three participants indicated having registered following receipt of the Ghana LEAP 1000 money because they had lacked the money to register prior to the transfer. Nearly half of the sample (6 in UER and 3 in NR), had an expired registration at the time of the qualitative interviews. The reason given for letting the registration expire was the cost. In the NR, 2 participants indicated that they had never been registered due to lack of money. Across participants, there was a very positive perception of the NHIS as facilitating access to healthcare. Some participants did note, based on personal experience or what they had heard, that NHIS did not cover all medications, which could lead to healthcare-related costs even when insured.

When discussing their health care seeking behaviours, participants described a few different patterns of responses to child illness. Many described using traditional herbs or going to a drug seller for a prescription as a first line response. This approach was used early in an illness and when the parents felt fairly certain about the diagnosis. It was a way to avoid major costs while still providing some response to the child's condition. Using traditional remedies and/or drugs from a drug seller could be followed up by a visit to the hospital. For some, the hospital visit was just for confirmation while others described it more as a second-line approach when the remedies provided in the home did not appear to be working.

Vaccination coverage

Vaccinations ensure that children are protected from common and preventable childhood diseases. In this sub-section, we look at five vaccinations: BCG, Polio, the pentavalent vaccine (DTP-HepB-Hib), measles and yellow fever. BCG and polio 0 should be given at birth or first clinical contact. The three doses of polio and the pentavalent vaccine should be given at 6, 10 and 14 weeks of age and the measles and yellow fever vaccines are given at an age of nine months. The LEAP 1000 survey asked the caregivers for the health record to copy the vaccinations received by the child. If no health record was available, caregivers were asked to recall the types and number of vaccinations received. Overall, a child should be fully vaccinated before turning one year old. The age group for this indicator is therefore children aged 12 to 23 months. A child has all basic vaccinations if it received BCG, measles, and three doses each of the pentavalent and polio vaccine (excluding polio 0).

The results of the baseline survey are shown in Table 4.6.3. Overall, roughly eight in 10 children 12–23 months old have received all basic vaccinations, with a higher, but not significant, completion rate among children in the treatment group (84.8 per cent versus 79.2 per cent). Vaccination coverage is generally higher for BCG, polio and penta than for polio at birth, measles and yellow fever. For polio 3, the treatment group shows a significantly higher vaccination coverage than the comparison group. Compared to the GDHS figures, vaccination coverage is somewhat higher in our sample for all vaccinations except polio 1.

Table 4.6.3, Vaccination coverage children 12–23 months old

Variables	Comparison	Treatment	p-value	GDHS 2014
Children 12 - 23 months				
BCG	95.9	98.5	0.14	93.5
Polio 0	81.2	86.1	0.34	66.0
Polio 1	93.5	94.6	0.93	94.9
Polio 2	92.7	96.1	0.14	91.2
Polio 3	**91.6**	**95.4**	**0.04**	82.3
Penta 1	96.2	97.2	0.57	94.8
Penta 2	94.6	96.9	0.35	93.4
Penta 3	93.2	95.6	0.94	83.7
Measles	84.2	88.2	0.20	82.4
Yellow fever	82.9	88.2	0.07	81.3
All basic vaccinations[1]	79.2	84.8	0.13	72.8
N	360	381		183

Notes: GDHS figure constitutes weighted average of Northern and Upper East Regions. Bold indicates statistically significant differences between treatment and comparison groups.

[1] BCG, measles, and three doses each of pentavalent (DPT-HepB-Hib) and polio vaccine (excluding polio vaccine given at birth).

Nutritional status

The LEAP 1000 baseline data collection included the height and weight measurements of children under five years old in the household to assess their nutritional status. One of the key objectives of the LEAP 1000 programme is to reduce the number of children with stunted growth. The measurement of children's height and weight allows the tracking of this indicator. The baseline data collection teams used a digital standing scale for the weight measurements and a portable measuring board (infantometer) for measuring children's heights. Only children 3 months or older were measured. Children who did not belong to the eligible woman in the household or whose measurements were implausible were excluded from the analysis below.[14]

We use the height and weight measurements to construct three indicators: length/height-for-age Z-score (HAZ), weight-for-length/height Z-score (WHZ) and weight-for-age Z-score (WAZ) according to the WHO 2006 growth standards. The HAZ is an indicator of long-term growth deficit usually caused by chronic malnutrition. A child with a HAZ below -2 standard deviations (SD) of the reference median is stunted, while a child with a HAZ below -3 SD is considered severely stunted. WHZ constitutes a short-term measure of malnutrition. Children with a WHZ below -2 SD are wasted and children with a score below -3 SD are severely wasted. WAZ is a composite measure of both short-term and long-term malnutrition. Children whose WAZ is below -2 SD of the reference median are considered underweight, while children whose score is below -3 SD are severely underweight.

[14] For an assessment of the quality of the anthropometric measurements, see Appendix 4.

The results for each of these indicators is presented in Table 4.6.4 and Figure 4.6.1. The mean HAZ for both the comparison and treatment group is below zero (-1.11), indicating that the children in the sample are less well-nourished than the healthy sample of children from the WHO reference population. Furthermore, more than one in four children in the sample are classified as stunted and 11.6 per cent and 12.3 per cent of children are severely stunted in the comparison and treatment group respectively. The level of stunting is similar to the level found in the GDHS, but the rate of severe stunting is somewhat higher in the LEAP 1000 sample than the GDHS. There are no significant differences between comparison and treatment group for these indicators.

Table 4.6.4, Nutritional status of children 3–59 months old

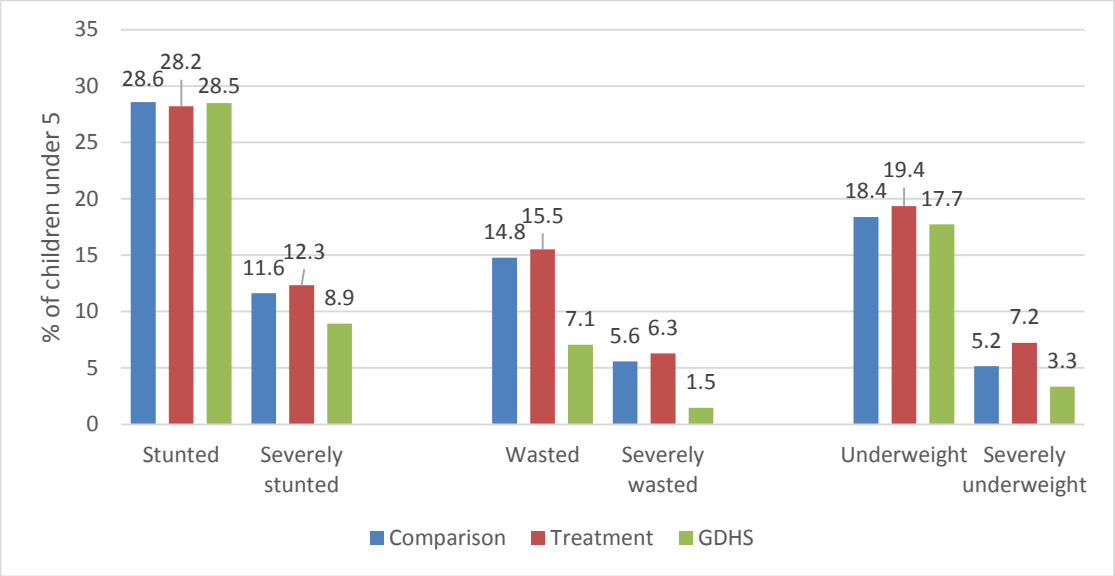
Variables	Comparison	Treatment	p-value	GDHS 2014
Length/height-for-age Z-score (HAZ)	-1.11	-1.11	0.45	-1.28
Stunted (HAZ < -2 SD)	28.6	28.2	0.75	28.5
Severely Stunted (HAZ < -3 SD)	11.6	12.3	0.64	8.9
N	1,375	1,500		378
Weight-for-length/height Z-score (WHZ)	-0.44	-0.47	0.60	-0.42
Wasted (WHZ < -2 SD)	14.8	15.5	0.93	7.1
Severely Wasted (WHZ < -3 SD)	5.6	6.3	0.93	1.5
N	1,380	1,509		378
Weight-for-age Z-score (WAZ)	-0.97	-1.02	0.62	-1.05
Underweight (WAZ < -2 SD)	18.4	19.4	0.30	17.7
Severely Underweight (WAZ < -3 SD)	5.2	7.2	0.11	3.3
N	1,376	1,509		378

Notes: GDHS figure constitutes weighted average of Northern and Upper East Regions for children 0–59 months old.

The mean WHZ index is also below the reference mean, but to a lesser degree than the HAZ index. This is also reflected in the rate of wasting, which is 14.8 per cent in the comparison group and 15.5 per cent in the treatment group. Moreover, 5.6 and 6.3 per cent of children under five suffer from severe wasting in the comparison and treatment group. There are no significant differences between both groups, but the level of wasting and severe wasting is much higher than found in the GDHS, suggesting that short-term malnutrition is a substantial issue in the LEAP 1000 households. Since the baseline survey took place during the rainy season, it is likely that the rate of wasting among LEAP 1000 children is even higher during the lean season.

Finally, the mean WAZ index is also well below zero, corroborating the findings that children in the LEAP 1000 households are less well-nourished than the reference group of healthy children. This is translated in the levels of underweight, with a rate of 18.4 per cent and 19.4 per cent in the comparison and treatment groups respectively. Furthermore, 7.2 per cent of children under five in the treatment group are considered severely underweight compared to 5.2 per cent in the comparison group. The rate of underweight is in line with the GDHS, but the level of severe underweight is slightly higher among the LEAP 1000 children. None of the indicators is significantly different between treatment and comparison group.

Figure 4.6.1, Nutritional status of children 4–59 months (LEAP 1000 and GDHS)



Notes: GDHS figure constitutes weighted average of Northern and Upper East Regions for children aged 0–59 months.

Infant and young child feeding practices

This sub-section presents the baseline findings on infant and young feeding (IYCF) practices. Recommended practices include exclusive breastfeeding for children under six months, with continued breastfeeding until two years, introduction of solid or semi-solid food around the age of six months, and complementary food from sufficient food groups with appropriate daily frequency. We closely follow the guidelines proposed by the World Health Organization and UNICEF in the construction of indicators for this section.[15]

The results for the eight core IYCF indicators as well as an indicator measuring positive feeding style are presented in Table 4.6.5. About half of all children aged 0–23 months were breastfed within the first hour after birth. This is slightly lower than the GDHS estimate of 64.8 per cent. Next, the rate of exclusive breastfeeding among children under six months is very low, about 10 per cent, while the GDHS found a national average of more than 50 per cent.[16] The extremely low rate of exclusive breastfeeding merits some further analysis. The LEAP 1000 baseline survey collected data on the types of liquids children received. This data reveals that the most common liquids children received if they were not exclusively breastfed were plain water (70 per cent) liquids such as pap, koko, juice, cocoa, coconut water and other similar liquids (77 per cent).

[15] World Health Organization. (2010). Indicators for Assessing Infant and Young Child Feeding Practices: part 2: Measurement. Geneva: World Health Organization.

[16] Note that for the breastfeeding indicators, the comparison figure for the GDHS constitutes the national average, not the average for the Northern and Upper East Regions. This may partly explain the differences.

Table 4.6.5, Infant and Young Child Feeding Practices (children 0 - 23 months)

Variables	Comparison	Treatment	p-value	GDHS 2014
Breastfeeding within 1 hour of birth	52.8	50.0	0.39	64.8
Children 0–23 months	1,058	1,141		397
Exclusive breastfeeding under 6 months	10.0	9.9	0.36	52.3[6]
Children 0–5 months	360	384		561
Continued breastfeeding at 1 year	96.9	98.0	0.57	94.6[7]
Children 12–15 months	225	245		369
Introduction of solid, semi-solid or soft foods	60.3	59.2	0.42	72.6[8]
Children 6–8 months	174	184		309
4+ food groups[1]	23.6	24.0	0.27	17.7
Minimum meal frequency[2]	37.4	40.8	0.69	42.9
Minimum acceptable diet[3]	12.0	13.0	0.55	12.8
Consumption of iron-rich or iron-fortified foods[4]	59.5	60.8	0.28	44.8[9]
Positive feeding style[5]	44.1	42.6	0.22	-
Children 6–23 months	698	757		275

Notes: GDHS figure constitutes weighted average of Northern and Upper East Regions for last-born children 0–23 months old.

[1] Food groups include: 1) infant formula, milk other than breast milk, cheese or yogurt or other milk products; 2) foods made from grains, roots, and tubers, including porridge and fortified baby food from grains; 3) vitamin A-rich fruits and vegetables; 4) other fruits and vegetables; 5) eggs; 6) meat, poultry, fish, and shellfish, and organ meats; 7) legumes and nuts.

[2] For breastfed children, minimum meal frequency is receiving solid or semi-solid food at least twice a day for infants 6–8 months and at least three times a day for children 9–23 months. For non-breastfed children age 6–23 months, minimum meal frequency is receiving solid or semi-solid food or milk feeds at least four times a day.

[3] Breastfed children are considered to have a minimum acceptable diet if they receive food from 4 or more food groups and the minimum age-appropriate meal frequency. Non-breastfed children have a minimum acceptable diet if they receive other milk or milk products at least twice a day, receive the minimum meal frequency, and receive solid or semi-solid foods from at least four food groups not including the milk or milk products food group.

[4] This includes fortified baby cereal, meat, poultry, fish, and shellfish, and organ meats and micronutrient powder.

[5] Only children that have started receiving solid/semi-solid food (N = 657 and 716). Positive feeding style includes doing something when the child refuses food or when the child never refuses food, and talking to the child when feeding.

[6] All children 0–5 months old

[7] All children 12–15 months old

[8] All children 6–8 months old

[9] Iron-rich foods only.

Although children may not be breastfed exclusively, many mothers keep breastfeeding their children regularly at the age of one year, with a rate of 96.9 for children in the comparison group and 98.0

per cent in the treatment group. This nearly ubiquitous continuation of breastfeeding was observed in the qualitative interviews, during which many mothers were nursing their children, including those older than one year. This result is also well in line with the national average found in the GDHS. It is recommended to start introducing complementary food at the age of six months. This indicator is measured on the subgroup of children aged six to eight months. The results show that about six in ten children in this age range have started to receive complementary food, which is lower than the national average reported in the GDHS. In the qualitative interviews, mothers indicated that they protected young children's nutrition during lean times by relying on, and even increasing, their breastfeeding.

The next set of IYCF practices are measured on the subpopulation of children six to 23 months old. For definitions of the indicators, please refer to the footnote under Table 4.6.5. Less than one in four children in this age group had received food from four or more food groups during the day before the survey. This is somewhat higher than the comparison group of the GDHS. Moreover, 37.4 per cent of children in the comparison group and 40.8 per cent in the treatment group have enjoyed the minimum age-appropriate meal frequency, which is slightly lower than the GDHS estimate. The indicator for minimum acceptable diet is a composite measure of three IYCF practices including breastfeeding, diet diversity and meal frequency. Few children in the LEAP 1000 sample had received a minimum acceptable diet during the day before the survey, with a rate of 12 per cent in the comparison group and 13 per cent in the treatment group. This finding is within the same range as the GDHS estimate. Finally, we present an indicator related to the intake of iron, which is an important micronutrient to combat anaemia caused by iron-deficiency. In our sample, 59.5 per cent of the comparison children and 60.8 per cent of the treatment children have received some form of iron through their food intake. This is somewhat higher than the estimate reported in the GDHS, but this may be due to the broader definition of our indicator (see footnote under the table). The IYCF practices seem well-balanced between comparison and treatment group as none of the differences is significant at the conventional levels.

With regard to diet diversity, several participants in the qualitative interviews identified a desire to prepare a wider range of foods. Discussions of food in both regions were centred on TZ as the anchor staple. As previously mentioned, several women discussed a desire to cook more beans as a source of good nutrition. In the UER, there was a recurring reference to rice as a preferred food that women wished they could prepare more often, especially for children. Overall, participants in UER spoke more about diet diversity whereas conversations in NR were more focused on overall food security; this may reflect the fact that women in UER lived closer to larger market towns and may have had improved access to rice.

To conclude this section, we present the results from an indicator which measures the feeding style of the caregiver. This indicator is constructed based on literature suggesting that a more positive feeding environment stimulates children's food intake, and therefore micronutrient intake. The indicator consists of two components. The first measures the actions taken by the caregiver in the case of a child refusing food. It is considered positive if the child never refuses food or if the caregiver undertakes any action (strong encouragement, singing, telling stories or playing, or trying

different food) when the child refuses food.[17] The second component is a general measure of caregiver-child interaction during feeding. It is positive if the caregiver sometimes or often talks to the child when feeding complementary food.[18] A positive feeding style means that both components are positive. The results show that 44.1 per cent and 42.6 per cent of the children in the comparison and treatment group respectively are exposed to a positive feeding environment. There is no significant difference between the two groups.

We probed into the feeding environment in the qualitative interviews. In most households, participants described adult males and females eating separately. Eating arrangements for children varied by family. In some houses children were grouped together by age to share from the same bowl; several mentioned that the younger ones would cry if they could not get enough food. Due to fighting, in some households, children ate separately in order to eat well.

Discussions of feeding younger children were mixed. For some, feeding was not a problem. For example, in one household in UER where the woman had three children, the youngest child (6 months) ate with the father using her own bowl. Others talked about challenges getting younger children to eat. One mother jokingly said that she did not have patience for feeding her baby saying:

> *I don't know how to feed a baby when I fetch the food I put it in my mouth (laughs), [older child] feeds him, if it is koko she feeds him because whatever is in my hand I put in my mouth (laughs).*

Another first time mother in UER described grabbing the baby's hands when she doesn't want to eat and forcing in the food. A woman in NR described that her three children (two boys and a girl) all ate together. When probed on whether the girl, the youngest, was left with less food she said the girl actually ate faster than the boys and would even run away from the boys with the bowl.

4.7. Birth registration and child development

This section addresses birth registration and child development. The LEAP 1000 baseline survey included a series of questions on the possession of a birth certificate for all children under five years old. In cases where a child's birth had not been registered, the main reason for not doing so was elicited. The baseline findings are presented in Table 4.7.1. The results indicate that 40.5 per cent of the children in the comparison group and 41.1 per cent of the children in the treatment group had been registered. This is substantially lower than the birth registration rate (69 per cent) found in the Northern and Upper East Regions in the GDHS. For almost half of all children whose birth had been registered (47.0 per cent in comparison and 48.7 per cent in treatment groups), enumerators were able to visually verify the birth certificate. For about four in ten children whose birth was registered, a birth certificate was reported but could not be shown. Furthermore, 12.6 and 10.7 per cent of children in the comparison and treatment group whose birth was registered, had no birth certificate and were only registered with the authorities. Findings from the GDHS show a much lower possession rate of birth certificates, with only two in three children under five whose birth had been

[17] See for example: Ruel, M. T., Levin, C. E., Armar-Klemesu, M., Maxwell, D. and Morris, S. S. (1999) 'Good care practices can mitigate the negative effects of poverty and low maternal schooling on children's nutritional status: Evidence from Accra', *World Development*, 27(11): 1993-2009.

[18] Bentley, M. E., Wasser, H. M. and Creed-Kanashiro, H. M. (2011) 'Responsive feeding and child undernutrition in low- and middle-income countries', *Journal of Nutrition,* 141(3)**:** 502-7.

registered owning a birth certificate, while the remaining one third of children had only been registered with the authorities. The large majority of children in the LEAP 1000 sample were registered within one year of birth, with a slightly higher, but not significant, rate in the comparison group (85.4 per cent and 88.7 per cent respectively).

Table 4.7.1, Birth registration (children 0–59 months)

Variables	Comparison	Treatment	p-value	GDHS 2014
Birth registered	40.5	41.1	0.38	69.0
Children 0–59 months	1,828	1,952		957
Among children whose birth was registered:				
Birth certificate seen	47.0	48.7	0.71	66.4
Birth certificate not seen	40.5	40.6	0.46	
No certificate - registered with authorities only	12.6	10.7	0.60	33.7
Birth registered within one year of birth	88.7	85.4	0.08	
Children whose birth was registered	741	803		661
Reasons for not registering birth:				
Cost too much	**54.7**	**55.4**	**0.04**	
Did not know it should be registered	21.5	23.7	0.15	
Must travel too far	16.1	13.0	0.06	
Still in the process	3.4	4.0	0.80	
Did not find it important	2.4	2.4	0.52	
Do not know where to register	1.7	1.4	0.61	
Did not want to pay fine	0.2	0.2	0.11	
Children whose birth was not registered	1,087	1,149		

Notes: GDHS figure constitutes weighted average of Northern and Upper East Regions. Bold indicates statistically significant differences between treatment and comparison groups.

The bottom panel of Table 4.7.1 shows the main reasons for not registering the child's birth. In more than half of all cases, the cost of registration was reported as the main barrier. This is rather surprising as birth registration is free of charge if the child is registered within one year of birth.[19] The share reporting this barrier was significantly higher in the treatment group, but the actual difference is rather small. The second and third main barriers are that the respondent did not know a child should be registered and the distance to the registration office was too far.

Early childhood development

This sub-section presents the baseline findings regarding early childhood development. The subgroup of children studied comprises children 36–59 months old as per standard Multiple Indicator Cluster Survey (MICS) analysis procedures. We look at pre-school enrolment among children in this age group as well as home support for learning. Home support for learning is assessed through six different activities that were enumerated in the baseline survey: reading books to, or looking at picture books with the child; telling stories to the child; singing songs to or with the

[19] Further analysis shows that the age of the child does not matter for the answer to this question. Even for children younger than one year, the most often reported barrier is the cost of registration.

child, including lullabies; taking the child outside the home, compound, yard, or enclosure; playing with the child; and naming, counting, or drawing things to or with the child. The time frame for this question is during the three days before the survey. The MICS 2011 report is used for the comparison to national data as this is the only recent survey which included the same questions on early child development as the LEAP 1000 baseline survey.

About four in ten children aged 36–59 months old were enrolled in pre-school at the time of the baseline survey, with a significantly higher rate enrolled among children in the treatment group (Table 4.7.2). Pre-school enrolment is relatively low compared to the MICS average of the Northern and Upper East Regions, which showed that just over half of all children 36–59 months old were enrolled in pre-school.

The common measure of support for learning is when an adult household member engaged in four or more activities with the child in the three days before the survey. The baseline findings show that this was the case for 14.6 and 12.3 per cent of children 36–59 months old in comparison and treatment group respectively (Table 4.7.2). The mean number of activities is around two for both groups. These findings are much lower than reported in the MICS 2011, indicating that children in the LEAP 1000 sample enjoy less stimulation for learning than the average child in the Northern and Upper East Regions.

Next, we look at the engagement of the mother and father of the child with respect to support for learning. With more than half of children 36–59 months old, the mother engaged in at least one activity and the average number of activities by the mother is one. Father's engagement is much lower, and about one in five children in this age group had their father engage with them in at least one activity. The average number of activities by fathers is less than one and close to zero. The MICS 2011 only reports engagement by the father and the findings indicate that fathers in the LEAP 1000 sample are much less engaged than the average in the two regions. None of the findings on support for learning is significantly different between the comparison and treatment group.

Table 4.7.2, Pre-school enrolment and support for learning (children 36 - 59 months)

Variables	Comparison	Treatment	p-value	MICS 2011
Enrolled in pre-school	**39.6**	**41.0**	**0.00**	51.2
4+ activities with an adult household member	14.6	12.3	0.68	31.5
Mean number of activities with an adult household member	2.0	1.8	0.95	2.7
Children 36–59 months	601	649		500
1+ activities with the mother	54.1	51.8	0.92	
Mean number of activities with the mother	1.0	1.0	0.71	
Children 36–59 months living with mother	588	627		
1+ activities with the father	19.4	19.2	0.59	28.3[1]
Mean number of activities with the father	0.3	0.3	0.79	0.5[1]
Children 36–59 months living with father	541	577		500

Notes: MICS 2011 figure constitutes weighted average of Northern and Upper East Regions.[1] Denominator is all children 36–59 months old, irrespective of whether the father is in the household or not.

4.8. Reproductive health of women 12–49 years old

This section examines women's fertility and related outcomes. Given that pregnant and lactating women are the target population for LEAP 1000, we assessed the percentage of women living in evaluation sample households who were currently pregnant, as well as their antenatal care-seeking behaviours, total fertility, and whether they had ever had a child born alive who later died. Finally, among main respondents, we asked about fertility preferences and contraceptive use (both modern and traditional methods). Contraception has been shown to have wide-ranging, positive impacts not only on women's health, but also on infant and child health and survival through birth spacing and other pathways.[20] Indeed, it is estimated that contraceptive use (at a rate of 22.1 per cent) prevented over 88,000 maternal deaths in sub-Saharan Africa in 2008 alone and that an additional 59,000 maternal deaths could be averted annually in the region by fulfilling the unmet need for contraception.[21] Furthermore, there are wealth disparities in the use of contraception, with poorer women less likely to use contraceptive methods.[22]

Cash transfers may affect fertility through a range of pathways, but the expected impacts are ambiguous. On the one hand, policymakers sometimes worry that an unintended consequence of cash transfer programmes targeted to families with children may incentivize more childbearing, under the belief that it will qualify households for the programme or help them maintain eligibility. This may be problematic in regions where fertility rates remain high. Alternatively, cash transfers may empower women to achieve their ideal family size by increasing use of modern contraceptive methods (through increased ability to access health services or through increased agency to exert preferences with a partner). Generally, studies to date have found few to no impacts of government cash transfer programmes on fertility and childbearing, and very few have investigated contraceptive use. In the current section, we present information on reproductive health for all women aged 12 to 49 in the household and the use of contraceptives and fertility preferences among the main respondents. We also report unmet need for contraception in order to explore the potential for the cash transfer programme to influence contraceptive use. Whenever possible, a comparison with the findings of the GDHS 2014 is presented. The DHS comparison figures constitute the weighted average of outcomes from the Northern and Upper East Regions.

Current pregnancy status, antenatal care, and total fertility

Approximately 9-11 per cent of all women aged 12 to 49 in the households studied were pregnant at the time of the survey, and among those, 88-95 per cent had received antenatal care (ANC). The average number of ANC visits for the current pregnancies was approximately four. Average month into the pregnancy of the first ANC visit was 3.0 for comparison women and 2.8 months for treatment women, and this difference was statistically significant. The total number of live births (total fertility to date) was approximately three per woman, and 18-19 per cent of women had ever had a live birth where the child later died.

[20] Cleland, J., et al., Contraception and health. *Lancet*, 2012. 380(9837): p. 149-56.
[21] Ahmed, S., et al., Maternal deaths averted by contraceptive use: an analysis of 172 countries. *Lancet*, 2012. 380(9837): p. 111-25.
[22] Clements, S. and N. Madise, Who is being served least by family planning providers? A study on modern contraceptive use in Ghana, Tanzania And Zimbabwe. *Afr J Reprod Health*, 2004. 8(2): p. 124-36.

Table 4.8.1. Pregnancy status, antenatal care, and fertility outcomes, all women aged 12-49

	Comparison	Treatment	p-value
Fertility outcomes			
# of children died	0.30	0.27	0.87
# of total live births	2.89	3.10	0.56
Ever had child die	19.0	17.8	0.75
Currently pregnant	11.2	8.9	0.96
Number of women 12–49 years	1,929	2,039	
ANC from skilled provider[1] during current pregnancy	94.9	87.9	0.74
Number of antenatal care visits - current pregnancy	3.6	3.8	0.37
First month of antenatal care - current pregnancy	**3.0**	**2.8**	**0.00**
Number of pregnant women 12–49 years	216	181	

Notes: [1] Skilled provider includes doctor, nurse, midwife, auxiliary midwife or community health worker. Bold indicates statistically significant differences between treatment and comparison groups.

Contraceptive use

Table 4.8.2. Contraceptive use and fertility preferences, main respondents

	Comparison	Treatment	p-value	GDHS 2014
Currently using modern contraceptive	13.2	12.3	0.11	14.3
Currently using traditional contraceptive	2.0	3.4	0.94	0.4
Currently using any contraceptive	14.8	14.6	0.14	14.7
Unmet need for family planning - no method	**8.8**	**13.0**	**0.03**	7.8
Unmet need for family planning - modern method	**9.1**	**13.1**	**0.04**	-
Number of non-pregnant women	1,052	1,111		
Ideal number of children	6.0	6.2	0.07	6.0
Number of women 12–49 years	1,235	1,262		
Partner wants fewer children than woman	2.2	3.4	0.00	-
Partner wants same # children as woman	61.4	62.1	0.28	-
Partner wants more children than woman	36.4	34.5	0.04	-
Number of women 12–49 years with partner fertility preferences	785	744		

Notes: GDHS 2014 figures constitute weighted average of Northern and Upper East Regions.

Among main respondents, 12–13 per cent were currently using a modern contraceptive at the time of the survey, and 2–3 per cent were using a form of traditional contraceptive method, such as the

rhythm method or withdrawal. This resulted in a total of 15 per cent using some form of contraceptive method (modern or traditional). These rates were slightly lower than those reported in GDHS, where 14 per cent of women reported modern contraceptive use, and 15 per cent reported some form of contraceptive use (modern or traditional). Unmet need for contraception for purposes of limiting births (defined as not currently using a method but did not want any more children) was found among 9 per cent of comparison women and 13 per cent of treatment women, and this difference was statistically significant. This is slightly higher than the rate found in GHDS of 7.8 per cent. The average ideal number of children as reported by main respondents was six children, and this was the same as reported in GDHS. Further, 35-36 per cent of women reported that their partner wanted more children than they did (61-62 per cent reported their partner wanted the same number of children as they did).

4.9. Women's empowerment, perceived stress, social support, self-reported health, and nutrition knowledge

Women's empowerment, and particularly bargaining power, has implications for child health via the mother or caregiver's ability to allocate resources to inputs to child health (for example, nutritious foods, purchase of bed nets for malaria prevention, health visits, etc.), among other pathways. However, women's empowerment is a difficult concept to quantify and is often operationalized as decision-making or control of resources. Existing research shows a generally positive link between women's empowerment and children's improved nutritional status.[23] However, evidence on the ability of cash transfers to improve women's empowerment is mixed, and this may be related to challenges in measuring the concept in quantitative surveys. The following section explores bargaining power/agency as proxied by women's agency or decision-making, savings, and future outlook.

In this section, we also examine perceived stress, social support, self-reported health, and nutrition-related knowledge. Cash transfers alleviate food insecurity, which is one of the main sources of uncertainty experienced daily in sub-Saharan Africa. This resulting reduction in poverty-induced stress within the household is one of the main pathways through which social cash transfers are hypothesized to improve a range of outcomes. For example, reductions in stress may improve the quality of caregiving relationships, reduce violence levels, and allow household members to become more forward-looking. Furthermore, high levels of chronic stress have been found to induce physiological changes which result in adverse health outcomes, including increased risk of cardiovascular disease, increased inflammation, and compromised immune function. [24] [25] [26] Thus, reductions in stress have long-term implications for health. Furthermore, social support may mediate the relationship between cash transfers and child health, through the caregiver's ability to rely on others for support when needed. In addition, impaired maternal health may have adverse

[23] van den Bold, M., Quisumbing, A. R. and Gillespie, S. (2013) 'Women's empowerment and nutrition: an evidence review', *IFPRI Discussion Paper 01294*. Washington D.C., The International Food Policy Research Institute.
[24] Dowd J.B., Aiello A.E. (2012) Immunosenescence: Psychosocial and Behavioral Determinants. In: Bosch J.A., Phillips A.C., Lord J.M., editors. New York: Springer.
[25] Glaser R, Kiecolt-Glaser J.K. (2005) Stress-induced immune dysfunction: implications for health. *Nature Reviews Immunology*. 5(3):243-51.
[26] Kiecolt-Glaser J.K., Glaser R. (2001) Stress and immunity: Age enhances the risks. *Current Directions in Psychological Science.* 10(1):18-21.

impacts on ability to care and child health, and finally nutritional knowledge is linked to feeding practices.

Women's empowerment: decision-making, life satisfaction, future outlook, and savings

We investigated the concept of empowerment, as measured by survey items related to women's agency and decision-making and savings (Table 4.9.1). Questions measuring agency asked whether the woman believed her life was determined by her own actions, whether she has the power to make decisions about her life's course, whether she believes she has the power to make decisions related to her children's well-being and her household's well-being, and whether she is capable or protecting her interests inside the family and outside her household. The percentage responding 'yes' to these questions ranged from 35-39 per cent who believe they have the power to make decisions related to the household's well-being, to 56–58 per cent who believe that they have the power to make decisions about their life's course.

Table 4.9.1. Women's empowerment and savings, main respondents

	Comparison	Treatment	p-value
Believes life determined by own actions	58.4	55.8	0.80
Believes has power to make decisions - life course	58.4	58.5	1.00
Believes has power to make decisions - children's well-being	47.8	49.5	0.76
Believes have power to make decisions - household well-being	35.1	38.7	0.30
Believes capable of protecting own interests within family	35.9	37.5	0.59
Believes capable of protecting own interests outside family	37.3	37.8	0.23
Satisfied with life some/most/all of time	56.8	56.9	0.79
Believes life will be better in 1 year	80.0	80.1	0.51
Believes life will be better in 3 years	83.0	83.0	0.95
Believes life will be better in 5 years	82.1	83.0	0.61
Saving money	**9.0**	**6.7**	**0.04**
Amount of money saved last month	42.08	40.04	0.93
Amount of money saved last month - excluding zeros[1]	378.22	269.65	0.10
N	1,235	1,262	

Note: Bold indicates statistically significant differences between treatment and comparison groups.

[1] Women who saved, N(Comparison)=111, N(Treatment)=85.

With respect to savings, results indicate that approximately 7–9 per cent per cent of women had any savings in the previous month. Women from comparison households were two percentage points more likely to have any savings, and this difference was statistically significant. The average amount of savings, including women who saved zero, was GH₵ 40–42 per month. Excluding women who

saved no money, the average monthly amount saved was GH₵ 270–378. The most commonly reported reasons for savings were school fees, clothes or shoes, and medical expenses (results not shown).

In the qualitative interviews, women conveyed that they generally had control of the funds that they were directly responsible for generating through their farming and/or market endeavours. For example, if they sold food produced in their garden, this money was for them to use at their discretion. While participants generally indicated that male heads of household were responsible for covering the basic food needs of the house, they described engaging in discussions with their partners about how to use funds for the family. Conversely, some women also reflected that they did not feel very well supported by their male partners, as reflected by this participant from UER:

> ***Participant**: Eeeeer! Village men don't support their wives.*
>
> ***Interviewer:** I am not talking about only money, it can be money, farming or advice. How does he support you?*
>
> ***Participant**: He doesn't support me financially.*
>
> ***Interviewer**: What about farming?*
>
> ***Participant**: We are all working on our own farms.*

The quantitative survey also asked women whether they were generally satisfied with their lives some, most, or all of the time (compared to never or a little of the time), and 57 per cent replied 'yes'. In addition, we asked women whether they thought their lives would be better in one, three, and five years. The percentages that responded 'yes' to these questions were 80 per cent, 83 per cent, and 82-83 per cent, respectively.

Perceived stress and social support, main respondents

To examine stress, we used the validated Cohen Perceived Stress Scale (PSS).[27] This scale comprises a series of ten questions (reference period is the previous four weeks), such as whether the woman had often been upset due to something that happened unexpectedly, how often she could not cope with all the things she had to do, how often she felt confident about her ability to handle personal problems, and how often she had been angered because things were outside her control, among others. These questions were asked to main respondents only, and the possible range of scores was 10 to 50, where a higher score indicates increasing stress. The average perceived stress scores among main respondents was 32 out of 50. There were no differences in perceived stress levels between comparison and treatment women (Table 4.9.2).

In the qualitative interviews, we asked women about how they felt physically and mentally and also probed on their general well-being. Some women indicated that they felt good and that worry and stress was not a major concern. Others used the words "thinking a lot" and "worrying" to describe their stress. The most common causes of stress were poverty, food insecurity, and children's health

[27] Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of health and social behavior*, 385-396.

and well-being. Two women had husbands who were too sick to work and this also created stress. A first time mother in NR described her worry about her children's health in this exchange:

> ***Interviewer:*** *When your child is sick what are your main worries regarding his health?*
>
> ***Participant:*** *When my child is sick my worry is how to take him to the hospital and when they prescribe medicine for us to buy and I can't afford it is my main worry.*

This exchange highlights the salience of lacking money for children's healthcare costs as a source of stress. A mother of three from UER described her worry about food security in the following way:

> *[children playing] When there is no money in the house and you wake up you don't always know what to do, as an adult I can endure but with the children they can go out and see other children with food and they will come back crying that they want food and you don't have money to buy the food for them [children playing] so it's a worry for you.*

This quote reflects how lack of food creates stress in addition to stress about how it affects the children and their mental and physical well-being. This participant also spoke about how the worry of her insufficient food consumption affects her milk supply and, subsequently, her baby's nutritional intake.

We assessed social support using a modified version of the widely implemented and validated Medical Outcomes Scores (MOS) – Social Support score.[28] Items in this scale include questions such as: whether the individual has someone who would help them if they were confined to bed, take them to the doctor if they need it, prepare their meals if they are unable to do it themselves, help with daily chores if they are sick, have a good time with, turn to for suggestions dealing with a personal problem, someone to understand their problems, and having someone to love and make them feel wanted. The score is obtained by averaging the responses to the items and then standardizing (possible range from 0-100). The average social support scores were 53.5 among comparison women and 52.1 among treatment women.

Table 4.9.2. Social support and perceived stress, main respondents

	Comparison	Treatment	p-value
MOS-Social Support score (standardized)	53.5	52.1	0.06
Cohen perceived stress scale	31.8	31.8	0.47
N	1,235	1,262	

In the qualitative interviews we elicited an inventory of each participant's social support network. Most women described a generally supportive environment within their households, within the confines of their resources; this was true in both polygamous and monogamous households. Support dynamics with adult family household members included reciprocal exchanges of food, money, chores (i.e. washing clothes, cooking, carrying water), and running errands. Children generally did chores to help the participant and the participants provided overall caretaking support to children (cooking, bathing, breastfeeding). The limits of this support were usually framed around the extreme

[28] RAND Corporation (1995). User's Manual for Medical Outcomes Study (MOS) Core Measures of health-related quality of life. Santa Monica, CA: RAND Corporation.

poverty in which families lived limiting their overall ability to be supportive. This may mean that the social support score documented in the quantitative survey is more reflective of lack of support due to poverty than negative support or feeling that household members do not provide support when they could. One exception was a woman from UER who had a few friends and family in Kumasi whom she described as never providing support and not even answering their calls.

A mother of four from UER stood out as an exception as she described herself as mostly lacking social support. This woman's husband was did not work and she described him as not supporting her. Referring to social support dynamics more broadly in her family, she said:

> *"My mother's children have not gone anywhere; none of them has been to school or have a better job. It's only one of my elder sibling who is in Kumasi but when you call him he will say he can't take care of somebody's wife. So when we wake up, I just manage with my husband, he doesn't remit to us so we have been managing ourselves."*

This woman also described an extreme experience of having one of her children "stolen" and taken to Kumasi. While most participants relied on reciprocal support dynamics even with a small number of people, this woman described her reality as one in which she was on her own and lacked others to support her.

Support networks mirrored the household composition for most women as most of the people with whom they exchanged support were family members, especially in UER. For example, a first time mother in UER who was the only single participant in the sample described how her parents had supported her in relation to her baby:

> *The support I get from her is that when I dropped out of school and got pregnant until I delivered [cock crowing] I wasn't working so she said I should learn how to sew so she bought a sewing machine and together with my father they assisted me to learn how to sew so that is the support they gave to me. And also catering for me and my baby in everything; in sickness, the food we eat, our clothes and footwear [cock crows]. Ayambire has been taking care of us in all these things, that is all.*

This same participant described how she also relied on her neighbours for support during lean times in her household:

> *During the farming season when my mum used to go out, when I don't have soap or money to buy medicine for my baby I go to her [neighbour] and if she has money she gives to me. [Another neighbour] too when our food gets finished or we don't have ingredients to cook we will take money from him to cook. [Neighbour] too helps us to work and get food to eat.*

In the four polygamous households interviewed, all in NR, participants identified their co-wives as sources of support, helping each other to take care of each other's children, prepare food and other chores, and exchange advice. One woman described her dynamic in the following way,

> ***Participant:*** *(Co-wife 1) takes care of my child when I am going to cook, gives me salt, magi and anything I want to cook, represents me in school PTA. If we are going to farm, she takes care of the house and the children for us to go, advises me to be patient in my marital home*

and raises my children very well and because of all these I am not worried in this house much, I trust her in that regard.

Interviewer: *And what do you do for her?*

Participant: *I support her like: fetching water for her, because we are cooking in one pot, we rotate the cooking two days, two days. She is my first co-wife and she starts the cooking for two days and the second co-wife will also cook for two days before I also cook for two days.*

As reflected in this quote, the support dynamics between co-wives were described as reciprocal and included instrumental, informational, and emotional support. Another participant who as a mother of three reflected the roles played by the different wives based on their ages,

Interviewer*: And how does (co-wife 1) support you?*

Participant: *We are just helping each other to take care of our children.*

Interviewer: *What about (co-wife 2), what does (she) do for you?*

Participant: *As for (co-wife 2), if she is sitting and you call her to do anything for you, she will do it.*

Interviewer: *Like what?*

Participant: *Eeeeer, she knows how to ride bicycle and if I need someone to go to the next community to grind my flour for me she is the one I send. We don't have a grinding mill in this community.*

Interviewer: *And what do you do for her?*

Participant: *I also support in anything she wants to do.*

In this example, the younger co-wife's ability to run errands on the bicycle was integrated in the social support system for the household. Notably, no one identified lacking support from co-wives or having tensions with them. Interviewer observations supported this in their documentation of fairly harmonious and supportive dynamics in polygamous households.

In UER, two participants included neighbours or community members as sources of advice and one participant included 2 male friends as confidants. In NR, five women included female friends in their networks as sources of support beyond household members, mostly in the form of exchanging advice, emotional support and money.

Beyond the immediate social network of each woman, or what can be referred to as "strong" ties, we asked about the broader community and access to social capital through community organizations and support mechanisms, or what can be referred to as weak or bridging ties. These weak ties can play a critical role in facilitating opportunities and contextual support to using and maximizing the potential of the transfer. Most women described their communities in positive terms as reflected below by a first time mother in UER:

***Interviewer**: Can you tell me how [community name] is like. The people here, how are they like?*

***Participant**: They are human beings here, they have good hearts. If you get to them and ask that you are going somewhere they will direct you there. They are respectful and they will ask you whose house you are going to and then direct you there.*

***Interviewer**: How do you relate with each other?*

***Participant**: We relate well, we don't fight, we cooperate to do things. When there is something that requires [community name] people to go and do, we all come together and go and do it.*

***Interviewer**: What about you and the community people, how do you relate?*

***Participant**: We relate well we don't fight, we help each other.*

In contrast, there was one woman, also in UER, who described a very negative community dynamic

***Interviewer:** How this community is, how the people are?*

***Participant:** Everybody is staying in his house and you can't go to somebody's house and do something and nobody can come to your house and do something, or you can't just go to somebody wanting something and they will give it to you….The way this community is you can't be friendly with everybody, we don't love each other. We argue and fight each other so it's not everybody I am friendly and converse with, everybody is always in his house.*

This extreme case of a negative community dynamic provides important contextual information for understanding the resources and opportunities that may exist for a woman once receiving her transfer.

Very few first time mothers were involved in women's groups while several of the women with three or more children were involved in some capacity. Some of the first time mothers had been involved in youth groups in the past. The groups that women were involved in usually entailed pooling resources, providing support to women following a birth or death, and farming.

Self-reported health and physical functioning, main respondents

We asked respondents to rate their health as poor, fair, good, very good, or excellent. This measure of self-reported health has been found to be a good predictor of future morbidity and mortality.[29] Fair or poor health was reported by 23–25 per cent of respondents. Next we asked women whether they thought their health was better compared to one year ago, and 45–46 per cent replied 'yes'. We further assessed physical impairment using items assessing activities of daily living (ADLs). These questions included whether the respondent can engage in vigorous activities; engage in moderate activities; carry a 10 kilogram bag of shopping for 500 metres; bend, squat, or kneel; and walk 2 kilometres. Response options included easily, with difficulty, and not at all. We then created a

[29] DeSalvo, K.B., Bloser, N., Reynolds, K., He, J., & Muntner, P. (2006). Mortality prediction with a single general self-rated health question. *Journal of General Internal Medicine*, 21(3), 267–275.

composite measure which indicated whether the respondent reported any difficulties in carrying out any of these activities, 50-51 per cent reported difficulties with at least one activity.

Table 4.9.3. Self-reported health and activities of daily living (ADLs), main respondents

	Comparison	Treatment	p-value
Fair/poor self-rated health	22.6	24.7	0.71
Believes health is better than a year ago	44.8	45.9	0.41
Has difficulty with ADL	50.3	51.3	0.95
N	1,235	1,262	

Child nutrition-related knowledge, main respondents

Given LEAP 1000's focus on child malnutrition, we assessed caregivers' knowledge of infant and child feeding practices. Approximately 97–98 per cent of women knew that the first food appropriate for new-borns is breastmilk, and 66–67 per cent knew that new-borns should be fed immediately or within the first hour of birth. Seventy-six to eighty per cent of women knew that infants should be breastfed for 24 months, and a majority knew foods that were iron-rich (78–79 per cent) or vitamin A-rich (59–61 per cent). Finally, 54 per cent knew appropriate treatments or feeding practices for diarrhoea. There were no statistically significant differences in these outcomes between treatment and comparison groups.

Table 4.9.4. Nutrition and feeding knowledge, main respondents

	Comparison	Treatment	p-value
Knows first food for newborn	97.4	97.7	0.46
Knows to breastfeed immediately	67.5	66.5	0.14
Knows to breastfeed for 24 months or more	76.4	79.7	0.09
Knows iron-rich foods	77.8	79.0	0.73
Knows vitamin A-rich foods	61.1	59.1	0.09
Knows diarrhoea treatments	54.2	53.9	0.30
N	1,235	1,262	

4.10. Women's experience of IPV and related help-seeking behaviours

This section describes women's experience of intimate partner violence and related help-seeking behaviours. Globally, one in three women will experience IPV (also called domestic violence) in her lifetime, and the most recent GDHS where data on IPV are available (2008) indicates that 22.9 per cent of Ghanaian women have experienced physical or sexual IPV, and 38.7 per cent have experienced physical, sexual, or emotional IPV in their lifetime. IPV not only has adverse social, health and economic impacts on women, households, and communities, but it has detrimental impacts on children's health as well. Researchers have posited that children's exposure to IPV impairs growth and nutrition prenatally through the toddler years via dysregulation of the stress-responsive systems.[30] In other words, violence-induced stress (even just being in a household where

[30] Yount K.M., DiGirolamo A.M., Ramakrishnan U. (2011) Impacts of domestic violence on child growth and nutrition: A conceptual review of the pathways of influence. *Social Science & Medicine*.72(9):1534-54.

violence occurs; the child does not have to be a direct victim of violence) affects the body's stress response system, and this in turn has long-term, documented impacts on health. Research shows that children whose mothers experience IPV have an increased risk of developmental delays, asthma, elevated total cortisol (a hormone related to stress) output, severe acute malnutrition, under-two mortality, decreased growth and stunting, respiratory infection, diarrhoea, and internalizing and externalizing behaviours. These negative health and behavioural outcomes may be realized through adverse birth outcomes (low birthweight, foetal injury, placental abruption, or preterm birth) due to exposure during pregnancy, via physiological changes in response to violence, or other pathways such as compromised care. That is, mothers who suffer violence may have impaired health (including injury, malnutrition, and cognitive impairment) and increased risk of depression and substance abuse, all of which negatively affect children's care, feeding practices, and ultimately health and well-being. Further, violence is a cycle that is learned early in life, and children who witness IPV between their parents are at increased risk in adulthood of perpetration of and victimization from IPV.

Given these links between IPV and child health and well-being and LEAP 1000's focus on reducing child malnutrition, we aim to examine programme impacts on IPV, and provide baseline statistics on IPV experience. Data were collected in accordance with guidelines produced by the WHO, including sensitization of survey enumerators, adherence to confidentiality, and conducting interviews in a private setting. Only main respondents (LEAP-eligible women and comparison women) were asked questions relating to IPV.

Women's experience of intimate partner violence (IPV), main respondents

Questions followed validated survey items from the WHO Multi-Country Study on Women's Health and Domestic Violence. Women were asked about their experience in the past 12 months of controlling behaviours by their partners, including prohibiting the woman from seeing her friends, restricting contact with family of birth, insistence on knowing where she is at all times, ignoring her and treating her indifferently, getting angry if she speaks with another man, often suspicious that she is unfaithful, and expecting her to gain his permission before obtaining health care for herself. Emotional violence was assessed through the following questions (asked about 12-month and lifetime experience): whether her current or most recent partner insulted her or made her feel bad about herself; belittled or humiliated her in front of other people; did things to scare or intimidate her on purpose; or threatened to hurt her or someone she cares about. Physical violence was assessed through questions asking whether her current or most recent partner ever did the following (12-month and lifetime experience): push, shake, or throw something at her; slap her; twist her arm or pull her hair; punch her with his fist or with something that could hurt her; kick her, drag her or beat her up; try to choke her or burn her on purpose; threaten or attack her with a knife, gun, or any other weapon. Finally, sexual violence (12-month and lifetime experience) was assessed by asking whether her current or most recent partner ever: physically forced her to have sexual intercourse with him when she did want to; or forced her to perform other sexual acts that she did not want to.

Table 4.10.1. Intimate Partner Violence (IPV), main respondents

	Comparison	Treatment	p-value	GDHS 2008
Experienced controlling behaviours-12 months	81.3	81.9	0.58	73.0
Experienced emotional IPV-lifetime	59.0	62.2	0.56	34.9
Experienced emotional IPV-12 months	58.7	61.8	0.45	-
Experienced physical IPV-lifetime	34.1	38.0	0.78	21.4
Experienced physical IPV-12 months	34.1	37.8	0.91	-
Experienced sexual IPV-lifetime	19.4	19.5	0.59	5.6
Experienced sexual IPV-12 months	18.9	19.3	0.52	-
Experienced emotional/physical/sexual IPV-lifetime	64.4	67.4	0.35	41.4
Experienced physical/sexual IPV-lifetime	40.3	43.6	0.51	-
Experienced emotional/physical/sexual IPV-12 months	64.1	67.3	0.27	-
Experienced physical/sexual IPV-12 months	40.0	43.4	0.66	-
Current/last partner ever drinks	17.6	20.1	0.39	-
Partner often drunk	2.6	4.1	0.19	-
Partner sometimes/often drunk	13.8	16.6	0.69	-
Number of ever-partnered women	1,175	1,197		-

Notes: GDHS 2008 figures constitutes weighted average of Northern and Upper East Regions.

Table 4.10.1 indicates that a high percentage of women in the sample have experienced some form of IPV, and rates are higher than those reported in GDHS. For example, 81–82 per cent of women have experienced controlling behaviours exerted by their partner or spouse in the past 12 months (compared to 73 per cent in GDHS). Furthermore, 59–62 per cent have experienced emotional violence (compared to 35 per cent in GDHS), 34–38 per cent have experienced physical violence (compared to 22 per cent in GDHS), and 19 per cent have experienced sexual violence (compared to 6 per cent in GDHS) perpetrated by a partner in their lifetime. The 12-month percentages are as follows: 58–62 per cent for emotional IPV, 34–38 per cent for physical IPV, and 19 per cent for sexual IPV. There were no statistically significant differences between comparison and treatment groups, indicating a valid study design at baseline.

Partner's intake of alcohol is a risk factor for IPV, so women were asked whether their partner ever drinks, and whether he is sometimes or often drunk. In the sample, 18–20 per cent of women reported that their current or last partner ever drinks. Further, 14–17 per cent report that their partner is sometimes or often drunk, and 3–4 per cent report that he is often drunk. There were no statistically significant differences between comparison and treatment groups.

Reporting and help-seeking for IPV, main respondents who experienced IPV

Among women who reported ever experiencing IPV, we further asked if they had ever told anyone or sought help related to the violence. Options for reporting included friends, family, husband/partner's family, neighbours (combined to create an "informal reporting" category).

Further, formal reporting sources included police, doctor/health worker, priest/religious leader, counsellor, NGO/women's organization, or local leader.

Table 4.10.2. Help-seeking and reporting, main respondents who experienced intimate partner violence (IPV)

	Control	Treatment	p-value
Sought help/told someone about IPV	21.6	25.8	0.50
Told/sought help for IPV from friend	5.1	4.5	0.61
Told/sought help for IPV from family	12.9	15.4	0.67
Told/sought help for IPV from partner's family	10.9	12.9	0.94
Told/sought help for IPV from neighbour	0.0	0.3	0.81
Told/sought help for IPV from formal source[1]	0.5	0.7	0.69
Told/sought help for IPV from informal source	21.5	25.7	0.47
Number of women who experienced IPV	661	690	

Notes: [1] Formal source includes included police, doctor/health worker, priest/religious leader, counsellor, NGO/women's organization, or local leader.

Only 22–26 per cent of women who experienced violence had ever told anyone about the violence. Twenty-one per cent told an informal source like a friend, family, neighbour, or partner's family. Less than one per cent of all women who experienced violence reported to a formal source. There were no statistically significant differences in reporting rates between treatment and comparison women. The percentage of women reporting IPV are even lower than reported percentages of women who experienced all types of physical and sexual violence (including perpetrators other than partners/spouses), as reported in GDHS 2008, where 43 per cent of women experiencing physical or sexual violence told someone (formal and informal combined), and fewer than 5 per cent reported to a formal source.[31]

5. Predicted programme impacts

In this section of the report, we will use the baseline data to estimate the expected changes due to the LEAP 1000 programme. We first look at the predicted impacts on household consumption and food consumption and then consider a number of child-level indicators.

5.1. Transfer size

The size of the transfer is an important element to predict programme impacts. The LEAP 1000 programme provides a transfer of between GH₵ 64 and 106 per two months to beneficiary households, directly increasing the household's disposable income. Using the actual transfer amount received by beneficiaries in the November 2015 payment cycle, we calculate the average transfer value as a share of the baseline consumption (Table 5.1.1). The median transfer size as a percentage of consumption is 12 per cent while the mean is 16 per cent. Approximately 75 per cent of households have a transfer share that is less than 20 per cent of their baseline consumption—20 per cent is observed to be a good rule-of-thumb in predicting the degree of impact of the transfer on a

[31] Palermo, T., Bleck, J., & Peterman, A. (2014). Tip of the iceberg: Reporting and gender-based violence in developing countries. American Journal of Epidemiology, 179(5), 602-612.

household. Programmes that deliver at least 20 per cent tend to see widespread impacts across both protective and productive domains.[32] The size of the transfer in the baseline data suggest that impacts might be limited to selected 'core' domains such as food security.

Table 5.1.1, Distribution of transfer share from LEAP 1000 baseline data (N = 1,252)

Mean	10th percentile	25th percentile	50th percentile	75th percentile	90th percentile
16.0	5.3	7.9	12.4	20.1	38.9

5.2. Consumption

No matter the transfer size, the first and foremost effect of the LEAP 1000 programme, as also illustrated in the conceptual framework in Section 2, will be on household expenditures. Using only the treatment group (i.e. those households with a PMT score below the threshold), we regress the consumption share of eight broad expenditure groups on total household consumption to obtain the income elasticity for each of these groups. This elasticity reflects the change in the consumption share if the total level of consumption changes. We then use the average transfer share (16 per cent) and the mean baseline expenditures to calculate the predicted increase for each consumption group in Ghanaian cedi.

Table 5.2.1, Predicted impact of LEAP 1000 on total consumption

	Cedi	Share of transfer amount	Baseline share of total expenditure
Food	10.22	72.0%	77.8%
Tobacco & Alcohol	0.07	0.5%	0.3%
Housing	0.77	5.4%	6.9%
Clothes	0.44	3.1%	2.7%
Medicines & Medical Supplies	0.92	6.5%	4.4%
Education	0.47	3.3%	3.3%
Transport & Communication	0.65	4.6%	1.9%
Recreation & Miscellaneous	0.67	4.7%	2.8%
Total	14.20	100%	100%

The results of this exercise are presented in Table 5.2.1. The first column shows the predicted increase in terms of Ghanaian cedi, while the second column expresses the increase as a share of the transfer amount. This is compared to column three, which includes the actual distribution of the household budget at baseline. The calculations predict an increase in food expenditure of just over 10 cedi per adult equivalent per month. This translates to an increase of about 46 cedi for the average household. This increase represents more than 70 per cent of the transfer amount. Another 6.5 per cent of the transfer is expected to be spent on medicines and medical supplies, which is higher than the current share of the household budget of this consumption group. Furthermore, the predictions show that transport and communication, and recreation and miscellaneous goods will

[32] Davis, B. & Handa, S. (2015). How much do programmes pay? Transfer size in selected national cash transfer programmes in Africa. The Transfer Project Research Brief 2015-09. Chapel Hill, NC: Carolina Population Center, UNC-Chapel Hill.

take a more prominent share of the transfer value than they currently take in the household budget. The predicted shares of clothes and education out of the LEAP 1000 transfer are about the same as their current share in the household budget. Almost none of the transfer is expected to be spent on tobacco and alcohol, which is in line with the current share of these items in the household consumption basket.

The predicted impact on food is just over 10 cedi per adult equivalent. Next, we conduct the same analysis using the food groups to disaggregate this amount (Table 5.2.2). Note that the total predicted increase (GH₵ 10.48) matches quite closely with the predicted increase in overall food consumption in Table 5.2.1. The majority of the increased food consumption will go towards cereals, but the expected share is less than the 52.6 per cent of current food expenditure. Next, we observe an increase in pulses and nuts, starches and oil and fats compared to the current expenditure. These food groups are predicted to take a higher share of the transfer amount than they currently have in the food budget, nearly doubling in share. The consumption of meat is also expected to increase with the additional money from the LEAP 1000 transfer. Furthermore, consumption of vegetables and spices and condiments will most likely decrease in favour of other food groups. This analysis of expected impacts points to the potential to improve the diet diversity of households receiving the LEAP 1000 transfer.

Table 5.2.2, Predicted impact of LEAP 1000 on food consumption (16.0% transfer share)

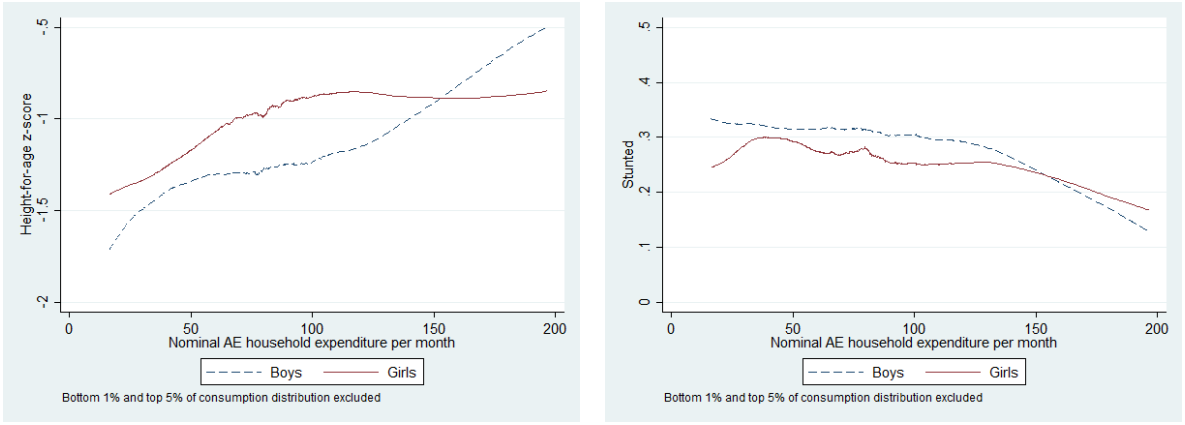
	Cedi	Share of transfer amount	Baseline share of food expenditure
Cereals	5.13	48.9%	52.6%
Meats	0.87	8.3%	6.9%
Dairy	0.18	1.7%	0.6%
Oil & fats	0.52	5.0%	2.8%
Fruits	0.08	0.8%	0.7%
Vegetables	0.94	9.0%	16.0%
Spices & condiments	0.73	7.0%	10.1%
Starches	0.89	8.5%	4.7%
Pulses & nuts	0.99	9.5%	5.0%
Non-alcoholic beverages	0.11	1.0%	0.3%
Food outside the home	0.03	0.3%	0.2%
Total	10.48	100%	100%

5.3. Child outcomes

Children's nutritional status

One of the key objectives of the LEAP 1000 programme is to improve the health and well-being of young children. To assess the potential of the programme to impact this indicator, we plot a number of child outcomes against the household expenditures to show the relation between these two variables. If an indicator correlates strongly with household expenditure, there is potential for impact on that indicator since the LEAP 1000 cash transfer increases the household's disposable income. We present a number of child outcomes in this section: nutritional status, school enrolment and material well-being. We disaggregate each graph by sex of the child.

Figure 5.3.1, Relation between AE household expenditures and HAZ (left panel) and stunting (right panel)

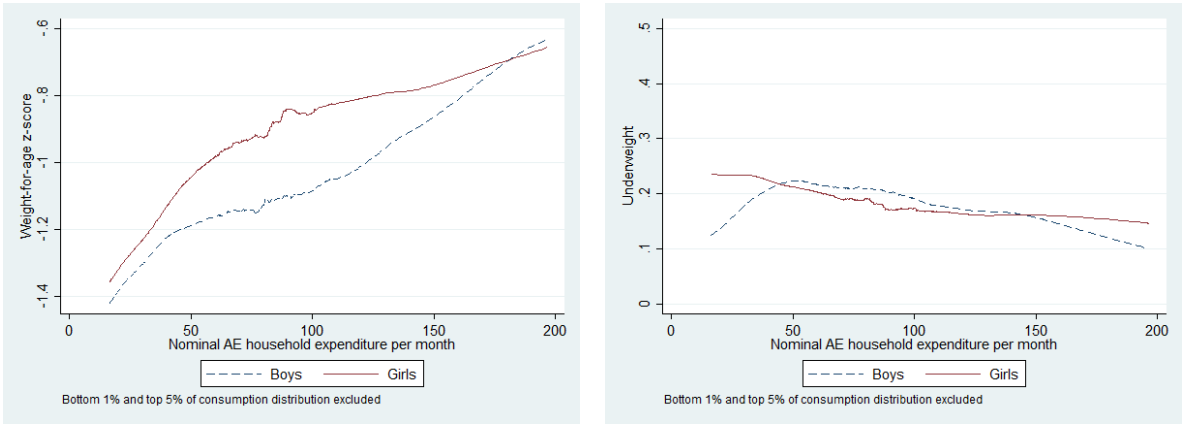


Note: Children 3–59 months old in households below the threshold.

Figure 5.3.1 displays the relation between household consumption and one of the key impact indicators of the LEAP 1000 programme: HAZ and stunting. The left panel shows an increasing line with household expenditures for both boys and girls, but stronger for boys towards the end of the distribution. This graph indicates that there is clearly a positive relation between higher household consumption and higher HAZ for children in the household. The right panel of Figure 5.3.1 shows the level of stunting associated with household expenditures. This trend is decreasing, suggesting that the rate of stunting may decrease when household consumption (through additional income) increases. The decrease is especially strong for households at the end of the distribution.

We next take a look at WAZ and underweight, generally understood to be a composite measure of both short-term and long-term malnutrition. The left graph in Figure 5.3.2 shows again a positive association between the level of household expenditure and WAZ for both boys and girls. For girls, the most significant increase tends to happen in the first half of the distribution, and then slows down, while for boys, it is the other way around. The right panel illustrates the relation between expenditures and the rate of underweight. For both boys and girls, the trend is slowly decreasing, again suggesting that an increase in household income may have an effect on the rate of underweight children. However, the decrease seems to be more gradual than the decrease observed for stunting in Figure 5.3.1.

Figure 5.3.2, Relation between AE household expenditures and WAZ (left panel) and underweight (right panel)

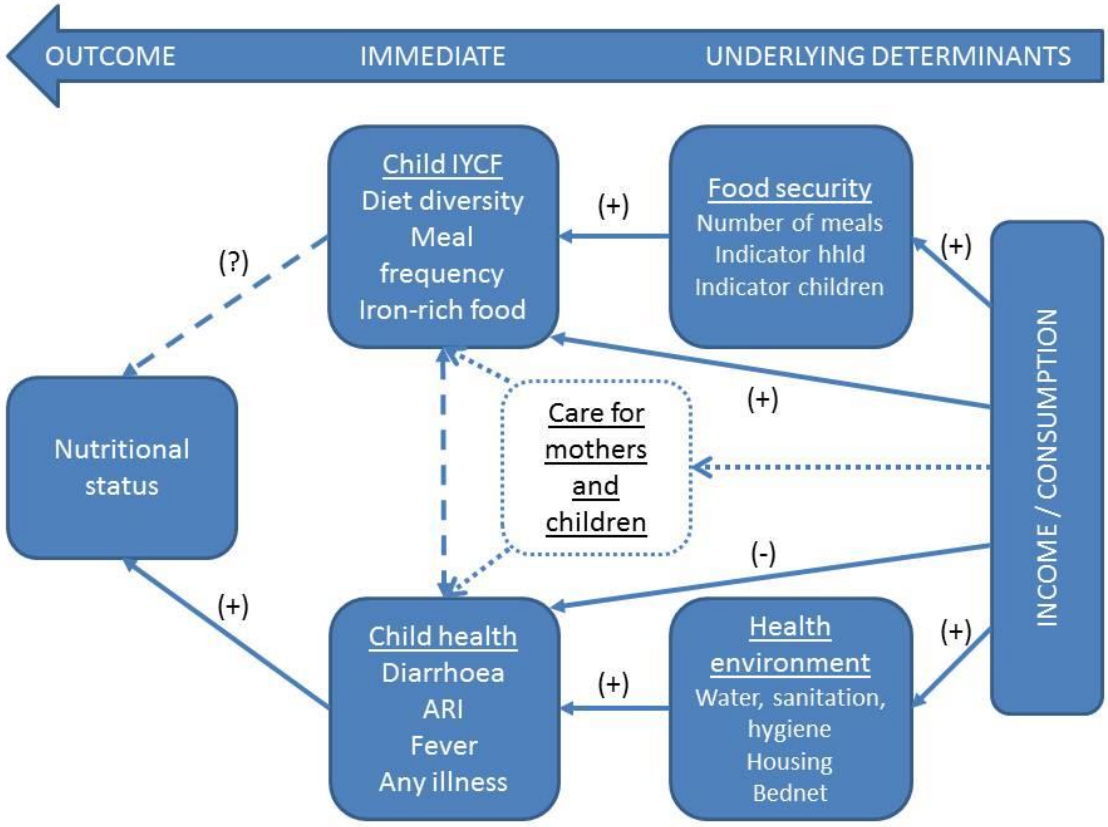


Note: Children 3 – 59 months old in households below the threshold.

It is important to understand how LEAP 1000 may have an impact on children's nutritional status. It is unlikely that the cash itself directly improves nutritional status, but rather it needs to work through a pathway. The UNICEF framework of care (Figure 5.3.3) provides an appropriate description of the immediate and underlying determinants of children's nutritional status and can serve as a tool to understand how LEAP 1000 can have an impact. Moving from right to left, this framework identifies household food security, care and a healthy environment as the underlying determinants that influence the immediate determinants of children's nutritional intake and health status. The combination and interaction of these two immediate determinants define the final outcome, a child's nutritional status.

To better understand to potential of LEAP 1000, we used the baseline data to estimate simple correlations between key components of the framework. If significant, these correlations are indicated by a solid arrow, while a dashed arrow means we did not find a significant relation between two components. Note that due to the cross-sectional nature of the baseline data, we are not able to establish causality between components, just correlations.

Figure 5.3.3, Conceptual framework of the determinants of child nutritional status



Notes: Solid arrow indicates significant correlation. Dashed arrow indicates no significant correlation. The care pathway is yet to be included in the analysis. A (+) indicates a relationship pointing to an improvement in the indicator, while a (-) points to a deterioration.

Starting from the top right side of the framework, we find a strong relationship between household consumption and food security. In addition, there is a significant association between food security

and infant and young child feeding (IYCF) practices. Furthermore, household consumption is also directly associated with better IYCF. However, we did not find a relation between IYCF and nutritional status.

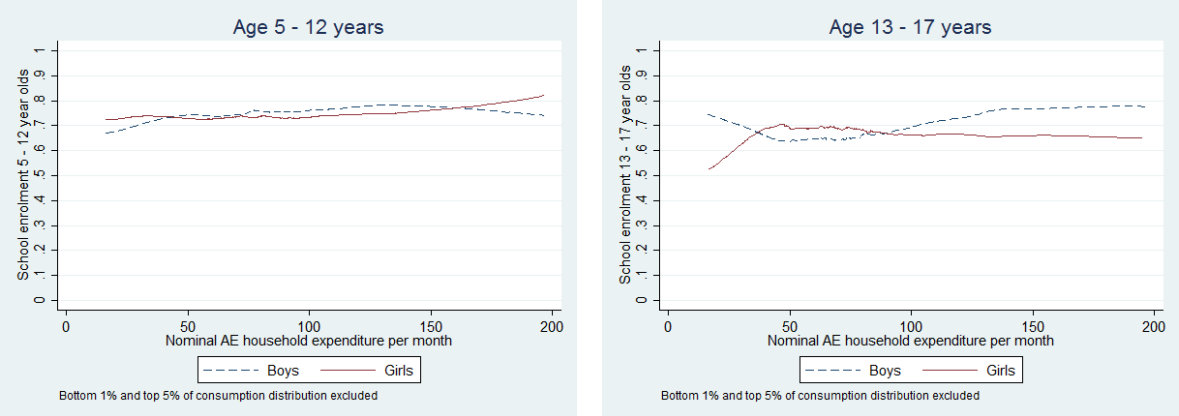
The lower part of the framework shows the health pathway. There is a positive relationship between household consumption and some of the indicators of a healthy environment. Consequently, a healthy environment is associated with improved health status. Interestingly, the direct link between consumption and health status is negative, meaning that at higher income levels, more illnesses were reported. However, the positive chain of correlations between consumption, healthy environment and health status is indicative of a potential positive effect on health status through the health pathway. In turn, health status is associated with improved nutritional status.

This exercise shows that cash provided through LEAP 1000 has the potential to improve children's nutritional status through multiple pathways. There seems to be evidence that the health pathway is particularly promising for improving the health environment of the child and consequently achieving a better health status, resulting in improved nutritional status.

Schooling and material well-being

Previous cash transfer programmes, including mainstream LEAP, have shown a consistent impact on school enrolment among children in beneficiary households. We therefore consider the potential impact on school enrolment in Figure 5.3.4. The left panel shows the relationship between household expenditures and school enrolment for children of primary school age (5–12 years old). The lines for both sexes are slowly increasing with household expenditures, but not by much. In terms of the older age group (13–17), the relationship between enrolment and expenditures seems quite flat for girls and slowly increasing for boys, especially in the second half of the distribution.

Figure 5.3.4, Relation between AE household expenditure and school enrolment

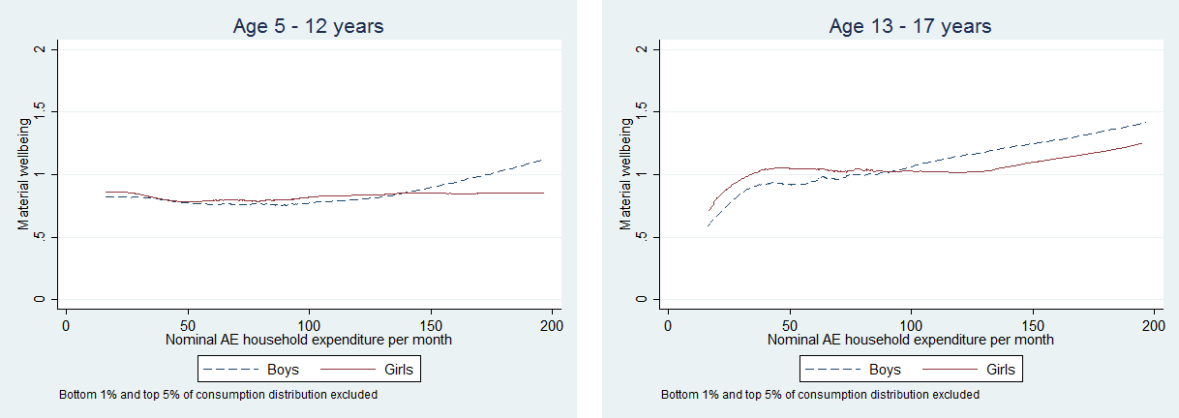


Note: Children in households below the threshold.

Finally, Figure 5.3.5 depicts the relationship between household consumption and material well-being of the child by age group. Material well-being in this context means having at least two sets of clothes and a pair of shoes. For the younger age group, there seems to be no clear relationship between the two variables for girls, as illustrated by the largely flat line. For boys, there is an increase in material well-being towards the second half of the consumption distribution. For older children, the trends look more positive with a suggested increase in material well-being when

consumption increases, for both boys and girls. Again, most of the increase is happening in the second part of the distribution.

Figure 5.3.5, Relation between AE household expenditures and material well-being



Note: Children in households below the threshold. Material well-being is categorized as follows: having a pair of shoes and two sets of clothes (= 2 points), having any one of them (= 1 point) and having none (= 0 points).

It is important to highlight that all predictions in this section are based on pre-programme preferences of households. This is due to the cross-sectional nature of the baseline date. We are effectively comparing households at a certain level of consumption to another household with a slightly higher level of consumption as an indication of how the first household would act if their income increases as it does through the LEAP 1000 programme. It could be that household preferences change due to the programme itself, or any activities surrounding the LEAP 1000 programme (e.g. programme messaging, public announcements or training activities).

6. Conclusion

This report documents the design of the LEAP 1000 impact evaluation, describes the beneficiary sample, and assesses the success of the discontinuity design in generating an equivalent comparison group. Implementation of the discontinuity design was highly successful, with baseline equivalence confirmed over a large number of indicators across domains as diverse as intimate partner violence, to young children's health, and household consumption. The description of the sample further confirms the successful poverty targeting of the new LEAP PMT, and the unique characteristics of the LEAP 1000 beneficiaries, who are much younger and have much younger children than the typical LEAP beneficiary, which is of course the purpose of the LEAP 1000 programme.

7. Appendix (available separately)

1. Power calculations
2. Sample design report
3. Construction of consumption aggregates
4. Quality assessment of anthropometric measurements
5. Analysis of health facility data