LEAP 1000 Baseline Report – Annexes

Contents

Annex 1: LEAP 1000 Impact Evaluation Power Calculations

This document details the power calculations for the LEAP 1000 impact evaluation. The key parameters for the power calculations are related to the main objective of the LEAP 1000 programme. That is, reducing the rate of stunting among children in Ghana. Therefore we consider the following indicators: levels of stunting, wasting and underweight, as well as the mean height-for-age z-score (HAZ), weight-for-height z-score (WHZ) and weight-for-age z-score (WAZ). In addition, we use an indicator of feeding practices: meal frequency. These indicators are summarized in Table A1.1.

Table A1.1, Summary of indicators used for power calculations

	Proportion	Mean	SD
Nutritional status			
Stunted (HAZ)	26.3	-1.36	1.38
Wasted (WHZ)	6.6	-0.43	1.16
Underweight (WAZ)	15.5	-1.08	1.13
Infant and Young Child Feeding			
Exclusive breastfeeding (0-5 months)	44.0		
Meal frequency (6 – 59 months)		3.13	1.29

For the power calculations, we use an alpha of 5% and power of 80%, which are the standard values for such calculations. The hypothesized effect sizes are based on previous research, or if not available, an effect size of 0.2 standard deviations from the mean, which is considered to be a rule of thumb for a meaningful effect size. The results of the power calculations are presented in Table A1.2.

Table A1.2, Results of power calculations

Indicator	Hypothesized effect size	Estimated sample size (children < 5 year)	Estimated sample size (households)
Nutritional status[1]			
Stunted	-3%	6,504	3,738
Stunted	-5%	2,276	1,308
Wasting	-1%	17,982	10,334
Underweight	-3%	4,198	2,413
Mean z-scores[1]			
HAZ	+0.2 SD	788	453
WHZ	+0.2 SD	788	453
WAZ	+0.2 SD	788	453
Infant and Young Child Feeding			
Exclusive breastfeeding (0-5 months)[2]	+6%	2,172	5,864
Meal frequency (6 – 59 months)[1]	+0.2 SD	788	453

[1] Average number of children under 5 year old per LEAP 1000 eligible household: 1.74

[2] Average number of children under 6 months old per LEAP 1000 eligible household: 0.37

The results of the power calculations show that in order to detect small effect sizes, samples need to be very high. For example, to detect a 3% drop in stunting, we would need more than 6,500 children under 5, which means approximately 3,700 households. Detecting a 1% drop in wasting requires more than 10,000 households, which is infeasible for most impact studies. In addition, since the share of exclusive breastfeeding is calculated on a small subsample of children under 6 months, the number of households to estimate such impacts needs to be high. The hypothesized effects on the mean z-scores and meal frequency result in a lower estimated sample size, requiring just over 450 households.

Each sample design needs to weigh the precision of the estimates with budgetary and logistical considerations. Since nutritional status is one of the key variables of interest, 2,500 households was considered an optimal compromise between precision, budget and logistics. This number of households would allow to detect a drop between 4 – 5% in stunting as well as a decrease in the rate of underweight of 3%. In addition, this sample size allows to detect small differences in the mean z-scores of the various nutritional indices.

Annex 2: Brief report on sampling procedure

The research design adopted for the LEAP 1000 impact evaluation is a Regression Discontinuity (RD) design. Accordingly, selection to receive benefits (treatment) is assigned solely based on falling below a specific cut-off value of a relevant discriminating variable. In the case of the LEAP 1000, the relevant discriminating variable is a proxy-means test (PMT) based score of household wealth. Categories of indicators used for the PMT score included household consumption, demographics, housing and dwelling characteristics, agricultural assets, ownership of durable goods and location of household. This score was computed using the household characteristics of all the women who applied to the program. Only pregnant women or caregivers of a child under 1 year were eligible to apply for the LEAP 1000 programme.

LEAP 1000 is a pilot programme, initially targeted at 10 districts across the Northern and Upper East regions. The total budget available is able to support 6,000 women in all 10 districts and therefore, by design, the bottom 6,000 women in terms of the ranked scores (in ascending order) would qualify for the programme and receive benefits. The six thousandth rank score on the PMT scale was determined by the LEAP Management Unit (LMU) to be 7.158 which implies that all women from households with a score up to 7.158 are designated to receive the LEAP 1000 transfers while women from households with scores higher than 7.158 are ineligible.

The sampling frame for selection of households is the targeting data provided by the Ministry of Gender, Children and Social Protection. We select 5 of the 10 districts to conduct the evaluation. In the Northern Region, Tolon, Kumbungu, Mion and East Gonja are excluded due to quality concerns about the targeting data. In the Upper East region, Bawku West is excluded due to its demographic similarities to Garu Tempane. Therefore the sampling frame consists of Yendi, Karaga and East Mamprusi in the Northern Region and Bongo and Garu Tempane in the Upper East Region. The frame consists of 8,058 women from 189 different communities who applied for consideration as beneficiaries in the five districts to be used for the evaluation. Using the cut-off score of 7.158, 3,619 (44.9%) of the women qualify as beneficiaries while 4,439 (55%) do not qualify. To achieve the desired sample size of 2,500 households as derived from power computations, the task was to select 1,250 households each from the treatment and comparison arms.

The selection criteria adopted was to select the first 1,250 households from either side of the cut-off. This is considered ideal for the RD design since the result of the impact evaluation can be expected to be only applicable to observations closest to the cut-off where treatment and comparison households 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.

It was also considered necessary to include a reserve sample consisting of about 10% 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 6 communities had 2 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 3 or more households had already been selected. Table A2.1 gives some summary statistics of the total score for the frame and sampled households.

As shown in Table A2.1, the minimum score for the sampling frame was 6.136 and a maximum of 8.667 with a mean of 7.192 and a standard deviation of 0.321. The treatment group has a mean score of 6.909 with a standard deviation of 0.191 while the comparison group has a mean of 7.432 and a standard deviation of 0.196. For the main sampled households, the scores stretch from 7.020 to 7.285 with a mean of 7.158 and a standard deviation of 0.075. This is the preferred sample that excludes households in communities in which less than three households were sampled and replaced those households with the nearest households in communities with three or more selected households. The treatment group score means stretches between 7.020 to 7.158 with a mean of 7.093 and a standard deviation of 0.040. For the comparison group, the scores stretch from 7.159 to 7.285 with a mean of 7.222 and a standard deviation of 0.037. Summary statistics are also shown for the reserve sample which stretches from a minimum of 7.009 to 7.020 for the treatment group and 7.285 to 7.296 for the comparison group.

The effect of excluding communities with less than 3 households was assessed by examining the summary statistics for the main sample including all communities (default sample) and the preferred sample which excludes communities with less than 3 households. The results show no pronounced differences in the summary statistics between the two samples. For example, the mean for the two samples are identical (7.158), and while the range for the preferred sample is (7.020, 7.285) that of the default sample is (7.023, 7.283). A test of the difference in means shows that the two are not statistically significant ($p=0.9997$) and therefore proceeding with the preferred sample is not expected to affect the design in any meaningful way.

Figure A2.1 gives a kernel density of the distribution of the total scores for the sampling frame with markers at key points, and Figure A2.2 gives a kernel density for the sampled households with markers for cut-offs for the preferred sample. Table A2.2a gives the distribution of the PMT scores in the sampling frame and the sampled households by districts. Mean PMT scores are comparable across the districts in both the sampling frame, and a test of equality of means fails to reject the null hypothesis that all five means are statistically equal ($p<0.01$). Similar results hold for the distribution of means for the sampled household.

The distribution of the sampling frame and sampled households by district counts is shown in Table A2.2b. While the sampling strategy does not take into account the distribution of the sampling frame by

district, we still find that the overall distribution in the frame is quite fairly replicated in the sample. East Mamprusi which accounts for 33.0 per cent of the frame accounts for 32.6 per cent of the sample, while Karaga accounts for 19.6 per cent of the frame and 19.3 percent of the sample. There are however crossovers between treatment and control groups across districts.

Table A2.1, Distribution of PMT scores in sampling frame and sampled households

	Minimum	Median	Maximum	Mean	Std. Dev	N
Sampling Frame						
Treatment	6.136	6.954	7.158	6.909	0.191	3619
Comparison	7.159	7.387	8.667	7.423	0.196	4439
Total	6.136	7.202	8.667	7.192	0.321	8058
Main Sample (Preferred – Excludes communities with less than 3 selected households)						
Treatment	7.020	7.095	7.158	7.093	0.040	1250
Comparison	7.159	7.223	7.285	7.222	0.037	1250
Total	7.020	7.159	7.285	7.158	0.075	2500
Reserve Sample						
Treatment	7.009	7.014	7.020	7.014	0.003	125
Comparison	7.285	7.288	7.296	7.289	0.003	125
Total	7.009	7.153	7.296	7.152	0.138	250
Combined Sample (Main and Reserve)						
Treatment	7.009	7.087	7.158	7.086	0.044	1375
Comparison	7.159	7.228	7.296	7.228	0.040	1375
Total	7.009	7.159	7.296	7.157	0.083	2750
Main Sample (Default sample – including communities with 1 or 2 households)						
Treatment	7.023	7.096	7.158	7.094	0.039	1250
Comparison	7.159	7.223	7.283	7.222	0.036	1250
Total	7.023	7.159	7.283	7.158	0.074	2500

Table A2.2a, Distribution of PMT scores in sampling frame and sampled households by district

	Minimum	Median	Maximum	Mean	Std. Dev	N
Sampling Frame						
Bongo	6.301	7.168	8.065	7.160	0.288	1203
East Mamprusi	6.236	7.188	8.460	7.181	0.328	2660
Garu Tempane	6.236	7.207	8.667	7.200	0.315	1332
Karaga	6.371	7.269	8.414	7.258	0.309	1578
Yendi	6.136	7.158	8.216	7.156	0.341	1285
Total	6.136	7.202	8.667	7.192	0.321	8058
Main sample						
Bongo	7.022	7.153	7.285	7.153	0.073	420
East Mamprusi	7.020	7.167	7.284	7.161	0.075	816
Garu Tempane	7.021	7.154	7.285	7.151	0.076	398
Karaga	7.024	7.168	7.285	7.164	0.075	483
Yendi	7.024	7.155	7.284	7.155	0.077	383
Total	7.020	7.159	7.285	7.158	0.075	2500

Table A2.2b, Distribution of households in sampling frame and sampled households by district

	Comparison		Treatment		Total	
	Freq.	Col Pct	Freq.	Col Pct	Freq.	Col Pct
Sampling Frame						
Bongo	613	13.8	590	16.3	1203	14.9
East Mamprusi	1432	32.3	1228	33.9	2660	33.0
Garu Tempane	743	16.7	589	16.3	1332	16.5
Karaga	1010	22.8	568	15.7	1578	19.6
Yendi	641	14.4	644	17.8	1285	15.9
Total	4439	100.0	3619	100.0	8058	100.0
Preferred Main sample						
Bongo	195	15.6	225	18.0	420	16.8
East Mamprusi	427	34.2	389	31.1	816	32.6
Garu Tempane	193	15.4	204	16.3	397	15.9
Karaga	254	20.3	229	18.3	483	19.3
Yendi	181	14.5	203	16.2	384	15.4
Total	1250	100.0	1250	100.0	2500	100.0

Fig 1: Kernel density of sampling frame showing key scores

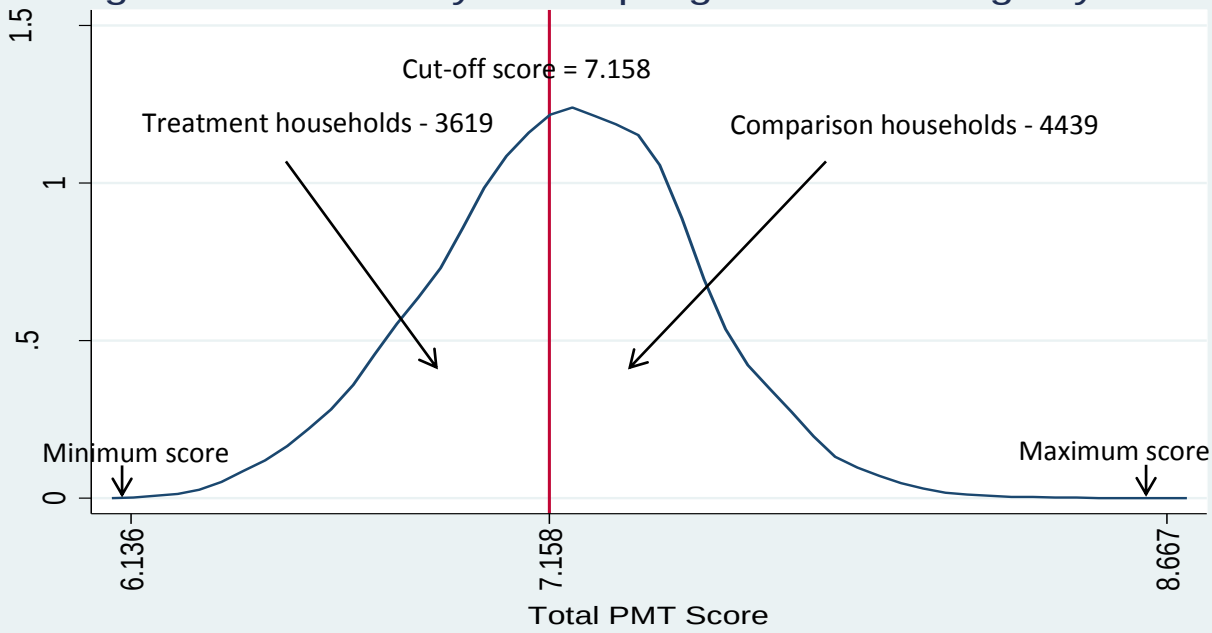
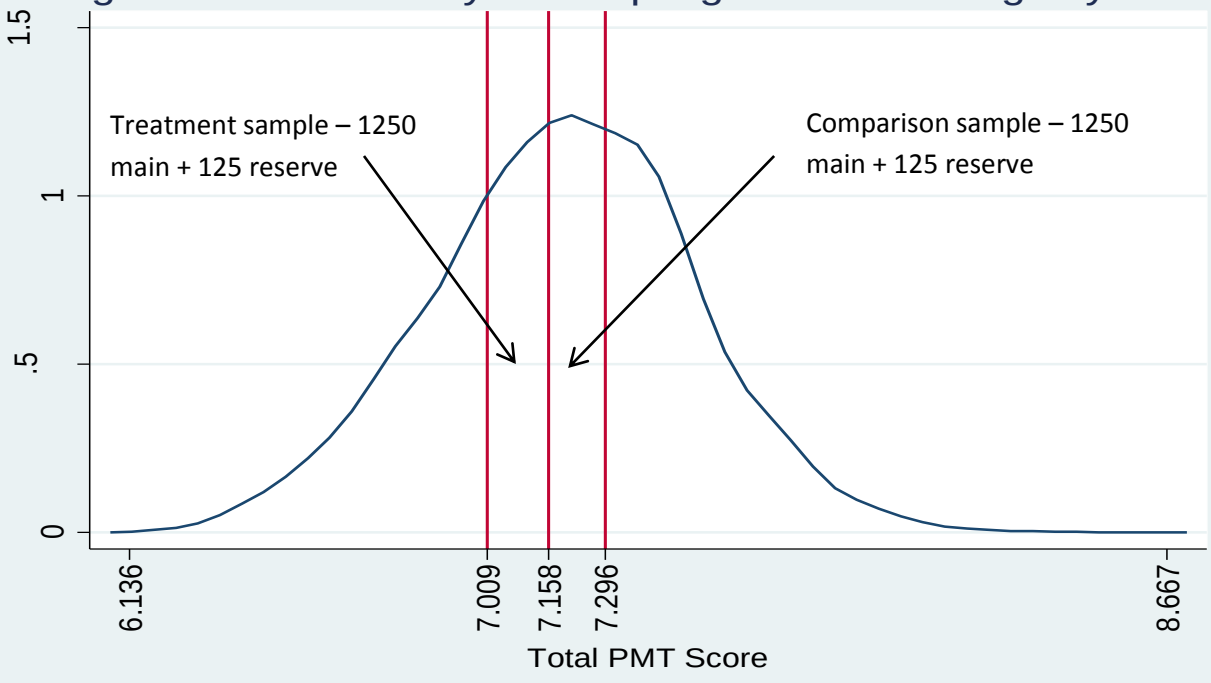


Fig 1a: Kernel density of sampling frame showing key scores



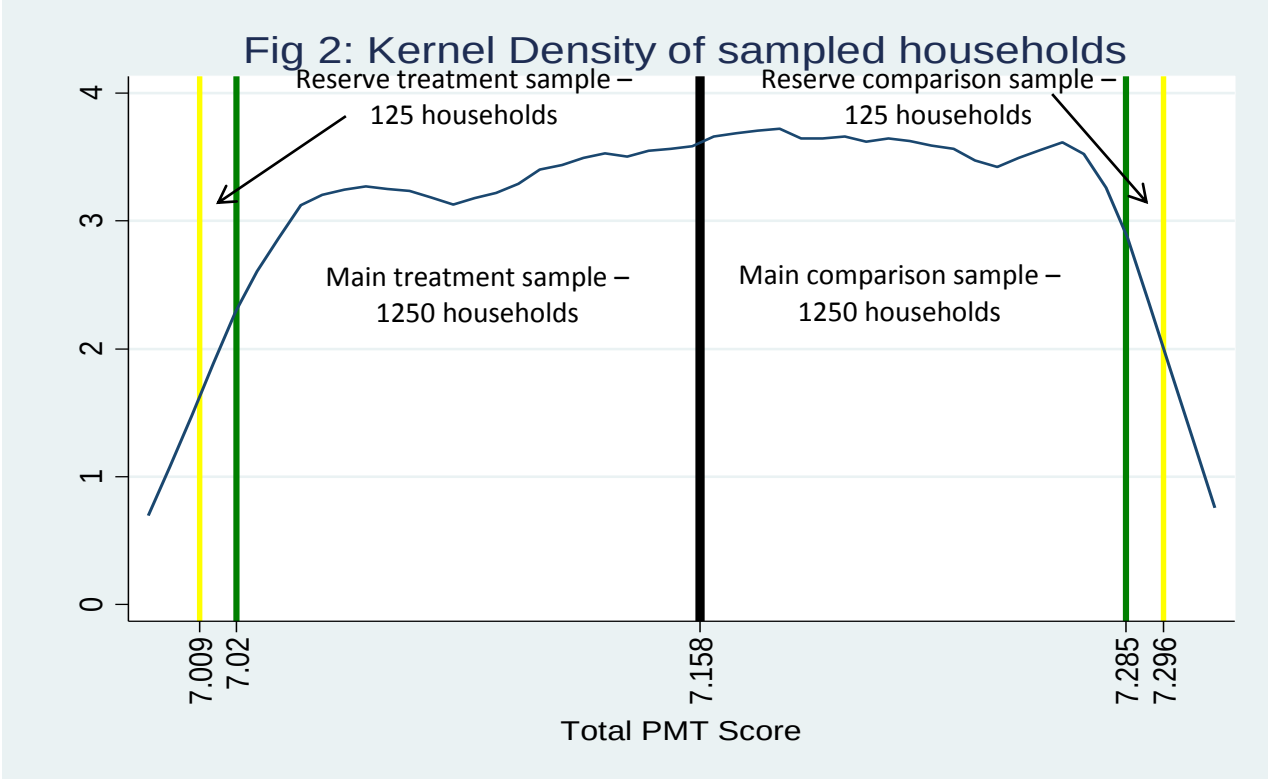


Fig 2: Kernel Density of sampled households
Reserve treatment sample –
125 households
Reserve comparison sample –
125 households
Main treatment sample –
1250 households
Main comparison sample –
1250 households
0
1
2
3
4
7.009
7.02
7.158
7.285
7.296
Total PMT Score

Annex 3: Construction of consumption aggregates LEAP 1000 baseline

The collection of accurate consumption data is crucial to determine the welfare of the households in the LEAP 1000 programme. The LEAP 1000 baseline survey included a consumption module, closely following the structure of the GLSS6. The most notable difference between the GLSS6 consumption module and ours, is that in the GLSS6 consumption of frequently purchased items (food and non-food) is collected during six consecutive visits to the same household with a five-day interval between visits. The LEAP 1000 baseline survey was designed to include only one visit per household. In addition, for sake of brevity, a number of rarely consumed items were excluded from the LEAP 1000 baseline survey and some items were collapsed into broader groups. These items were identified by looking at the responses of poor households in Northern and Upper East regions to all consumption items in the raw GLSS6 data. A comparison of the number of consumption items is provided in Table A3.1.

A second difference is the inclusion of user values of durable goods in the GLSS6 consumption aggregate. The LEAP 1000 survey did not collect information on durable goods, as poor households typically possess very few durable goods. User values constituted about two per cent of total consumption of poor households in the GLSS and we therefore exclude the user value of goods from the GLSS6 consumption aggregate to make a fair comparison between LEAP 1000 and GLSS6.

Due to these changes, the poverty rates we present using the GLSS data are not necessarily the same as reported by the Government of Ghana.

The total consumption aggregates is based on two major components: food and non-food. Food consumption (and other frequent household goods) was measured using a recall period of seven days. Purchases, own production and gifts were counted as consumption. The value of the purchases, as well as the market value of produced food was directly elicited from respondents. Values of goods received (and for a minimal number of missing values) were imputed as follows:

1. If the household bought or produced the item as well, take the mean household expenditure on units bought and produced
2. If the household has not bought or produced the item, take the mean expenditure by district/item/unit
3. If the household has not bought or produced the item, and no other household in the district as well, take the mean expenditure by item/unit for full sample

Food consumption was aggregated in 11 food consumption groups and converted to monthly values.

Non-food expenditures was measured using various recall periods, based on the frequency of typical purchases of such items. The recall period for more frequent households items was similar to food consumption (seven days), whereas the period for less frequent purchases was either six or 12 months. The value of purchased goods and the market value of goods produced or received as gifts was directly reported by the respondent. Non-food expenditure was aggregated in 10 broad consumption groups and also converted to monthly values.

Table A3.1, Comparison of consumption groups between LEAP 1000 survey and GLSS6

Consumption Category	LEAP 1000	GLSS6
FOOD		
Food consumption	69 items	89 items
Non-alcoholic beverages	3 items	9 items
Food outside the home	2 items	9 items
NON-FOOD		
Alcohol & Tobacco	4 items	14 items
Clothes & repair	21 items	37 items
Footwear	2 items	10 items
Housing	10 items in Sec 15C	4 items in Sec 7 19 items in Sec 9a 5 items in Sec 9b
User value of durable goods	n/a	7 groups of durables
Furnishing and housing services	5 items in Sec 15C 3 items in Sec 15A	50 items in Sec 9a 9 items in Sec 9b
Health (medicines and medical supplies)	1 item in Sec 15A	18 items in Sec 9a 6 items in Sec 9b
Transport (Purchase and maintenance)	3 items in Sec 15A 1 item in Sec 15C	17 items in Sec 9a 9 items in Sec 9b
Communication	2 items in Sec 15A	7 items in Sec 9a 5 items in Sec 9b
Recreation & Culture	2 items in Sec 15A 5 items in Sec 15B	56 items in Sec 9a 8 items in Sec 9b
Education	10 items in Sec 2	9 items in Sec 2a 12 items in Sec 9a
Restaurants & Hotels	n/a	2 items in Sec 9a 9 items in Sec 9b
Miscellaneous Goods & Services	2 items in Sec 15A 2 items in Sec 15B	21 items in Sec 9a 6 items in Sec 9b

Note: Items in red were excluded from the GLSS consumption aggregates. Note that health expenditures from Section 3 (health of members 5 years and older) and Section 7 are not included in the consumption aggregates.

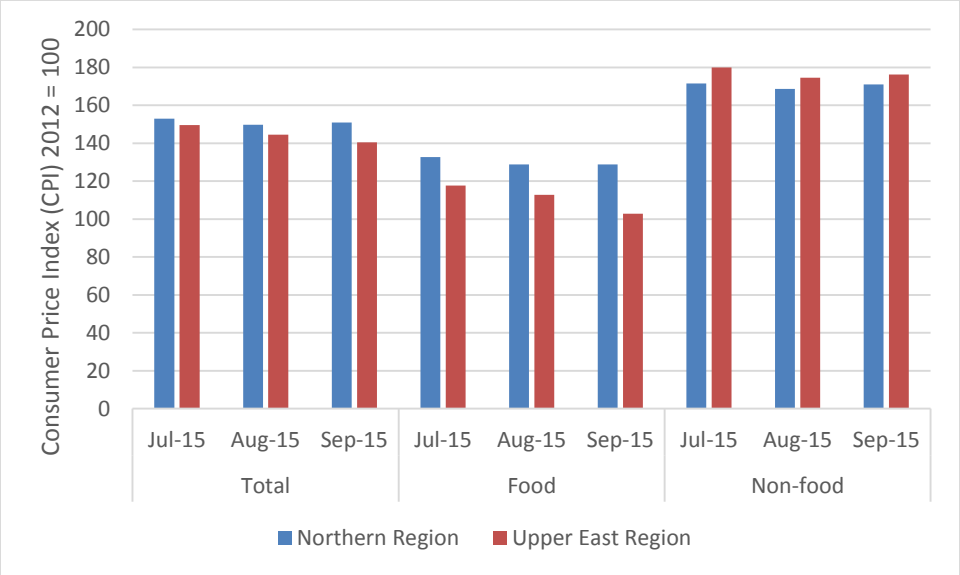
Outliers

Outlier correction followed the procedure used for the construction of the GLSS6 consumption aggregates. That is, if the per capita value is higher than five standard deviations from the per capita district mean of that item, it was replaced by the district mean. Only a few values were replaced by this procedure. We also exclude the top and bottom 1% of the consumption distribution to account for extreme outliers at both ends of the spectrum.

Inflation correction

The data collection for the LEAP 1000 baseline survey spanned two different regions and three months (July, August and September). If prices were relatively constant over these three months and across the two regions, it is not necessary to account for price differences. However, inspection of the official consumer price index (CPI) for the Northern and Upper East regions for July, August and September 2015 revealed substantial variation in price levels (Figure A3.1). We therefore construct a price index to deflate household expenditure to September 2015 Greater Accra prices. We take Greater Accra as our reference region because the Ghanaian national poverty lines are also reflected in Greater Accra prices. The deflation of food and non-food items is done separately due to the difference in inflation rates between the two groups.

Figure A3.1, Consumer Price Index (CPI, 2012=100) in Northern and Upper East region, July - September 2015



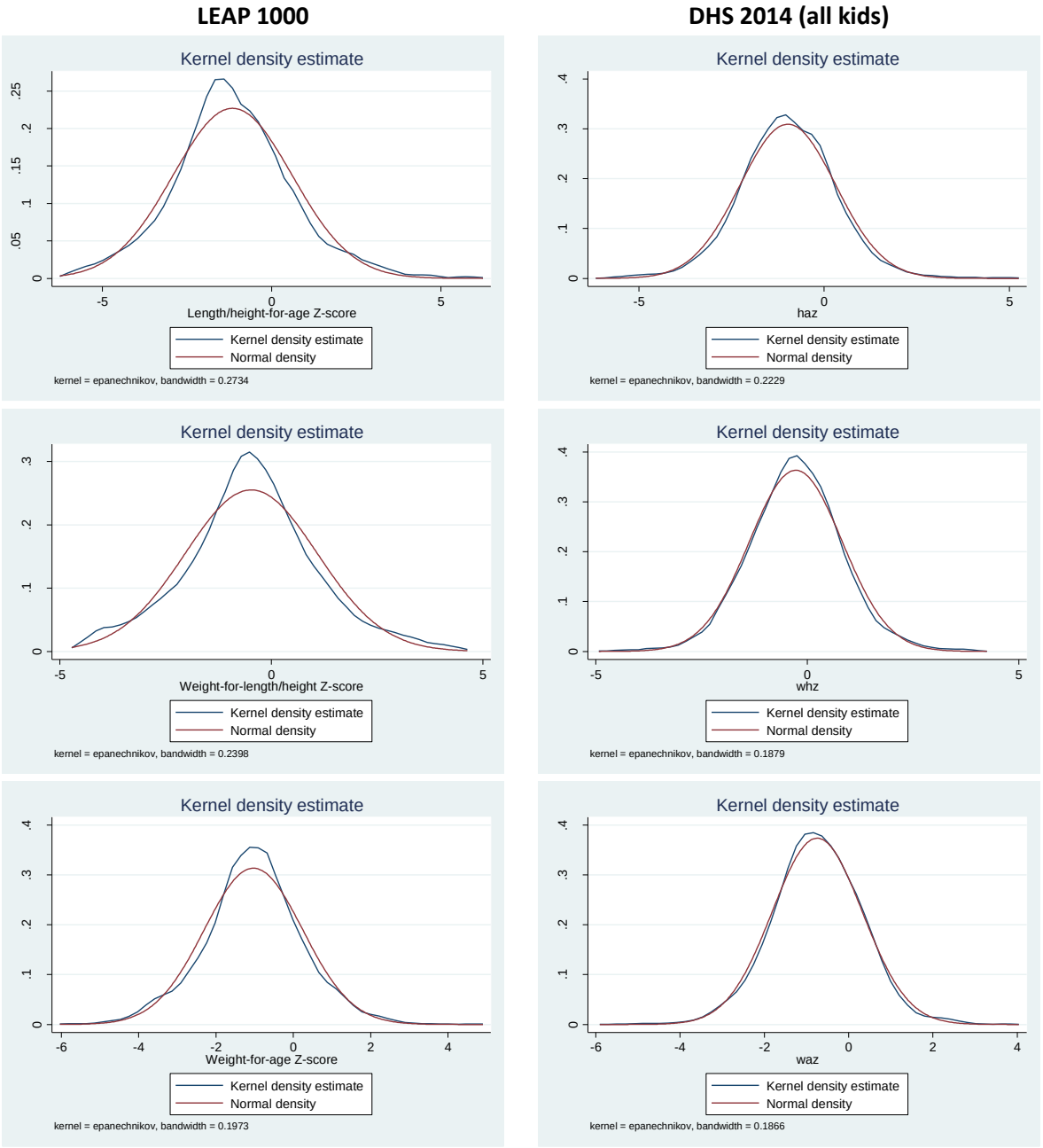
The deflator rates are presented below; we divide the nominal expenditure by these deflators to obtain consumption values in September 2015 Greater Accra prices.

	Food			Non-food		
	Jul-15	Aug-15	Sep-15	Jul-15	Aug-15	Sep-15
Northern Region	1.04736	1.01657	1.01657	0.99767	0.98080	0.99418
Upper East Region	0.92818	0.89029	0.81137	1.04712	1.01571	1.02501

Annex 4: Quality of the anthropometric measurements

The accurate measurement of height/length and weight in children under five is very challenging. This section assesses the quality of the anthropometric measurements in the LEAP 1000 baseline study because these are an important impact indicator for the evaluation. We present the distribution of each nutritional indicator and we make comparisons to the national data of the Ghana DHS 2014 to assess the quality of our anthropometric data.

Figure A4.2, Density plots with standard normal density for HAZ, WHZ and WAZ in LEAP 1000 and DHS 2014



The raw heights and weights were converted into z-scores using the WHO 2006 growth standards as reference. Under ideal conditions, the distribution of the z-scores in any given population should be close to the shape of a normal density curve. The chart can be shifted to the left or right, if the studied population is more or less healthy than the reference population, but it should follow the standard normal curve with a standard deviations of approximately one. Figure A4.2 presents the density graphs, including a plot of the standard normal curve, for each of the nutritional indicators (HAZ, WHZ and WAZ) for the LEAP 1000 sample and the Ghana DHS 2014 as comparison. The Figure shows that for each indicator in the LEAP 1000 sample, the distribution follows a standard normal distribution, but has a higher peak at the centre of the distribution. The GDHS curves in comparison, resemble almost perfectly a standard normal curve.

This graphical findings are also reflected in the means and standard deviations (SD) of the indexes, shown in Table A4.1. The SDs for the LEAP 1000 sample are all higher than one, and the SD for HAZ is highest at 1.76. The SDs of the GDHS are lower and closer to one, but also the SD for HAZ is the highest among the three different indexes. Furthermore, the percentage of flagged cases is reported in Table A4.1, which indicates what share of children had z-scores that were outside the biologically plausible range. At 1.5%, the share of flagged cases is highest for the HAZ index, and virtually 0% for WAZ and WHZ. Flagged cases in the GDHS are also very low, at 0.7% for each indicator.

Table A4.1, Descriptive statistics of z-scores in LEAP 1000 and DHS 2014

	Children 0 – 59 months				Children 0 – 23 months				Children 24 – 59 months			
	Obs	Mean	SD	Flags	Obs	Mean	SD	Flags	Obs	Mean	SD	Flags
LEAP 1000												
Length/height-for-age	3,130	-1.15	1.76	1.5%	1,698	-0.70	1.92	1.6%	1,432	-1.68	1.37	1.4%
Weight-for-length/height	3,148	-0.47	1.56	0.0%	1,704	-0.51	1.65	0.0%	1,444	-0.43	1.45	0.0%
Weight-for-age	3,143	-1.03	1.27	0.2%	1,701	-0.80	1.35	0.2%	1,442	-1.30	1.12	0.1%
GDHS 2014												
Length/height-for-age	2,720	-0.98	1.29	0.7%	1,180	-0.61	1.37	1.3%	1,540	-1.26	1.15	0.2%
Weight-for-length/height	2,720	-0.27	1.10	0.7%	1,180	-0.43	1.22	1.3%	1,540	-0.15	0.97	0.2%
Weight-for-age	2,720	-0.75	1.07	0.7%	1,180	-0.65	1.17	1.3%	1,540	-0.82	0.98	0.2%

Note: for LEAP 1000 sample, children starting from 3 months old were measured

The Table further provides the same statistics disaggregated by age group. It is often more difficult to attain accurate measurements of younger children (under 24 months) than older children. This is supported by the statistics in Table A4.1. The SDs and percentage of flags are higher for children in the younger age group for all indicators in both the LEAP 1000 sample and the GDHS sample.

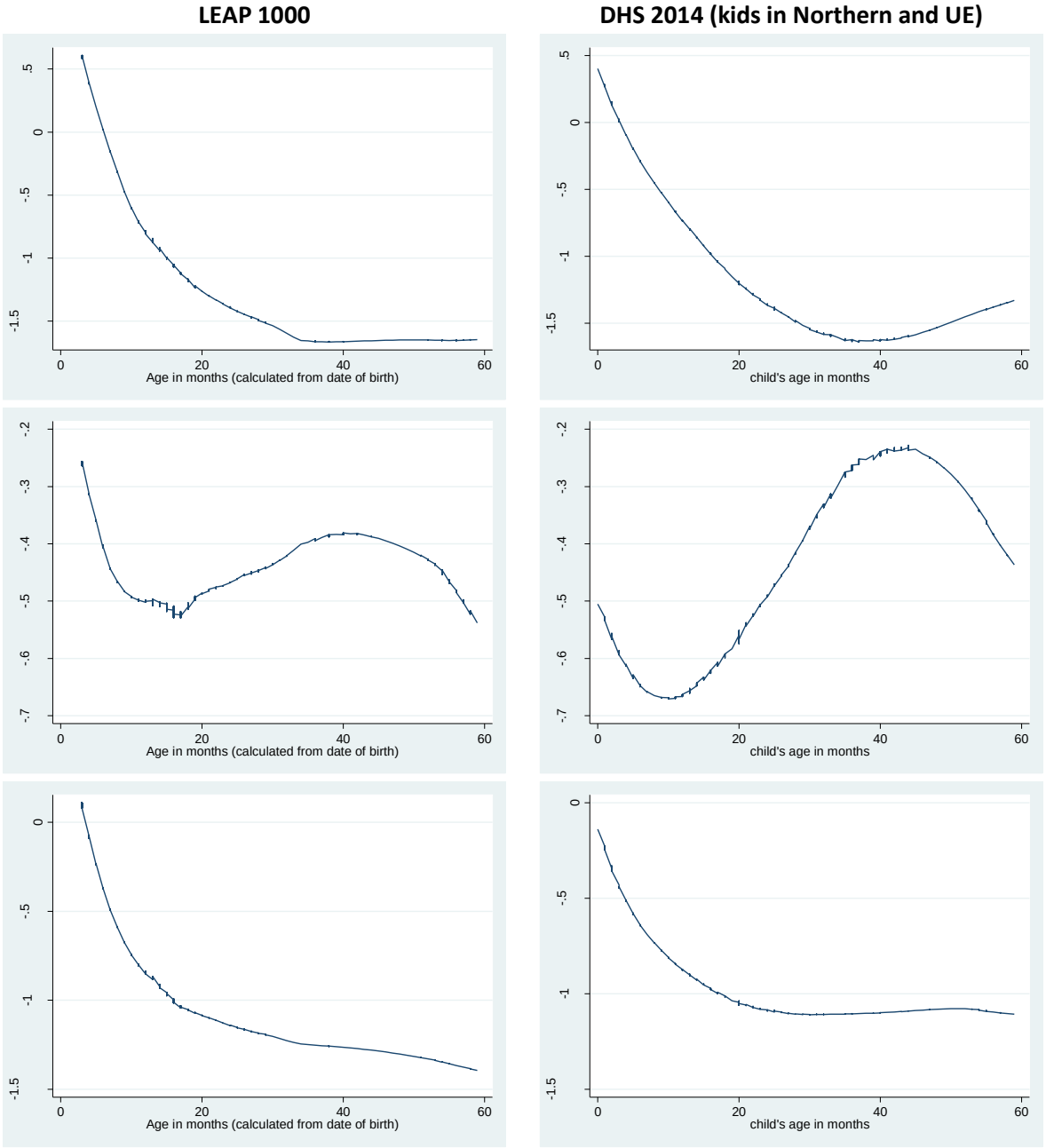
As a next check, we compare the SDs obtained from the LEAP 1000 baseline study to other, similar evaluations in Zambia and Malawi (Table A4.2). The SDs are slightly higher for HAZ and especially for WHZ, but well in line for the WAZ.

Table A4.2, Standard deviations for anthropometric indices in selected Transfer Project countries

	Ghana LEAP 1000	Zambia CGP	Malawi SCTP
Length/height-for-age (HAZ)	1.76	1.63	1.6
Weight-for-length/height (WHZ)	1.56	1.24	1.1
Weight-for-age (WAZ)	1.27	1.27	1.2

CGP: Child Grant Programme
SCTP: Social Cash Transfer Programme

Figure A4.3, Relation between HAZ, WHZ and WAZ and age in months



Finally, we graphically depict the mean z-scores by age of the child in Figure A4.3 and compare the trend to GDHS estimates (only children in Northern and Upper East region this time). For HAZ, the line shows a strongly declining trend with age and then flattens around an age of 35 months. The GDHS line shows the same decreasing trend for younger children, but after age 35, the line slowly goes up again. This is an indication that children older than 35 months in the LEAP 1000 sample are nutritionally worse off than the GDHS comparison children. The WHZ line first decreases, then from age 15 – 40 months increases and decreases again afterwards. The GDHS line shows the same pattern, although with higher upper and lower bounds. Finally, the line for WAZ quickly goes down for young children, and then around the age of 15 months the line flattens but keeps decreasing slowly. For the GDHS sample, the line follows a similar trend, but completely flattens after the age 15 months, again indicating that older children in the LEAP 1000 sample are nutritionally worse off.

Based on this assessment, we conclude that although there may be some errors in the height and weight measurements as indicated by the relatively high SDs, the percentage of flags is very low, and the patterns by age are consistent with the more precise measurements of the GDHS. In addition, it is important to note that children in the LEAP 1000 sample will be followed longitudinally, using the same (as far as possible) field teams to conduct the measurements at endline and children will be compared to their own baseline measurements. Any potential systematic measurement error, if present, would then be cancelled out in the statistical analysis.

Annex 5: Health facility characteristics

The LEAP 1000 baseline study included a health facility survey which was administered to every primary health facility in the area of the study. The respondent to this survey was a knowledgeable administrator of the health facility. This section summarizes the findings from these surveys. A total of 142 health facilities were present in the study region, most of which were village health posts (40.2 per cent) or community-based health planning and services compounds (CHPS) (26.3 per cent). The majority of the health facilities were located in Garu Tempane (36.6 per cent) and Bongo (35.2 per cent).[1] We present summary statistics for health facilities by region in the remainder of this section below.

The basic characteristics of the health facilities are presented in Table A5.1. Most of the facilities were built relatively recently and the facilities in Upper East were somewhat more recent than those in Northern region. Half of the facilities surveyed in Northern region were built after 2008 while half of the facilities in Upper East were only constructed since 2010. Almost all facilities are open for the entire week, with a few exceptions. The estimated catchment area of the facilities in the Northern region is larger than those in Upper East: on average about 12 thousand compared to three thousand per health facility. In addition, a trained health provider is nearly always present in most of the facilities.

Table A5.1, Health facility basic characteristics, by region

Characteristic		Northern	Upper East
Year built	Mean	2004.8	2006.4
	Median	2008	2010
Days open	Mean	6.3	6.2
	Median	7	7
Catchment area	Mean	12,259	3,207
	Median	6,385	1,639
Trained provider present	%	87.5	77.5
Electricity	%	85.0	56.9
Generator	%	10.0	11.8
Landline phone	%	10.0	5.9
Mobile phone	%	77.5	54.9
Improved water source	%	87.5	96.1
Housing provided	%	92.5	55.9
N		40	102

The large majority of facilities in Northern region but only just over half the facilities in Upper East have access to the electricity grid, and few in both regions have a back-up generator. Also only a few have a landline phone connection, but especially in the Northern region, this is slightly offset by the availability of a mobile phone in the health facility. Furthermore, most facilities have access to an improved source

[1] Technically, 5 of the surveyed facilities were not within the exact borders of the five districts in which the evaluation took place. However, since they are close enough to some of the villages sampled, we include their information here because people may still use them if these facilities are closer than the next closest within the boundaries of the district.

of water (typically a borehole) and while nearly all facilities in the Northern region provide housing for employees, just over half of the facilities in the Upper East region do so.

The available medical equipment in the surveyed health facilities is summarized in Table A5.2. In terms of medical facilities, just 25 per cent of health facilities in the Northern region, and only 7 per cent of facilities in the Upper East region have an operating room. There are more facilities that have a laboratory to perform medical tests, but the majority of health facilities has none. A refrigerator is present in 52.5 per cent of the health facilities in the Northern region and 46.1 per cent of facilities in Upper East. Most facilities in Northern region have access to a vehicle (typically a motorcycle but sometimes a car or bicycle), but less than half of the facilities in Upper East do.

Table A5.2, Health facility equipment (%), by region

	Northern	Upper East
Medical facilities		
Operating room	25.0	6.9
Laboratory	45.0	52.0
Refrigerator	52.5	46.1
Vehicles	82.5	49.0
Instruments and equipment		
Blood pressure machine	92.5	91.2
Stethoscope(s)	80.0	66.7
Microscope	17.5	25.5
Slides	17.5	23.5
Weighing scale for adults	92.5	93.1
Weighing equipment for under-five-year-olds	95.0	95.1
Height measurement equipment for under-five-year-olds	70.0	68.6
Clinical thermometer	67.5	85.3
Latex gloves in stock	32.5	42.2
N	40	102

The health facility survey also asked administrators for the availability of common medical equipment and instruments. The results show that facilities in Upper East are slightly better equipped than those in Northern region, except for stethoscopes. Most of the health facilities have a blood pressure machine, stethoscopes and weighing equipment. Fewer, yet still the majority of health facilities, have height measurement equipment, which is crucial for monitoring the growth of infants and children and diagnosing stunted growth.

The next table presents details on the types of services offered by the health facilities in the LEAP 1000 areas. Nearly all health facilities offer outpatient consultations and family planning services. Also the large majority of health facilities offer antenatal care, well baby clinics and treatment for acute malnutrition of children. Mobile clinics are provided by about two thirds of the health facilities in both regions. Deliveries are not offered at each health facility and facilities in the Northern region provide

assistance for deliveries more often than those in the Upper East region. This is also shown by the estimated number of patients seen for deliveries, which is much higher among facilities in the Northern region. All in all, it seems that the services provided by the health facilities are in line with the needs of the LEAP 1000 population.

Table A5.3, Services provided by health facilities, by region

	Northern (N=40)				Upper East (N=102)			
Service	% of HF providing service	hours p/week	Number providing service	Patients p/month if provided	% of HF providing service	hours p/week	Number providing service	Patients p/month if provided
Outpatient consultations	90.0	105.4	36	417.8	88.2	129.2	90	306.9
Deliveries	70.0	108.4	28	172.9	42.2	68.8	43	15.0
Well baby clinics	87.5	33.0	35	103.7	95.1	58.2	97	97.2
Ante-natal clinics	90.0	51.2	36	81.7	76.5	79.4	78	41.0
Family Planning	90.0	115.6	36	45.3	93.1	126.5	95	35.1
Mobile clinics[1]	60.0	12.0	24	208.0	66.7	12.1	68	157.6
Treatment for acute malnutrition for children	87.5	41.4	35	8.9	86.3	66.5	88	7.3
Home visits[2]	32.5	32.9	13	34.1	27.5	30.9	28	27.9

[1] The figure for patients per month refers to the number of times the facility embarked on outreach programs in the month before the interview

[2] The figure for patients per month refers to the number of houses visited in the month before the interview

For each health facility, the availability of a list of drugs and supplies was solicited. A distinction is made between normally carrying the item and having it in stock at the time of the survey. In addition, the administrator was asked to estimate the average time needed to replenish the stock in case it ran out. In terms of modern contraceptives, condoms were most often carried and in stock in most health facilities, followed by contraceptive pills and injectable contraceptives. Common drugs, such as paracetamol was also readily available in most of the health facilities in both regions. Availability of ORS, a cheap and effective drugs to treat diarrhoeal diseases was also high. Coartem and fansidar, common malaria treatment drugs, were not always available as over half of the health facilities did not have them in stock at the time of the survey. Current availability of these drugs was lower in the Northern region compared to Upper East.

Pregnant women are recommended to take iron tablets and folic acid tablets to improve their micronutrient status during pregnancy and prevent anaemia. Almost all health facilities carried these drugs normally, and the majority had them in stock. In terms of treatments for infections, Cotrimaxole was more commonly available than penicillin, in over half of the health facilities in both regions. Very few health facilities in Northern region carried antiretroviral drugs and only 14 per cent of facilities in Upper East did so. Regarding vaccinations, the basic set of vaccinations was normally carried in the large majority of facilities. However, facilities in Northern region had vaccinations more often in stock than

facilities in Upper East. In addition, the majority of facilities had insecticide-treated bednets in stock at the time of the survey.

Table A5.4, Availability of medicines and medical supplies, by region

Medicine/medical supply	Northern (N=40)				Upper East (N=102)			
	(1) Carry	(2) Stock	(3)	(4)	(1) Carry	(2) Stock	(3)	(4)
Condoms	92.5	87.5	35	16.1	93.1	83.3	85	20.2
Spermicides	2.5	0.0	.	.	2.0	2.0	2	15.5
Contraceptive pills	90.0	80.0	32	13.4	90.2	83.3	85	21.4
Intra-uterine device	20.0	17.5	7	15.6	13.7	12.7	13	6.6
Injectable contraceptive (Depro-provera etc.)	95.0	85.0	34	14.3	88.2	86.3	88	20.9
Contraceptive implants	80.0	65.0	26	17.0	81.4	76.5	78	25.6
Paracetamol/Panadol	97.5	95.0	38	17.8	97.1	80.4	82	12.5
Asprin	22.5	20.0	8	15.8	21.6	19.6	20	6.2
Oral Rehydration Salt	97.5	92.5	37	16.1	97.1	89.2	91	15.2
Coartem	12.5	12.5	5	33.4	33.3	33.3	34	10.9
Fansidar	42.5	25.0	10	37.5	28.4	27.5	28	2.3
Iron tablets for pregnant women	97.5	90.0	36	20.2	84.3	72.5	74	14.1
Folic acid tablets	97.5	87.5	35	21.3	87.3	81.4	83	16.9
Penicillin injection/tablets	40.0	37.5	15	21.1	42.2	37.3	38	6.9
Cotrimoxazole	75.0	62.5	25	23.6	53.9	51.0	52	15.5
ARVs for adults	7.5	5.0	2	60.0	13.7	11.8	12	4.2
BCG injection	92.5	72.5	29	15.0	91.2	48.0	49	16.1
DPT injection	95.0	82.5	33	15.5	94.1	52.9	54	12.9
Tetanus injection	95.0	87.5	35	18.0	95.1	55.9	57	12.5
Measles injection	95.0	90.0	36	19.6	93.1	52.9	54	15.0
Polio injection	92.5	82.5	33	20.2	93.1	53.9	55	13.0
Meningitis injection	77.5	62.5	25	13.8	55.9	28.4	29	7.2
IT mosquito bed nets	95.0	95.0	38	22.2	92.2	76.5	78	22.3
Micronutrient powder (MNP)	50.0	32.5	13	7.3	16.7	14.7	15	3.4
Ready- to -use Therapeutic Food (RUTF)	77.5	67.5	27	19.7	85.3	70.6	72	26.8
Deworming medicines (mebendazole/albendazole	100.0	97.5	39	23.4	99.0	99.0	101	19.8
Vitamin A droplets	95.0	95.0	38	19.5	99.0	98.0	100	16.3

Notes: (3) = N of responses for replenishment, (4) = Mean number of days for replenishing stock

In terms of child nutrition and health, more facilities in Northern region than in Upper East region normally carried micronutrient powder, but only in one in three facilities in Northern region and about one in six facilities in Upper East were they readily available. Ready-to-use therapeutic food to treat acute malnutrition was in stock in about two in three facilities in both regions. Finally, deworming

medication and vitamin A droplets were available in nearly all facilities. An interesting difference occurs in the number of days normally required to replenish the stock of drugs and supplies. In facilities in the Northern region, it appears to take much longer, usually several weeks, to replenish stock, while the mean number of days to replenish stock for facilities in Upper East is typically faster, especially for the malaria drugs.

Table A5.5, Type of personnel, by region

	Northern (N=40)			Upper East (N=102)		
	% of HF employing a part-time …	% of HF employing a fulltime …	Any …	% of HF employing a part-time …	% of HF employing a fulltime …	Any …
Medical doctors	2.5	2.5	2.5	1.0	0.0	1.0
Medical assistants	0.0	30.0	30.0	2.0	19.6	20.6
Public health nurses	0.0	2.5	2.5	0.0	4.9	4.9
Professional midwives	0.0	27.5	27.5	1.0	33.3	33.3
Professional nurses	2.5	47.5	47.5	3.9	52.9	53.9
Midwives assistants	0.0	7.5	7.5	0.0	4.9	4.9
Auxiliary nurses[1]	0.0	90.0	90.0	2.0	55.9	57.8
Physiotherapist	0.0	0.0	0.0	0.0	0.0	0.0
Pharmacists	0.0	5.0	5.0	0.0	0.0	0.0
Pharmaceutical attendants/ assistants	2.5	7.5	10.0	1.0	9.8	10.8
Dispensing technicians	0.0	7.5	7.5	0.0	2.0	2.0
Lab technicians/ technologist	0.0	10.0	10.0	0.0	6.9	6.9
Nutrition technician officers	0.0	5.0	5.0	0.0	1.0	1.0
Ward assistants	5.0	20.0	22.5	0.0	5.9	5.9
Environment health officers	0.0	2.5	2.5	0.0	2.0	2.0
Classified daily employees (CDE)[2]	10.0	12.5	17.5	31.4	19.6	49.0
ICT, casual labourers	27.5	37.5	57.5	8.8	41.2	49.0

[1] Includes Enrolled Nurses (those with certificates from the Health Assistants' Training Schools across the country); and Community Health Nurses (those who graduate from the Community Health Schools in the country).

[2] Includes the number of Voluntary Health Extension Workers, Security Personnel, and Cleaners

Finally, Table A5.5 presents summary statistics on the type of personnel employed by the health facilities in the LEAP 1000 area. First of all, relatively few staff is employed on a part-time basis. The

most common types of personnel are professional and auxiliary nurses, followed by non-medical supporting staff. Professional midwives and medical assistants also appear to be relatively common in the health centres surveyed. Very few health facilities employ medical doctors, as only 2.5 per cent of facilities in Northern region reported a fulltime or part-time medical doctor and one per cent of the facilities in Upper East. Physiotherapists are not employed by any of the health facilities, and pharmacists or pharmaceutical attendants are present in a small fraction of the facilities. There are also very few facilities that employ dispensing technicians, lab technicians or nutritional technical officers, which is in line with the low presence of laboratories in the health facilities as discussed above.