Child Anthropometrics and Malnutrition in Uganda

In 2009/2010, Uganda's Bureau of Statistics, in collaboration with the World Bank, conducted the first wave of the Uganda National Panel Survey (UNPS), which collects detailed data on household welfare and income-generating activity. The UNPS' final sample includes 2,975[1] households that are representative at the national level; waves 2 and 3 are currently available online and wave 4 will run from 2013 to 2014. This note summarizes the anthropometric data and resulting malnutrition indicators from UNPS-wave 1.[2]

Background: Child Anthropometry

The three anthropometric indicators most often referenced for monitoring malnutrition in children are: stunting, or low height-for-age; underweight, low weight-for-age; and wasting, low weight-for-height. More specifically, these figures represent children whose height-for-age, weight-for-age, and weight-for-height fall more than two standard deviations below the median of internationally accepted growth standards. Thus, a child is labeled stunted if he or she has a height-for-age z-score that is less than -2.

Table 1 shows the stunting, underweight, and wasting prevalence estimates for Uganda. The data reveal that 34 percent, 15 percent, and 5 percent of children 6-59 months old, are stunted, underweight, and wasted, respectively.

Table 1: Malnutrition estimates

|	Prevalence (%) (Std. Error)
Stunted	34 (2)
Underweight	15 (1)
Wasted	5 (1)

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[1] Intended sample size was 3,123 households
[2] The final sample for this analysis included 2,086 children aged 6-59 months.

Geographic Differences in Malnutrition

Looking at the data further, we can identify geographic areas with particularly high rates of malnutrition. The data show that rural areas face a higher burden of malnutrition than do urban areas. Thirty-seven percent of under-5 children in rural Uganda are stunted, compared to 15 percent of children in urban areas. Similarly, the underweight prevalence of 17 percent in rural areas is more than double that of urban areas, which stands at 8 percent (see Figure 1).

Figure 1: Malnutrition estimates, by rural and urban
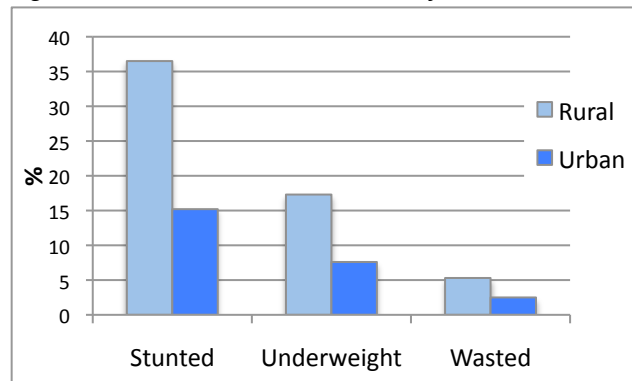
The UNPS was stratified regionally and by rural and urban areas, and has six domains of analysis. These domains include Kampala, all other urban areas, Central Rural, Eastern Rural, Northern Rural, and Western Rural. Table 2 shows the stunting and underweight prevalence estimates for these six domains of analysis. There is substantial variation in malnutrition between the six domains. The stunting prevalence in Western Rural is more than three times the prevalence in other urban areas and approximately 50 percent more than in Central and Northern Rural areas. However, we find that underweight prevalence rates in the four rural domains of analysis are more or less comparable, though significantly greater than underweight prevalence in Kampala and other urban areas.

Table 2: Stunting and Underweight, by domain of analysis

Domain	Stunted (%) (SE)	Underweight (%) (SE)
Kampala	18 (7)	9 (4)
Other urban	13 (3)	6 (2)
Central Rural	32 (4)	15 (2)
Eastern Rural	37 (4)	16 (2)
Northern Rural	31 (3)	18 (3)
Western Rural	45 (4)	19 (3)

Identifying Vulnerable Sub-Populations

In developing countries, boys typically exhibit higher rates of malnutrition than girls. Uganda proves to be no exception; 39 percent of under-5 boys are stunted, compared to only 30 percent of under-5 girls (see Figure 3).

Figure 3: Malnutrition estimates, by gender
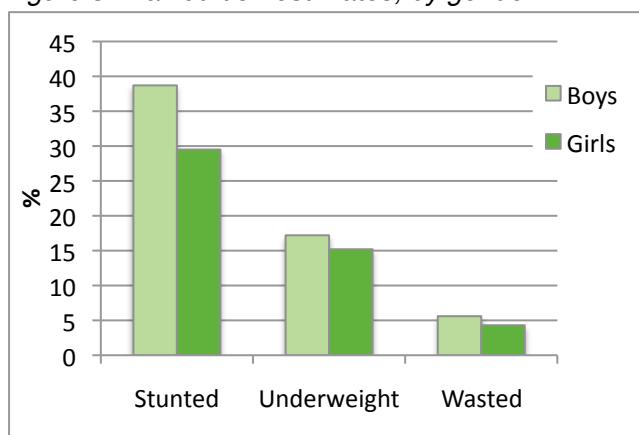
The data show that a household head's level of education also plays a role in child malnutrition. On average, children living with literate household heads exhibit lower rates of stunting and underweight[3]. Similarly, children living with educated household heads are less likely to be underweight than those whose heads' have never attended school (14 vs. 25 percent). Somewhat surprisingly however, living with an educated household head is correlated with higher rates of wasting in under-5 children, though the magnitude of the difference is not large (see table 3).

Table 3: Malnutrition and household head's education

	HH head has been to school (SE)		HH head has *never* been to school (SE)	
Stunted	33	(2)	40	(4)
Underweight	14***	(1)	25***	(4)
Wasted	5**	(1)	3**	(1)

Note: ** Difference is significance at $p<0.05$; *** Difference is significance at $p<0.01$

Household ownership of certain assets, particularly those that increase connectivity and access to technology, are correlated with better nutrition outcomes. Children living in households without a television are more than three times as likely to be stunted and more than twice as likely to be underweight than those without (see Table 4). Similar positive effects are observed for radio and cell phone ownership at the household level.

Table 4: Malnutrition and asset ownership

Asset	Stunted	Underweight	Wasted
TV (%)			
Owns a tv	11***	7***	4
No tv	36***	17***	5
Radio (%)			
Owns a radio	33	14**	4
No radio	36	21**	6
Cell phone (%)			
Owns a cell phone	28***	13***	5
No cell phone	40***	19***	5

Note: ** Difference is significance at $p<0.05$; *** Difference is significance at $p<0.01$

Analysis of the UNPS wave 1 anthropometric data suggests that Uganda faces a high burden of malnutrition, a conclusion that matches that of the current literature. Identifying particularly vulnerable groups, such as children in rural areas, boys, and those living in households without a television or phone, can help policy makers target nutrition programs more effectively.

This brief was prepared by Ilana Seff, World Bank, based on data collected by Uganda's Bureau of Statistics (UBOS) as part of the Living Standards Measurement Study – Integrated Surveys on Agriculture (LSMS-ISA) project. The full dataset is available for download at UBOS via http://www.ubos.org.

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[3] Difference is only significant for underweight prevalence