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# An Empirical Analysis of Household Well-being in Northern Ghana

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# An Empirical Analysis of Household's Well-being in Northern Ghana

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## Background

- The multidimensional Human Development Index (HDI) attempts to measure development by putting together indicators of life expectancy, educational attainment and income into a composite index.
- The capabilities approach is centered on the notion that assessments of the well-being of a person should not primarily focus on resources, but on how well a person is able to function with the goods and services at his/her disposal (Sen, 1985, 1999).

## Research Objective

- Previous studies using the capabilities approach focus on individual household members such as children and women or the macro level. This current study attempts to model household well-being collectively at the household level.
- The objective of this research is to examine the impact of household level covariates on the collective welfare of household members in a developing country context. Specifically, the research attempts to examine household well-being based on indicators such as children's and women's nutritional status, and underlying household factors such as household hunger scale scores, dwelling characteristics and household income.

## Data

- Data from northern Ghana's 2012 population baseline survey were used. The data contained detailed information about women's and Children's anthropometric measurements demographic and household level socioeconomic characteristics.
- The final sample size was 1731. Estimations used probability weights to account for differential probabilities of selection at the population level.

## References:

Joreskog, Karl G. and Arthur S. Goldberger (1975), "Estimation of a Model with Multiple Indicators and Multiple Causes of a Single Latent Variable" *Journal of the American Statistical Association*, Vol. 70, No. 351 pp. 631-639  
 Sen, A.K. 1985. *Commodities and Capabilities*. North-Holland, Amsterdam.  
 Sen, A.K. 1999. *Development as Freedom*. Oxford University Press, Oxford.  
 Spanos, A. 1984 "Liquidity as a Latent Variable: an Application of the MIMIC Model" *Oxford Bulletin of Economics and Statistics*, 46:2

## Model

- A Multiple Indicators Multiple Causes (MIMIC) model was used to link multiple observed measures to a single dimension of an underlying latent variable (household well-being).
- The model allows considering the latent variable to be linked to a number of observable indicators on one hand, and to a set of causal observable variables, on the other hand (Joreskog and Goldberger, 1975; Spanos, 1984).
- The household level observable factors are the number of underweight women, the number of stunted children, the number of wasted children, and the average women's dietary diversity. The causal observable variables are household level socioeconomic and demographic characteristics.
- These two groups of variables are related with the latent variable through equations 1-3 as follows:

$$Y^{**} = \alpha' X + \varepsilon \quad (1) \quad \text{where } Y^{**} \text{ is latent well being}$$

$$Y = \beta Y^{**} + v \quad (2) \quad X \text{ and } Y \text{ are vector of exogenous}$$

$$Y = \pi' X + v \quad (3) \quad \text{and endogenous variables.}$$

## Key Findings

- Households that foster better environment for children and women and create better educational opportunity to family members result in better household well-being by having healthy and well-nourished family members.
- Per capita sleeping rooms and household income have positive impact on household's well-being. The higher the per capita sleeping rooms and the higher household income, the better the overall health and nutritional status of family members.
- The availability and access to clean water and improved sanitation facilities did not have any association with household's well-being.
- Living in urban setting proved to be beneficial due to better access to amenities such as health facilities and education.

## Selected Empirical Results

Structural Model	Number of Underweight Women			Average Women's Dietary Diversity (WDD)			Number of Stunted Children			Number of Wasted Children			Sig.
	Coef.	Stand. Coef.	Stand. Error	Coef.	Stand. Coef.	Stand. Error	Coef.	Stand. Coef.	Stand. Error	Coef.	Stand. Coef.	Stand. Error	
Income Deciles	-0.02	-0.58	0.09	0.14	0.58	0.09	-0.02	-0.58	0.09	-0.01	-0.58	0.09	***
Household Hunger Scale	0.01	0.05	0.06	-0.07	-0.05	0.06	0.01	0.05	0.06	0.00	0.05	0.06	
Religion	0.00	0.05	0.06	-0.02	-0.05	0.06	0.00	0.05	0.06	0.00	0.05	0.06	
Ethnicity	0.00	0.00	0.06	0.00	0.00	0.06	0.00	0.00	0.06	0.00	0.00	0.06	
Locale	-0.04	-0.24	0.08	0.39	0.24	0.08	-0.06	-0.24	0.08	-0.02	-0.24	0.08	***
Sleeping Rooms	-0.01	-0.13	0.06	0.11	0.13	0.06	-0.02	-0.13	0.06	0.00	-0.13	0.06	**
Safe Drinking Water	0.00	0.02	0.06	-0.02	-0.02	0.06	0.00	0.02	0.06	0.00	0.02	0.06	
Access to Electricity	-0.01	-0.05	0.08	0.07	0.05	0.08	-0.01	-0.05	0.08	0.00	-0.05	0.08	
Private Toilet	0.01	0.03	0.06	-0.06	-0.03	0.06	0.01	0.03	0.06	0.00	0.03	0.06	
Mother's Education	-0.04	-0.14	0.07	0.37	0.14	0.07	-0.06	-0.14	0.07	-0.02	-0.14	0.07	*
Father's Education	-0.01	-0.07	0.07	0.12	0.07	0.07	-0.02	-0.07	0.07	-0.01	-0.07	0.07	
<b>Measurement Model</b>													
Underweight Women	1.00	0.18	0.05	-0.11	-0.18	0.05	0.69	0.18	0.05	2.63	0.18	0.05	***
WDD	-8.76	-0.43	0.07	1.00	0.43	0.07	-6.05	-0.43	0.07	-23.03	-0.43	0.07	***
Stunted Children	1.45	0.15	0.04	-0.17	-0.15	0.04	1.00	0.15	0.04	3.81	0.15	0.04	***
Wasted Children	0.38	0.07	0.04	-0.04	-0.07	0.04	0.26	0.07	0.04	1.00	0.07	0.04	***