

# A tall order: improving child linear growth

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## Valorization Addendum

In accordance with the Regulation Governing the attainment of Doctoral degree at Maastricht University, this section describes the relevance of findings of this dissertation. The studied topics on the relationship between diets, maternal education and stunting and the evidence presented on determinants of child growth transitions are relevant globally, as well as to various actors and sectors that aim to address stunting. At global level, it is well recognized that reducing stunting is a *Tall Order (a hard task to accomplish)*, because preventing and mitigating effects of stunting is complex and the number of stunted children is enormous. This study comes at the right time when, there is unprecedented global consensus on the negative effects of stunting and an agreement on a lack of clarity on the extent to which different determinants impact linear growth in various contexts. Therefore, the value addition opportunities from this dissertation relate to the following contributions.

First, the dissertation contextualizes determinants of stunting for Malawi. Findings from this dissertation confirm that stunting is a result of many interconnected determinants, of inadequate diets and repeated bouts of illness (chapter 4). Since adequate diet is essential for linear growth and immunity, we show also that maternal education is inextricably linked to and enhances decisions and behaviors that limit exposure to disease, by seeking illness treatment for children, immunizing children and choosing food items essential for child growth (chapter 5). But, in literature, the risk to illness differs if the child is below or above the stunting classification (Anna Lartey, 2015). Therefore, knowing determinants of growth transitions, illustrated in this dissertation is also important for illness and stunting prevention strategies (chapter 3). If not, the consequences of stunting can perpetuate for generations, as found in (chapter 5). The 1.4 million stunted in Malawi are a cost to development (UNICEF, 2017). Findings from this dissertation therefore provides contextual clarity on the interplay of factors between diets, child

growth transitions, maternal education and contributes to evidence based stunting solutions in Malawi.

Second, findings reveal factors that promote and those that limit child growth for Malawi. These findings may help to understand implications for a range of actors and sectors required to address stunting. The relevant sectors in our findings point to ministries of Health, to promote nutrition programs, disease treatment (Chapters 2, 3 and 4), Agriculture for milk and egg production (Chapter 3) and ministry of Education to promote girl's education (Chapter 5).

Third, findings of this research may be of direct influence to improving feeding guidelines. For example, the result showing ASF consumption of less than 50g consumed per capita, and only 1-3 times in a week, is a clear indication of the poor diets in this context. Findings, may be used with other relevant literature and guidelines to benchmark the design of child feeding guidelines. It can also form basis for reconsidering what other local foods rich in micronutrients (milk and eggs) could be promoted as the country moves forward in its ambition to improve diets.

Fourth, value may also be found in further exploration of child transitions using the data generated from this research as baseline. We suggest from a perspective of examining catch up growth or growth deficit compared to the reference child population, using the same cohort of children from our analysis in the subsequent panel datasets. Especially so, since our study is first to analyse the transitions using the Markov model from the welfare monitoring panel data.

Fifth, this study is first to show the causal link between maternal education and stunting. The study makes a vital contribution to knowledge. Findings from this dissertation shows that educating girls is advantageous in terms of birth timing, dietary choices and in reducing stunting in future offspring. These findings could be relevant for wider application in Sub-Saharan Africa where such research has lagged, despite the persistent stunting levels.

Finally, although the scope of this the thesis is not to dwell on challenges of girls' education, the findings of high drop outs concerns nutrition outcomes. The findings raise questions on whether the poor progression of girls in education is one of the reasons for the poor nutrition outcomes in this country. Findings of this research may be used for advocacy purposes to foster education campaigns to remove barriers that stop most girls from attaining high education. The economic and health dimensions of an individual and societies rests on a sound education of its population. Educating girls should be seen as a human right.

Overall, findings of this dissertation offer evidence based, and practical entry points relevant for action by policy makers.