



# Explaining the Decline in Child Stunting in Malawi between 2010 and 2015

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## Abstract

In 1992, the prevalence of stunting among under five children was 49%. In 2000, 2004 and 2010, the prevalence of stunting remained persistently high at 48%, 48% and 47%, respectively. However, this dropped dramatically to 37% in 2016, and led to considerable interest in understanding the drivers behind this improvement. Using the UNICEF conceptual framework, data from the 2010 and 2016 Malawi DHSs and Blinder-Oaxaca decomposition technique, this study could explain only 5% of the 10.5% decline in child stunting. This is attributable to improvements in standards of living in 2016, when the level of wealth status in households was observed to have improved. Focusing efforts on wealth creation can potentially reduce child malnutrition in Malawi.

# Introduction

For years, malnutrition in Malawi remained persistently high. Between 1992 and 2010, the prevalence of stunting (low height for age – an indicator of growth) among children under the age of five reduced by only two percentage points, from 48.9% to 47.1% (National Statistical Office [Malawi] and ICF Macro, 1994; National Statistical Office [Malawi] and ICF Macro, 2011). However, a remarkable decline of about 10 percentage points in the prevalence of stunting was registered in the 2015–16 Malawi Demographic and Health Survey (DHS) (National Statistical Office [Malawi] and ICF Macro, 2017). While the literature has pointed at the improved conceptualization of recent nutrition policies as well as multi-sector collaborations, which in part drove the reduction in Malawi's child stunting rates, no study could be found that comprehensively analyses what drives this positive trend, or quantifies the contributions of the various factors that contribute to this progress. Therefore, the primary question this study sets out to ask is: What factors were important in the decline of the prevalence of child stunting in Malawi between 2010 and 2015–16?

The United Nations Children's Fund (UNICEF) conceptual framework of the determinants of nutritional status in young children classifies the factors into immediate causes, underlying causes, and basic causes of undernutrition (UNICEF, 1990). In combination, these factors play a fundamental role in the extent to which households have adequate food security, care, feeding practices, healthy environments, and adequate health services, which are necessary for the proper nutrition of household members. The empirical literature on the determinants of child nutrition suggests that child-level factors such as gender and age of the child are associated with the nutrition outcomes of children. Household-level as well as community-level factors are also important in the determination of child nutrition.

To measure the contribution of various factors in the decline in the prevalence of child stunting observed between 2010 and 2015, this study uses regression and decomposition analyses. The study makes two contributions to the empirical literature on malnutrition decline. First, it estimates how much of the decline in the prevalence of stunting between 2010 and 2015–16 can be explained by observable characteristics and how much cannot be explained by observable characteristics. From a policy perspective, the results from this study will inform policy makers about the non-intervention factors that may be driving nutritional change. Understanding the relative importance of the determinants of malnutrition is important for the achievement of the second Sustainable Development Goal (SDG 2) which, among other targets, aims to end all forms of malnutrition by 2030, including achieving the internationally agreed targets on stunting and wasting in children under five.

## Data

Malawi DHS datasets from the Integrated Public Use Microdata Series-Demographic Health Surveys (IPUMS-DHS) database of the IDHS project were used (National Statistical Office [Malawi] and ICF Macro, 2019). IPUMS-DHS integrates DHS data across time and space, making it easy to study change, conduct comparative research and merge information across datasets. The focus of this study is to explain the decline in the prevalence of child stunting between 2010 and 2016, which makes use of the IPUMS-DHS very convenient. The datasets are freely accessible to the public and researchers subject to a prescribed registration and approval process.

These data are nationally representative. Although these surveys are independent, they can be used to tell an intertemporal story explaining the decline in child stunting over the period. The surveys were generally designed to provide information on, among other things, early childhood mortality as well as various indicators of maternal and child health and nutrition. The samples are sufficiently large to allow for estimates of certain indicators to be produced for the country, by rural-urban residence, by region, as well as at district level. All analyses in this study use sampling weights to capture population estimates.

Both the 2010 and 2015–16 DHS used the sampling framework of the Malawi Population and Housing Census conducted in 2008, which was provided by the National Statistical Office and was designed to produce estimates for key health indicators for all 28 districts in addition to estimates for national, regional, and rural-urban domains National Statistical Office [Malawi] and ICF Macro, 2011). The 2010 DHS covered a total of 27,000 households, involving 24,000 female respondents aged between 15 and 49, and 7,000 male respondents aged between 15 and 54. In the 2015–16 DHS, a total of 26,361 households were successfully interviewed, of which 24,562 women and 7,478 men.

A household questionnaire was also used to record height and weight measurements for eligible children aged 0–59 months. Child height was measured and transformed to a Z-score value using the World Health Organization (WHO) recommended US National Center for Health Statistics sample as the reference (World Health Organization, 1995). In this study, the child height-for-age Z-scores (HAZ) are used as the indicator of child nutrition status. Stunting, defined as HAZ less than two standard deviations of the WHO International Reference Standard, is commonly used as an indicator of chronic nutritional deficiency that rarely can be reversed during the growth of children, with severe consequences for their health, learning, and ultimately future earning opportunities. HAZ scores were computed using the 2006 WHO growth standards. We use the child as the unit of analysis, and in each year restrict it to children under the age of five. There are 4,489 children in this age group in the 2010 sample and 4,293 in 2016. These are the observations used in the decomposition analysis.

## Conclusion and policy implications

This study started with the premise that the prevalence of stunting among children under the age of five remained persistently high in the 1992, 2000 and 2004 DHS survey years, although some improvement started to become evident in 2010. Between 2010 and 2016, the decline in stunting was remarkable. Using the Blinder-Oaxaca decomposition technique, the study could explain only 5% of the 10.5% decline in child stunting. This was attributable to improvements in standards of living in 2016, where the level of wealth status in households was observed to have improved.

Unsurprisingly, very few changes were observed in the means of most of the explanatory variables over the two years. This means that focusing efforts on improving standards of living in households can potentially reduce child malnutrition, which is important as Malawi looks for actions that will enable it to reach zero hunger and malnutrition by 2030. These can include investing in job creation efforts such as building skills, supporting small and medium enterprises, and identifying the various roles that the private sector in Malawi can play in agricultural value-addition and marketing and in improved nutrition.

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