Take AIM

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Modelling childhood malnutrition prevalence and its determinants among under-five children in Ghana

TakeAIM Winner 2015:
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Childhood malnutrition is a real-life and a chronic problem and one of the global major public health challenges, especially in developing countries and responsible for about 30% and 54% of under-fives mortality globally and in developing countries respectively. In Ghana, malnutrition accounts for around 40% of under-five mortality. Several attempts from governmental and non-governmental organizations to address the problem have fallen below expectation. It is recognised that the existing studies and nutrition intervention strategies are inadequate and hence not working to expectation.

This study examines childhood malnutrition prevalence and its determinants among children aged below 5 years in Ghana using appropriate and advanced statistical models. Specifically, this study wishes to know the reasons why some children might be malnourished and the reasons why others might not and what can be done to address this. To answer this all important problem, the study applied multilevel, spatial and spatiotemporal models to investigate major risk factors that affect children's nutrition and whether the household in which a child resides affect his nutritional outcome substantially; whether residing in a certain geographical areas increases the risk of childhood malnutrition or not; and over time, how the geographical differences in the risk of childhood malnutrition is evolving over Ghana.

The findings from this study are intended to help policymakers responsible for the health and nutrition of children to design efficient public health and targeted nutrition intervention strategies amidst scarce public health resources available in this country to better understand, target and to reduce childhood malnutrition.

The use of mathematics has profound consequences in all walks of life, but the opportunities that it opens up often go unrecognised or underexploited. The Smith Institute, enabled by the generous sponsorship of our leading corporate partners, ran the fifth annual TakeAIM competition in 2015 to make visible the crucial role that mathematics will increasingly play in all aspects of our lives. The competition was open to all undergraduate and postgraduate students working in the mathematical sciences. The authors of the two best entries each received £1,000 of Apple vouchers as their prize, with £100 of Amazon vouchers being awarded to four runners-up.