

The intergenerational effect of tuition-free lower-secondary education on children's nutritional outcomes in Africa

About:

This research brief presents key findings from the following article:

The intergenerational effect of tuition-free lower-secondary education on children's nutritional outcomes in Africa. Alfredo Martin, Aleta Sprague, Amy Raub, Bijetri Bose, Pragya Bhuwania, Rachel Kidman, Arijit Nandi, Jere Behrman, Jody Heymann. *Global Public Health*. (2024) *Global Public Health*, 19:1, DOI: [10.1080/17441692.2023.2291703](https://doi.org/10.1080/17441692.2023.2291703)

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Background:

- UNICEF estimates that one in five child deaths under age five are a result of severe wasting. Malnutrition at early ages is linked to lifelong consequences, such as reduced cognitive skills, reduced earnings in adulthood and chronic health conditions.
- Countries worldwide have committed to addressing child undernutrition, and ending hunger is foundational to the Millennium Development Goals. Undernutrition remains a critical concern, particularly for children, and rates of wasting remain at high levels: 11.1 million children under 5 in sub-Saharan Africa are wasted, including 2.5 million with extreme wasting.
- Identifying effective strategies to address wasting is a crucial undertaking. Almost all existing causal analyses of how parental education affects child nutrition have focused on primary education.
- This study is the first to measure the causal, intergenerational impacts of eliminating lower-secondary tuition on wasting among young children across Africa.

Methods:

- Researchers combined a dataset that captures educational policies for 40 African countries from 1990 to 2019 with Demographic and Health Survey (DHS) data on nutritional outcomes among children under age 3.
- Comparable data was available for 9 African countries:
 - Three treatment countries (Liberia, Zambia, and Rwanda) that introduced free secondary education several years after implementing free primary education.
 - Six comparison countries (Benin, Burkina Faso, Burundi, Mozambique, Niger, and Zimbabwe) that never introduced free education or that introduced it in recent years so most survey respondents were not exposed to free education.
- Using a difference-in-difference design, researchers compared the likelihood of wasting for children of women who benefited from tuition-free education policy with those who did not in

the same country, as well as how the experiences differed across countries that passed tuition-free policies with those that did not.

Findings:

- Mothers' exposure to tuition-free secondary education significantly decreased wasting among young children by 18.4% compared to children of women who were not exposed to any free education.
- The reduction in wasting from mothers' exposure to tuition-free secondary education was larger than the benefits of maternal exposure to tuition-free primary education alone.
- Every country that introduced free secondary education reduced wasting by a significant margin.
- The same analysis for a different set of countries that implemented free secondary education (Kenya, Senegal, and Sierra Leone) found that reduction in wasting was 30% larger for children whose mothers were exposed to tuition-free secondary education than the reduction in wasting for children whose mothers were exposed only to free primary education.

Discussion:

- These findings are the first using causal methods to demonstrate that making secondary school tuition-free reduces wasting for the children of women exposed to the policies.
- These findings also demonstrate that eliminating tuition at the secondary level improves nutritional outcomes above and beyond eliminating primary tuition alone.
- Eliminating tuition at the secondary level is a powerful step that countries can take to reduce wasting, while simultaneously advancing gender equality in education and a wide range of other health and developmental goals.
- Further studies are needed to identify the pathways by which eliminating tuition leads to improvements in child nutrition, including higher adult earnings, improved living conditions and utilisation of health care services, improved maternal health and health information, greater access to family planning and increased reproductive autonomy.
- Policies that invest in secondary education are likely to reduce undernutrition in the long term, and can be an important strategy for advancing progress toward child health and education SDGs, while also helping to grow countries' economies, reduce poverty, and improve health and wellbeing more broadly.
- As of 2019, most countries in Africa had eliminated tuition at the primary level. However, far fewer have eliminated tuition at the secondary level. As policymakers examine the feasibility of tuition-free secondary education, this study provides further evidence of its multiple benefits.

Table. Intergenerational impact of free education on wasting

	Wasting
Exposed to both free primary and secondary education	-0.021** (0.008)
Exposed to free primary education only	-0.017 (0.011)
Observations	32,974
R-squared	0.076
Mean outcome for control women in treated countries	0.114
Mean outcome for control women in control countries	0.059
Free secondary (β_1) – Free primary (β_2)	-0.004
p-value	0.711

Note: Control countries are Benin, Burkina Faso, Burundi, Mozambique, Niger, and Zimbabwe. The regressions include country, cohort, and survey year fixed effects. We control for mothers' age, domestic health expenditure as percent of GDP. Our sample is composed by children under 36 months old. We use de-normalized population weights¹ in our regressions.

Standard errors clustered at the country level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

¹ When using multiple surveys, DHS suggest to de-normalize weights when analysing pooled data. DHS normalize the weights so that the total number of weighted cases is equal to the total number of unweighted cases. To account for population size, we de-normalize the weights.