

The role of consumer preferences in shaping diet quality in Sub-Saharan Africa

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- Food security improves with income growth and lower food prices (Evenson and Gollin 2003; Mwaniki, 2006).
- But does diet quality improve? Does overconsumption worsen? (Popkin et al., 2020).
- We seek to use demand modeling to inform ag-nutrition strategies.
- We add new, comprehensive demand modeling evidence from Sub-Saharan Africa, building the existing evidence base (Ecker and Qaim, 2011).

Goal and Objectives

Overall Goal

Understand how diet quality responds to food price changes and total expenditure changes in three Sub-Saharan Africa countries.

To reach this goal, we have three objectives:

- Estimate large food demand system.
- Derive elasticities of demand for macro- and micro- nutrients using demand system parameters.
- Simulate diet quality response to price and income changes.

Six Countries (part of LSMS-ISA)

- ① Tanzania
 - 3 rounds, 9196 hh-year obs
- ② Nigeria
 - 6 rounds, 25947 hh-year obs
- ③ Malawi
 - 3 rounds, 8088 hh-year obs
- ④ Niger
- ⑤ Ethiopia
- ⑥ Uganda

Food Consumption data:

- 7-day recall of hh level consumption (not acquisition)
- 19 food group categories
- 3 sources: market purchase/own production/gifts
- Expenditures collected for market purchased food items

- We use the Two-way Exact Affine Stone Index (EASI) model, which is very flexible in form and is consistent with economic theory regarding consumer demand.
- Details about EASI model can be found in: McCullough et al. "The role of food preferences in determining diet quality for Tanzanian consumers." (2021).Working Paper.

We use simulations to explore how consumers' diet quality responds to two commonly proposed interventions:

- Cash Transfer

- Size is 20% of the median household expenditure levels among poor (\$1.90 per capita per day, ppp) households (e.g. in Tanzania, \$9 per household per month)
- We assume the household uses 75% of the transfer to increase consumption, following the literature. The rest could go towards investments in productive assets, for example.

- Price Voucher

- A 25% discount relative to market price applied to selected food groups
- Food groups: grain staples, starchy staples, pulse, fruit and vegetables, and animal sourced food
- We assume producer prices are not affected by these vouchers.

Results: Diet Quality and Expenditure Growth

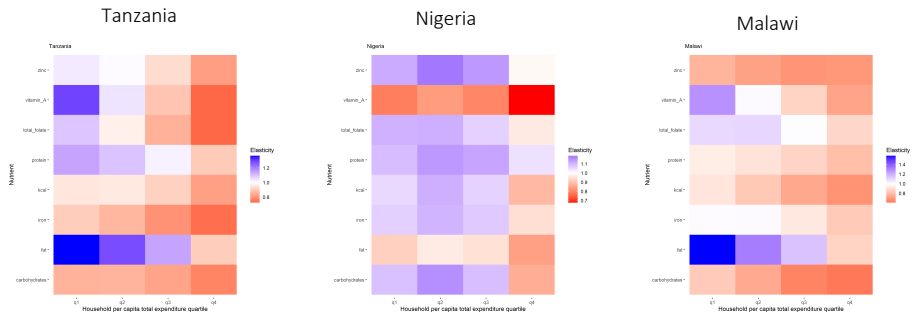


Figure: Elasticity of nutrients intake with respect to total household expenditures, by expenditure quartile. The figures show the median % change in nutrient intake in response to a 1% increase in total household expenditures

Results: Diet Quality and Food Price Changes

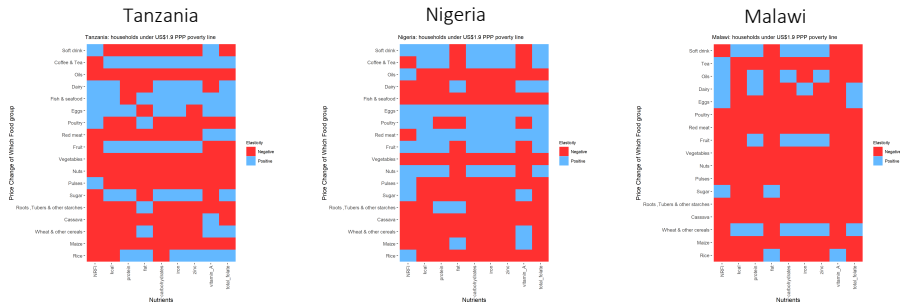


Figure: Elasticities of nutrients intake with respect to food group prices for ppor households. Red indicates that the nutrient intake decreases when the food group's price increases. Blue indicates that the nutrient intake increases when the food group's price increases.

Results: Impacts of Simulations on Dietary Energy Intake

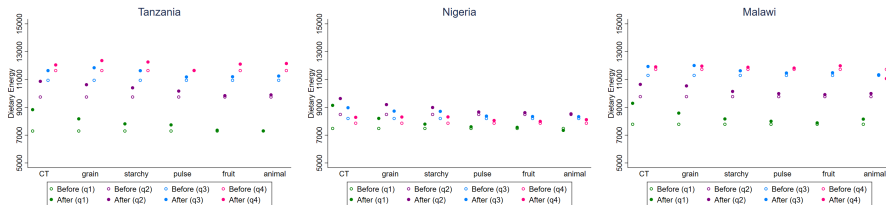


Figure: Dietary energy before and after simulations, by total expenditure quartile.

Results: Impacts of Simulations on Macro Energy Balance

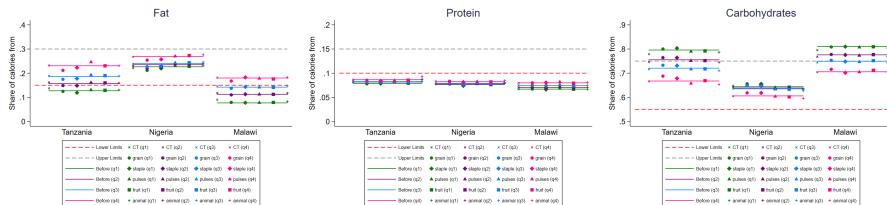


Figure: Dietary balance (share of calories from fat, sugar, and protein) before and after simulations, by total expenditure quartile.

Results: Impacts of Simulations on Nutrient Adequacy

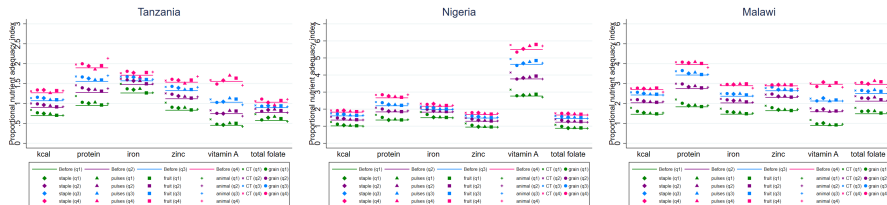


Figure: Nutrient Adequacy before and after simulations, by total expenditure quartile.

Results: Impacts of Simulations on Nutritional Quality of Diets

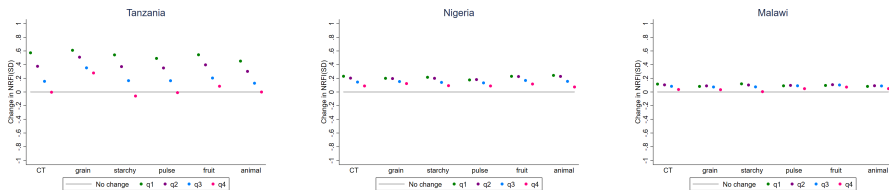


Figure: Nutrient-Rich Foods Index before and after CT and PV simulations, by total expenditure quartile.

Conclusion and Discussion

- Consumer income growth is strongly associated with improved diet quality, especially for poor consumers.
- Lowering of food price could be effective in improving diet quality.
- Price vouchers targeting poor consumers increase nutrient density of diets no matter which food category is targeted. The patterns differ by country (e.g., grains are most effective in Tanzania, while starchy staples are more effective in Malawi and animal source foods are more effective in Nigeria).
- For wealthy consumers, all simulations do not help to improve diet quality as much as they do for poor consumers.

References

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Thank You!