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A Food Demand Framework for International Food Security Assessment

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Abstract: We present a parsimonious demand modeling approach developed for the annual USDA-ERS *International Food Security Assessment*, a large-scale prospective assessment focusing on chronic food insecurity in 76 countries. The approach incorporates price effects, food quality variation across income deciles, and consistent aggregation over income deciles and food qualities. The approach is based on a simple demand approach for four food categories. It relies on data on food availability, complemented by own-price and income elasticities and food price data. Beyond consistent aggregation, the framework exhibits desirable characteristics: food quality is increasing with income; price and income responses become less sensitive with income; and increasing income inequality decreases average per capita food consumption. The proposed approach is illustrated for Tanzania. We assess future food insecurity in Tanzania using the calibrated model and evaluate the impact of safety net policies and their budgetary costs. Food-insecure population is estimated as well as the implied food gap expressed in calorie per day per food-insecure person as well as in total annual food volume in grain equivalent. The food gap measure gauges the depth of the chronic food insecurity.

Keywords: international food security, PIGLOG demand, aggregation, income inequality, food prices, shocks, food gap, Tanzania, food policy

JEL codes: F17, Q17, D31

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