

Deciphering the impact of food waste on household food security in Dodoma, Tanzania

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Abstract

Food waste, driven by unsustainable practices, increases food system vulnerability and household food insecurity. This study surveyed 402 households in Dodoma, Tanzania, using Multinomial Endogenous Switching Regression (MESR) to assess impacts on multidimensional food security. Wasting cereals, legumes/pulses, and root/tubers reduced food security by 1.21 units, while cereals and legumes/pulses alone reduced it by 0.76 units. Policy responses (e.g., storage, education) are critical for SDGs 2 and 12.3.

Introduction

Tanzania: ~55% moderate/severe food insecurity (Randell et al., 2022).
Food waste: 72.4% of solid waste in Dodoma’s Majengo Market (Nyampundu et al., 2020).

Gap: Limited African data on household food waste, Inconsistent findings on food waste impact on food security, Control of endogeneity and multidimensional food security.

Objective

To identify socio-demographic and behavioural drivers of food waste & their impact on food security

Methods

Design: Cross-sectional survey (July-Aug 2024, 402 households, 91.8% response rate).

Data Collection: Structured questionnaires via KOBO Toolbox; 5-day direct waste weighing.

Food Waste: Measured across 12 FAO food groups; Identified key groups (cereals, legumes/pulses, root/tubers)-high contribution to retained components in Principal Component Analysis.

Food Security: Multidimensional index via PCA on 19 indicators, adjusted by Adult Equivalent Units.

Analysis: Multinomial Endogenous Switching Regression (MESR)

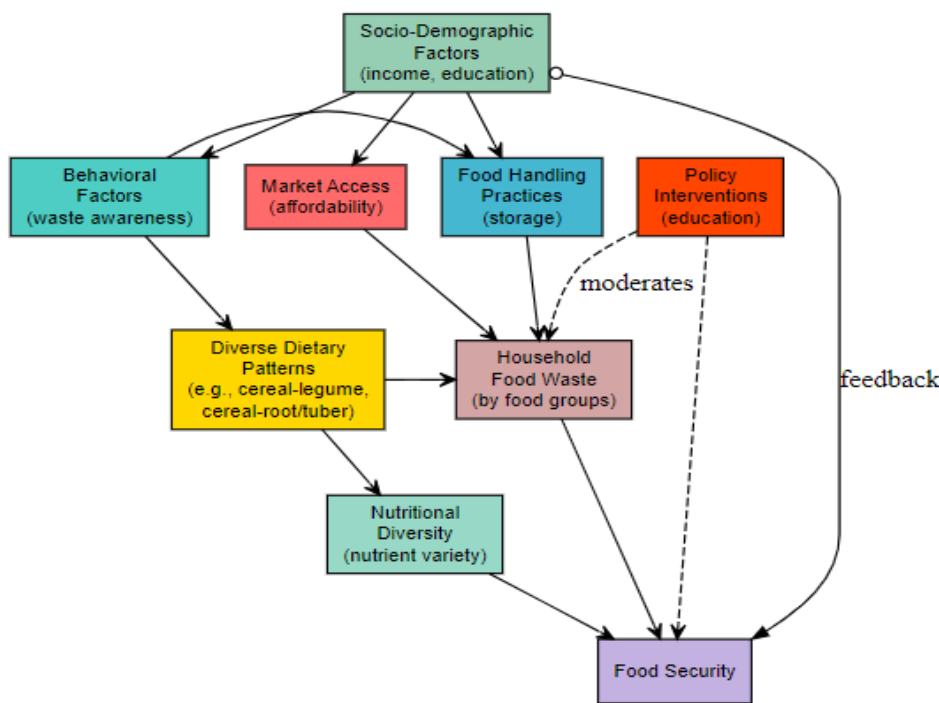
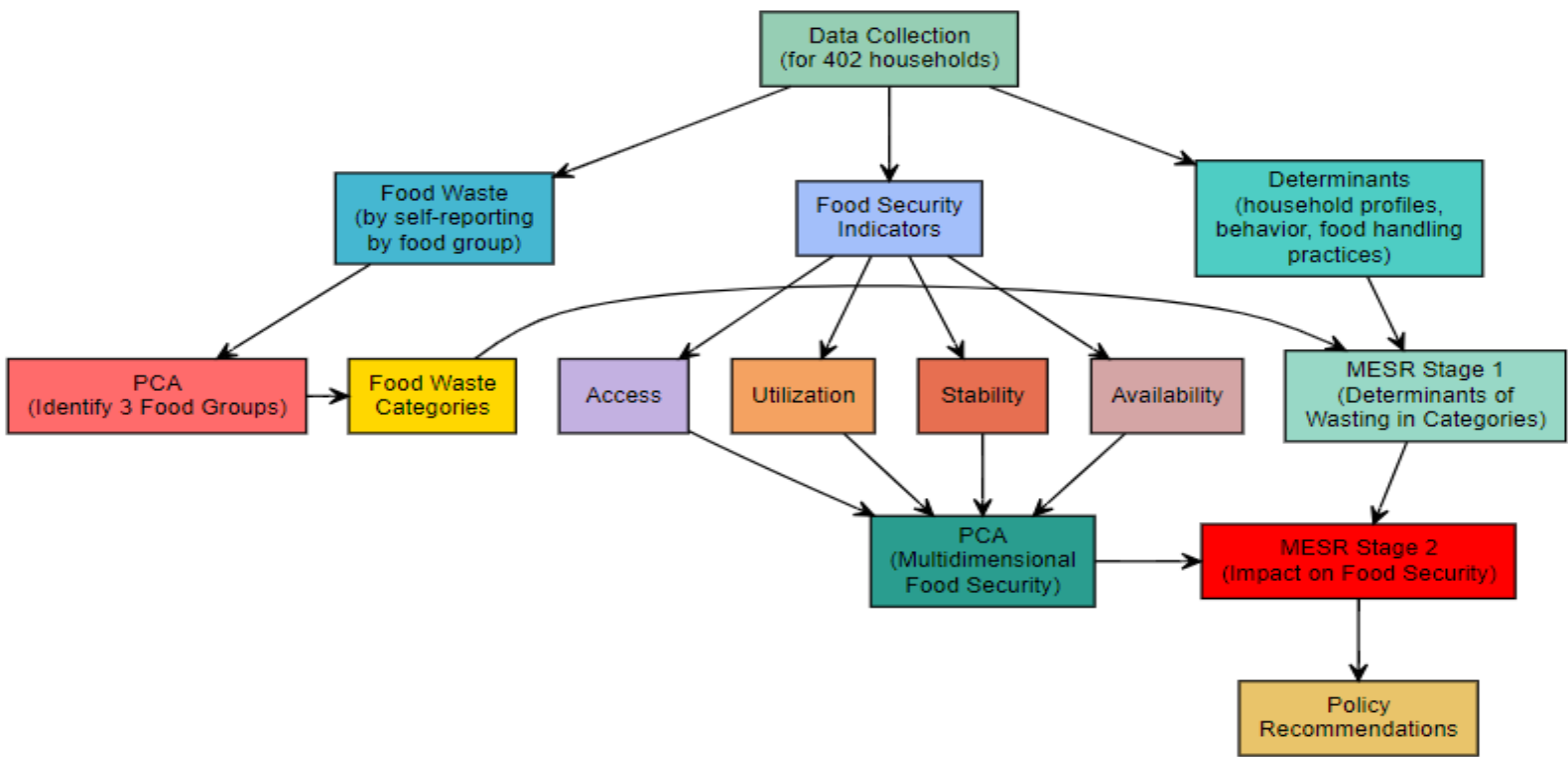
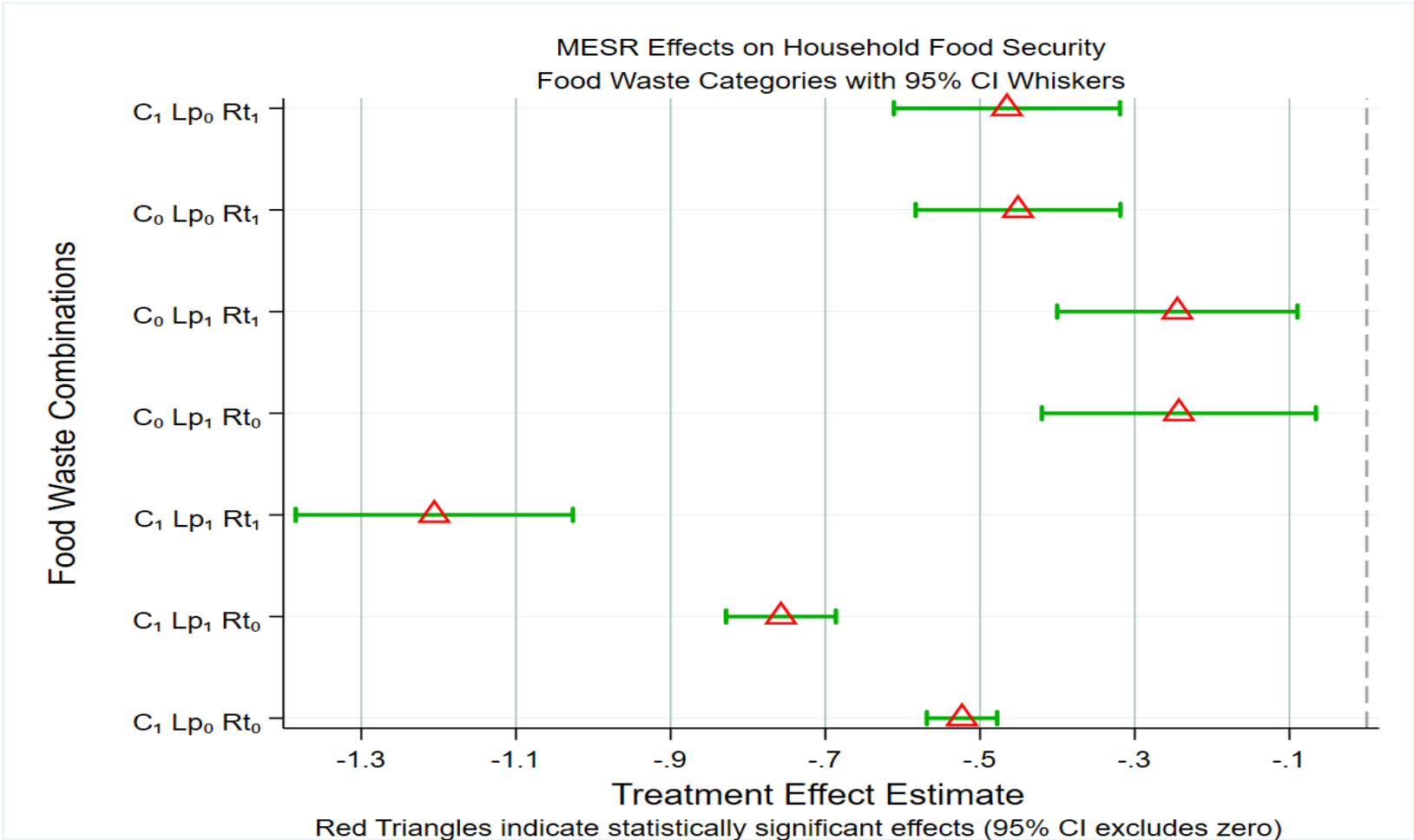


Figure 1: Conceptual Framework of the study



Results of the outcome of household food waste on food security



Findings

Food waste reduces food security driven by behavioural and food handling practices

Policy & Practical Recommendations

- ❖ Behavioural awareness and education
- ❖ Household Practices with Contextual Sensitivity.
- ❖ Community-Based Redistribution Mechanisms

→Align Interventions with Socio-Demographic Profiles



Photographs of a sample of measured food waste from households in the study area, taken during July–August 2024.

References

