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The Effects of Inflation, Unemployment, and Poverty on Undernourishment and Food Insecurity

Hunger has levels. Each level has a different economic driver.

A global panel study of 120 countries, 2015–2024, toward SDG 2 Zero Hunger

Presented by



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INTRODUCTION

Hunger has barely improved since 2015, yet no study tests all three economic pressures by severity

713–757M
people undernourished

2.33B
moderate or severe food insecurity

864M+
severe food insecurity

Global situation in 2023 (FAO et al., 2024). Conditions worsened in several regions, notably Africa.

THE RESEARCH GAP

1. **Narrow geography.** Caribbean, West Africa, Europe, South Asia, or single countries.
2. **Fragmented factors.** Household-level or inflation-only designs.
3. **Severity ignored.** No joint test across levels of hunger.

RESEARCH QUESTIONS

RQ1	Do inflation, unemployment and poverty affect undernourishment?
RQ2	How do they influence moderate or severe food insecurity?
RQ3	Do they affect severe food insecurity differently?

FRAMEWORK & DATA

Three pressures, three hunger levels, 1,200 observations

120 / 193
countries, purposive sampling

2015–2024
annual World Bank data

N = 1,200
country-year observations

ECONOMIC PRESSURES (X) AND THEIR THEORY

Inflation	**Income effect** (Ioan, 2026)
Unemployment	**Entitlement theory** (Masuku et al., 2025)
Poverty	**Poverty trap** (Barrett et al., 2016)

HUNGER OUTCOMES (Y), BY SEVERITY

- Y1 — **Undernourishment (PoU)** — calorie-based
- Y2 — **Moderate or severe food insecurity** — experience-based
- Y3 — **Severe food insecurity** — experience-based

CONTROLS

- **GDP** — economic capacity
- **Population** — demographic pressure
- **Trade openness** — food supply via trade
- **Gov. expenditure** — fiscal & social policy

ESTIMATION

Diagnostics point to the Fixed Effects Model

1

Descriptive statistics

Inflation is the most dispersed variable (SD = 20.03): enough variation to estimate its effect.

2

Model selection

Chow $p < 0.001$: FEM over CEM. Hausman $p < 0.001$: FEM over REM. LM compares REM and CEM only.

3

Diagnostic tests

No correlation above 0.80 (highest: GDP–Population, $r = 0.683$). Residuals show no fanning.

4

Fixed Effects Model

One model for each of Y1, Y2 and Y3, estimated in EViews 12.

$$Yit = \alpha + \beta_1 Inf + \beta_2 Unemp + \beta_3 Pov + \beta_4 GDP + \beta_5 Pop + \beta_6 TO + \beta_7 GovExp + \mu i + \varepsilon it$$

Yellow = main variables (X) **Light** = controls (GDP, population, trade openness, gov. expenditure) **μi** = country effect

Significant at $p < 0.05$; $p < 0.10$ is read as a weaker effect.

RESULTS

The answer: each level of hunger has a different economic driver

Hunger becomes more severe ▶

Y1 Undernourishment

No economic driver

Inflation, unemployment and poverty

none significant

CONTROLS

GDP ↓ · Population ↑
Not significant: Gov. exp., Trade

Y2 Moderate or severe

Poverty raises hunger

Inflation and unemployment: not significant

significant · β = 0.151

CONTROLS

GDP ↓ · Population ↑ · Gov. exp. ↓
Not significant: Trade openness

Y3 Severe

Inflation raises hunger

significant · β = 0.003

Unemployment raises hunger too

weaker: p < 0.10

CONTROLS

GDP ↓ · Population ↑ · Gov. exp. ↓
Not significant: Trade openness

How to read: ↓ lowers · ↑ raises · significant = p < 0.05 · weak = p < 0.10

Chronic undernourishment: short-run shocks do not explain it

Y1 UNDERNOURISHMENT

Shocks do not move chronic hunger

MAIN VARIABLES (X)

Inflation	not significant
Unemployment	not significant (β < 0)
Poverty	not significant

CONTROLS (C)

GDP	↓ significant
Population	↑ significant
Gov. expenditure	not significant
Trade openness	not significant

MAIN VARIABLES

Inflation and poverty have the expected positive signs, but none is significant. Unemployment is even negative (β = −0.005): not a genuine effect, unlike Indonesia (Geubrina et al., 2025); a global sample may hide it (untested).

CONTROLS

Capacity and population matter: bigger economies have less undernourishment, more people aggravate it (Mahase-Forgencie & Forgenie, 2025; Manogna et al., 2025). Government spending and trade: not significant.

SO WHAT

Chronic hunger is structural. Long-run capacity matters more than short-run relief; social protection may buffer shocks (untested).

Moderate or severe food insecurity: poverty is the driver

Y2 MODERATE OR SEVERE

Poverty drives moderate-to-severe hunger

MAIN VARIABLES (X)

Inflation	not significant
Unemployment	not significant
Poverty	↑ significant · β = 0.151

CONTROLS (C)

GDP	↓ significant
Population	↑ significant
Gov. expenditure	↓ significant
Trade openness	not significant

MAIN VARIABLES

Poverty is the only main driver: low income blocks access to nutritious food. 64% of Southern Ethiopian households are food insecure (Melese et al., 2021); 2–3× higher in conflict countries (Szőke & Ködmön, 2025). Inflation, unemployment: not significant.

CONTROLS

GDP lowers and population raises food insecurity. Government expenditure is protective: social spending and subsidies cushion poor households (Hamad et al., 2023; Otekunrin, 2024). Trade openness is not significant.

SO WHAT

Target poverty first: income support, social protection and social spending.

Severe food insecurity: price and job shocks are the drivers

Y3 SEVERE

Price and job shocks drive extreme hunger

MAIN VARIABLES (X)

Inflation	↑ significant · β = 0.003
Unemployment	↑ weak (p < 0.10)
Poverty	not significant

CONTROLS (C)

GDP	↓ significant
Population	↑ significant
Gov. expenditure	↓ significant
Trade openness	not significant

MAIN VARIABLES

Inflation is significant: higher food prices and weaker purchasing power deepened hunger after the pandemic (Hyink et al., 2024; Iriti et al., 2022). Unemployment is weaker (10% level only). Poverty is not confirmed (not the same as no role).

CONTROLS

GDP lowers, population raises, and government expenditure lowers severe food insecurity: fiscal and social policy matter (Hamad et al., 2023). Trade openness is not significant, consistent with imports expanding food supply (Rabbi et al., 2025).

SO WHAT

Stabilize food prices and protect incomes. The model explains over 80% of the variation ($R^2 = 0.804$).

Match the policy to the level of hunger

LEVEL OF HUNGER	WHAT DRIVES IT	WHAT TO DO
Y1 Undernourishment	Capacity (GDP) and population, not shocks	**Sustainable food supply and demographic planning**
Y2 Moderate or severe	Poverty, cushioned by social spending	**Income support, social protection, social spending**
Y3 Severe	Inflation and unemployment	**Food price stabilization, income protection, food assistance**

Caution: associations, not causation; 120 purposively selected countries. Next: test social protection as a mediator.

References

Sources Used in This Study

International Journal Articles *(e.g., Food Policy, World Development, Global Food Security)*	27
National Journal Articles *(SINTA-indexed journals)*	4
Official Reports and Databases *(FAO, World Bank, ILO, UNDP)*	8
Books and Theoretical References *(food security, development, and SDGs)*	3

Total References: 42

Key Data Sources

FAO | WORLD BANK | ILO | UNDP

Citation Style

APA 7th Edition

All sources are cited and listed following the APA (7th Edition) style.

KEY MESSAGE

Different severity, different drivers: ending hunger needs policies that fit each level.

Thank you

Questions and discussion · oryza.sativa@upi.edu

