

**How Do Fertilizer Subsidies Affect Household Well-being Over Time?
Evidence from Malawi**

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Introduction

- Fertilizer subsidies popular policy in Africa
- Policy has numerous supporters but also detractors
- Sparse quantitative evidence on costs and benefits
- Past evidence mostly focuses on farm level impacts

Relative Cost

Malawi = 15% of gov't budget in 2009

Zambia = 20% of gov't budget in 2008

Research Questions

- 1) Do fertilizer subsidies provide contemporaneous boosts to well-being?
- 2) Do fertilizer subsidies provide longer run improvements to well-being?

Indicators of Well-being

- Assets
- Sales
- Food Security
- Life Satisfaction

Contributions

Policy

- First study to move debate beyond farm level
- Focuses on household well-being before and after subsidy

Methodological

- Exploits dynamics in panel data
- Provides application to treat a non-random program variable in a non-linear model

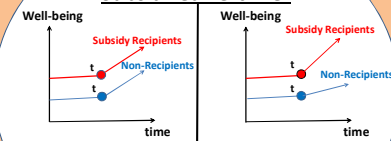
Main Findings Fertilizer Subsidies (significant effects)

- 1) positive contemporaneous & dynamic effect on **maize sales**.
- 2) positive contemporaneous & dynamic effect on **food security**.
- 3) Positive contemporaneous & negative dynamic effect on **subjective wealth**.

(no-significant effect)

- 1) No effect on **asset accumulation**.
- 2) No effect on **life satisfaction**.

Dealing w/ Endogeneity of Subsidized Fertilizer



Controlling for C_i

- Fixed Effects (linear model)
- Correlated Random Effects (non-linear model)

Controlling for μ_{it}

- Inst. Vars. (IV) (linear model)
- Control Function (non-linear model)

Methods

$$i) Y_{it} = \alpha + \beta S_{it} + \delta S_{it-j} + \beta X_{it} + \epsilon_{it}$$

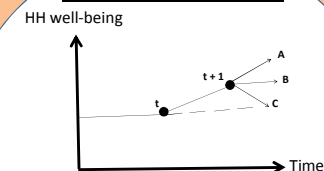
$$ii) \epsilon_{it} = C_i + \mu_{it}$$

For HH i at time t

Where:

- Y_{it} = level of well-being
- S_{it} = qty of subsidized fertilizer at time t
- S_{it-j} = qty of subsidized fertilizer in past time pds.
- X_{it} = household characteristics
- C_i = time constant unobservables (ie: ability)
- μ_{it} = time varying unobserved shocks (ie: intra household issues)

Conceptual Framework



- HH receives some quantity of subsidized fertilizer at time t.
- What happens to well-being at time t+1 and beyond is a major question.