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

J. Ricker-Gilbert 
T.S. Jayne

Michigan State University 
rickergi@msu.edu 
jayne@msu.edu

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

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rickergi@msu.edu

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

Relative Program Costs
Malawi = 15% of gov't budget in 2009
Zambia = 20% of Ag spending 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 (consumption & productive)
- Area planted
- Maize production
- Food consumption
- Life satisfaction

Contributions
Policy
• First study to move debate beyond farm level
• Helps inform the debate on longer-run impacts of fertilizer subsidies
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 effect on area planted (no dynamic effect)
2) Positive contemporaneous effect on maize production (no dynamic effect)
3) Positive dynamic effect on asset accumulation (mainly seen in purchases of consumption assets)
4) No effect on food consumption.
5) No effect on life satisfaction.

Dealing w/ Endogeneity of Subsidized Fertilizer

Conceptual Framework
IH well being

Methods

(i) \[ Y_t = \alpha + \beta S_t + \delta S_{t-p} + \delta X + \varepsilon_t \]
where:
- \( Y_t \) = level of well-being
- \( S_t \) = qty of subsidized fertilizer at time t
- \( S_{t-p} \) = qty of subsidized fertilizer in past time pds.
- \( X \) = fixed costs; HH traits; prices; rainfall
- \( \varepsilon \) = time constant unobservables (ie: ability)
- \( \mu \) = time varying unobserved shocks (ie: intra-household issues)

Time

Controlling for \( \mu \)
• Inst. Vars. (IV) (linear model)
• Control Function (non-linear model)

Controlling for \( C_i \)
• Fixed Effects (linear model)
• Correlated Random Effects (non-linear model)

Significant effects