Stronger Together? Income Shocks, Educational Investment, and Self-Help Groups in Tanzania

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Introduction

Many households in developing countries including Tanzania are vulnerable to idiosyncratic and covariate shocks which tend disrupt their financial stability. This, coupled with imperfection and incompleteness of financial markets and insurance markets (key characteristics in developing countries) may affect households' abilities to invest optimally in their children's schooling. This may have long-lasting negative implications on human capital development and economic development. However, despite the lack of formal financial and insurance markets in Tanzania, households use other shock coping strategies including self-help groups and Savings and Credit Cooperative Organizations (SACCOs).

Objectives

I examine whether negative income shocks affect educational investment, an important parental input into the learning process. I also examine whether self-help groups or SACCOs help members to cushion against negative income shocks. This study contributes to two strands of literature. First, it complements the existing literature on negative shocks and child schooling in developing countries by examining the effect of negative income shock on per capita school-age child education expenditure and share of budget allocated by the household to education. I also use 1-4-year lag income shock to check how persistent the effects are. To my knowledge this has never been examined at least in the context of Tanzania. Finally, this study contributes to literature on household coping strategies to shocks.

Data

I use two waves of Tanzania National Panel Survey i.e. 2008-2009 and 2012-2013 and exploits temporal variations in exposure to shock. The data is nationally representative.

Estimation strategy

To examine whether negative income shocks reduce educational investment, I treat the shock variable as exogenous to the household. However, any endogeneity arising from omitted variable problem or reverse causality could bias the estimates. I address the omitted variable problem by controlling for a number of household and community characteristics along with household fixed effects model with region-time fixed effects. Household fixed effect helps to eliminate estimation bias caused by unobserved time-invariant household-specific characteristics that may be correlated with both the outcome variable and explanatory variable of interest. The inclusion of region-time fixed effects intends to cleans the estimates of time trends or regional bias by soaking up endogenous spatial variation. To this end, I estimate Eq. (1).

$$Y_{ijt} = \alpha_0 + \alpha_1 Shock_{ijt} + \alpha_2 X_{ijt} + C_{jt} + \varphi_i + \gamma_{rt} + \mathcal{E}_{ijt} \qquad (1)$$

i, j, and t stands for household, enumeration area, and survey round, respectively; Y_{ijt} is a measure of educational investment—per school age child education expenditure or the share of household's budget allocated to education. $Shock_{ijt}$ is dummy indicating whether the household experienced a recent income shock. X_{ijt} is set of household- level time-variant characteristics. $C_{jt},$ is set of community-level time-variant characteristics. φ_i is household fixed effects. γ_{rt} is region specific time trend. $\mathcal{E}_{ijt}$ is the error term.

In Eq. (2), I examine whether self-help groups or SACCOs can cushion households against negative income shocks. One concern is that membership in self-group/SACCOs could be correlated with omitted variables. Indeed, belonging to self-help groups/SACCOs is likely to be correlated with unobservable household characteristics such as social networks, risk averseness or risk loving. These are also likely to be correlated with educational investment, and if not controlled the estimations will be biased. However, the use of household fixed effects should help to purge these unobserved time-invariant household characteristics that could confound our results.

$$Y_{ijt} = \alpha_0 + \alpha_1 Shock_{ijt} + \alpha_2 SG_{ijt} + \alpha_3(Shock_{ijt} * SG_{ijt}) + \alpha_4 X_{ijt} + C_{jt} + \varphi_i + \gamma_{rt} + \varepsilon_{ijt}$$

(2)

SG_{ijt} is a dummy indicating membership in a self-help group or SACCOs. The remaining variables are as defined in Eq. (1). α_3 is a parameter of interest which is expected to be positive and statistically significant if membership in self-help group or SACCOs mitigates the effect of shocks.

Although our shock variable is arguably exogenous to the households, together with the fact the we use the household effects model with region-year specific effects to remove any endogeneities arising from omitted variable problem, a concern may arise that households who spend less on schooling (poor households) may be more likely to experience negative income shocks.[1] If so, our estimation may suffer from endogeneity problem arising from reverse causality. To check whether reverse can be a genuine concern, I mimic Beegle et al. (2006) strategy and examine whether lagged educational investment predicts which households experience negative income shock (Eq. (3)). If it turns out that we fail to reject the null hypothesis, $\sigma Y_{ijt-1}=0$, this would imply that households who spend less on education are more likely to experience negative income shock.

$$Shock_{ijt} = 1\{\kappa + \sigma Y_{ijt-1} + \lambda X_{ijt} + \eta_{ijt} > 0\}$$

(3)

Y_{ijt-1} is lagged per school-age child educational education or lagged budget share of education. η_{ijt} is the error term. The remaining variables are as defined in Eq. (1).

Main results
Negative income shock reduces the budget share of education expenditure in Tanzania. However, I find no significant effect of negative income shock on per capita primary-school age child educational expenditure. With regard to coping strategies, I find that SACCOS member households allocate more share of their budget on education than nonmembers. However, membership in self-help group appears not to affect educational expenditure. I also find that neither membership in self-help group nor in SACCOs seem to offset the effect of income shock on educational investment.

Policy implications
Educational investment can negatively be effected when households face negative income shocks. Thanks, however, to the newly introduced fee-free education policy whose implementation began in 2015. As a result of this policy, education expenditure is likely not to suffer much as it would have been in the absence of the policy because one of the main cost components at basic education is school fees. Second, the results suggest that locally

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[1] But reverse causality is unlikely here because households generally do not experience shocks because they have spent less in their children's schooling.

available shock coping strategies such as self-help groups or SACCOs do not necessarily help households to cushion again income shocks partly because many shocks affect most people in a given locality. Thus, relying solely on local coping strategies is not the best option. Therefore, there is a need to design policies to enable households to ensure themselves beyond their local insurance mechanisms. Public insurance and social safety nets programs should be designed to help households overcome income shocks.