



Review

Income shocks, coping strategies, and consumption smoothing: An application to Indonesian data[☆]

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ABSTRACT

Using the Indonesian Family Life Survey, this study investigates whether Indonesian farmers respond differently to income shocks (crop loss) depending on the level of their asset ownership, and whether their responses are aimed at preserving consumption levels or at accumulating assets. We consider a framework in which assets contribute directly to the income generation process. In this context, the need to accumulate assets to ensure future income may lead poor farmers to behave quite differently in terms of both their responses to shocks and their consumption decisions. Our results suggest that while non-poor farmers smooth consumption relative to income, poor households use labor supply to compensate the income loss and, on average, they save half of this extra income. These results confirm the importance of savings for poor households, and highlight a crucial role for policies that support savings or, more precisely, the accumulation of productive assets.

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1. Introduction

A growing theoretical and empirical literature analyzes the effects of shocks on households' living conditions in developing countries, and on the coping strategies adopted to overcome them. Previous studies investigate whether specific

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risk-coping strategies are responsive to shocks (Kochar, 1999; McPeak, 2004; Pan, 2009; Rosenzweig & Wolpin, 1993; Udry, 1995), or whether consumption can be smoothed in relation to transitory income changes (Gertler & Gruber, 2002; Jalan & Ravallion, 1999; Kazianga & Udry, 2006; Paxson, 1992).

When a high proportion of households' (non-human) assets is used to generate income,¹ there is a trade-off between asset investment and consumption choices, in the sense that selling (productive) assets or slowing down asset accumulation could have important implications for future income and, hence, for future consumption. Various theoretical papers have shown that households choices may be characterized by multiple equilibria when borrowing is limited and there are locally increasing returns to wealth. Asset accumulation may bifurcate: households that are not 'too far' from the asset level where increasing returns occur, are likely to pursue an autarchic accumulation strategy; as the distance from that level increases, this strategy may no longer be rational or feasible. The critical asset threshold below which the asset accumulation strategies change is known as the Micawber threshold (e.g. Carter & Barrett, 2006; Zimmerman & Carter, 2003). When facing an income loss, households close to this threshold are likely to engage in asset smoothing (reducing consumption in order to preserve their stock of assets), rather than consumption smoothing (selling assets in order to preserve consumption).

The conditions identified in the theoretical literature for the existence of such a threshold are: the presence of increasing returns and limited access to capital (Hoddinott, 2006; Lybbert, Barrett, Desta, & Coppock, 2004; Santos & Barrett, 2005). In Indonesia, access to capital was quite easy until the mid 80s, due to various credit programs subsidized by the government (Fitri, 2006). Over the 80s, two banking reforms abolished restrictions on interest rates and ceilings on credit expansion, making access to capital more difficult for low-income households,² despite the liberalization of rules governing the establishment of new banks and branch offices which contributed to the development of a banking system reaching out to villages.

Beside the existence of different agricultural production technologies, increasing returns are clearly present in the savings opportunities of Indonesian households. Since the mid 80s, Bank Rakyat Indonesia designed specific savings accounts like SIMPEDES to serve the needs of low income customers. However, interest rates offered on these accounts increase with the deposit size, providing greater incentives for households who can afford higher saving amounts. Indeed only 32% of rural Indonesian households had a bank savings account in 2008 (Cole, Sampson, & Zia, 2009), and the propensity to have a savings account rises with income (Johnston & Morduch, 2008).³ The saving program launched by the government in 1995 (TAKESRA⁴) is too limited to overcome the difficulties of low-income households, and other incentives should be provided in order to encourage saving accumulation.⁵

Since these institutional features are the necessary conditions for the presence of different asset-accumulation regimes for poor and non-poor households, this paper investigates whether Indonesian farmers respond differently to the most frequent shock in rural Indonesia, crop loss, depending on the level of their asset ownership. We focus on farm households because their main source of income (farm profits) depends on asset holdings. We do not model explicitly the choice between different technologies (high-risk high-return and low-risk low-return) because we want to focus on ex-post risk coping strategies. Therefore, we simply assume the existence of an asset threshold (that may depend on household characteristics) below which profits are null.

Various studies have shown that households cope with shocks by adjusting labor supply (Cameron & Worswick, 2003; Kochar, 1999; Maitra, 2001). In this way, consumption smoothing is achieved through ex post income smoothing (Dercon, 2002; Morduch, 1995). In particular, Cameron and Worswick (2003) study the way in which labor supply responses enable Indonesian households to smooth consumption in the face of a crop loss.⁶ The need to accumulate assets is not considered by the authors; rather their estimates imply that all households have a marginal propensity to consume out of permanent income close to 0.9 (statistically different from one). This means that households only save when facing positive transitory shocks. While this seems reasonable above a certain threshold of assets, it appears very unlikely for asset poor households.

This paper uses the 1993 round of the Indonesian Family Life Survey to extend the approach of Cameron and Worswick (2003), by considering the interlink between production and consumption decisions. In particular, we distinguish between asset-poor and non-poor farms according to the total value of productive assets owned by the household (the former are those in the bottom quartile of the asset-value distribution, and the latter are all the other ones), and we explore the relationship between income and consumption for the two groups.

Our results show that household choices do actually differ according to the level of asset ownership: while non-poor farms smooth consumption relative to income, asset-poor ones use the extra income generated by the labor supply response to shocks not only to protect consumption, but also to support the asset accumulation process. This strengthens Cameron and Worswick's (2003) conclusion about the importance of the development of rural labor markets. However, when asset

¹ 'Directly' productive assets: physical capital, livestock, plants, etc.

² There is however some evidence that even the earlier programs of subsidized credit have given more benefit to better-off households, while poor households tended to be excluded (Kristiansen, 2003; Zaini, 2000).

³ The reasons reported by the poor for not having a saving account include the non-affordability of the minimum deposit and/or of the minimum balance to maintain the account, the distance of bank branches, and the embarrassment to deposit only very small amounts (Allianz AG, GTZ, & UNDP, 2006).

⁴ Or "Prosperous Family Saving" particularly targeted to low income women.

⁵ For example, a randomized experiment carried out in 2008 on unbanked households, showed that modest financial subsidies could have large effects, significantly increasing the share of households that open a bank savings account, even without financial literacy training (Cole et al., 2009).

⁶ The flexibility of Indonesian labor markets and the availability of alternative employment opportunities for those who lose their jobs supported the adjustments in labor supply as one important aspect of the response to shocks (Manning, 2000).

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