



# Do saving promotion interventions increase household savings, consumption, and investments in Sub-Saharan Africa? A systematic review and meta-analysis

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## ABSTRACT

Saving promotion interventions have gained momentum in international development in recent years. Our analysis investigates whether saving promotion can effectively increase savings, consumption, and future-oriented investments in Sub-Saharan Africa. In an extensive search of 28 academic and policy-focused databases in the fields of economics, psychology, and social sciences, 9330 titles and abstracts of published and unpublished studies were screened and 27 randomized controlled trials on saving promotion interventions fulfilled the inclusion criteria. Of these, 24 studies reporting on an aggregated sample of 87,025 individuals provided sufficient information to be included in the meta-analysis. Robust-variance estimations of pooled effect sizes show small but significant impacts on poverty reduction, including increases in household expenditures and incomes, higher returns from family businesses, and improved food security. They also show positive and significant impacts on more intermediate outcomes including total savings, pro-saving attitudes, financial literacy, and investments in small-scale family businesses. Our results do not show significant effects on assets, housing quality, education, or health. Results from meta-regressions suggest that supply-based programs are superior to demand-enhancing program types such as financial education. They further reveal reduced program effectiveness for women. Overall, findings from this analysis suggest that saving promotion schemes are highly relevant in reducing poverty in Sub-Saharan Africa, and that future efforts should focus on expansion of banking services to the poor as well as gender-sensitive programming.

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## 1. Introduction

Saving is widely recognized as an important means for sustainable cash-flow management and consumption smoothing for the poor (Karlan, Ratan, & Zinman, 2014). In response, scholars and practitioners alike have celebrated saving promotion programs as a promising poverty alleviation strategy for international development. Banerjee and Duflo (2011) go so far as to portray microsavings as “the next microfinance revolution” (p. 190). Savings can serve as investment capital, for instance for business, education or job search (Curley, Ssewamala, & Han, 2010; Dupas & Robinson, 2013a; Karlan et al., 2012; Flory, 2016; Karlan & Linden, 2014), as self-insurance against health shocks and property damage (Dupas & Robinson, 2013b; Carter, Laajaj, & Yang, 2015),

and help smooth consumption over income contingencies (Brune, Giné, Goldberg, & Yang, 2015).

Vis-à-vis other financial tools such as microloans or cash transfers, saving can strengthen a feeling of self-efficacy and self-worth instead of creating dependency (Ssewamala & Ismayilova, 2009; Ssewamala et al., 2016) and does not hold the risks of clients' indebtedness and defaulting (Duflo, Banerjee, Glennerster, & Kinnan, 2013; Hulme, Moore, & Barrientos, 2015; Karlan et al., 2014). More importantly, saving promotion can be a cost-efficient alternative to some more conventional poverty reduction strategies as it leverages on the management of existing resources instead of the infusion of large sums of external capital.

It remains to be seen whether saving promotion is an effective poverty reduction tool. Some scholars have depicted saving as a symptom of market failures in insurance systems (Hubbard & Judd, 1987; Loayza, Schmidt-Hebbel, & Servén, 2000) or as flawed in view of high inflation rates (Ndikumana, 2000). Conversely,

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other observational studies have pointed to beneficial impacts of savings on economic wellbeing (e.g. Beck, Demirgüç-Kunt, & Levine, 2007; Jalilian & Kirkpatrick, 2005), but remain limited by issues of reverse causality and endogeneity. More recently, randomized controlled trials (RCTs) have been popularized as a strong tool for generating causal evidence on the impact of development programs. In result, the number of RCTs evaluating the effectiveness of savings interventions has increased. Many of these have focused on the Sub-Saharan African region where a high percentage of people still live below the poverty line. New insights on the viability of saving promotion in reducing poverty are therefore highly relevant for designing adequate policies and programs in this region.

Using state-of-the-art systematic review methodology and meta-analysis techniques, the aim of this study is to quantitatively synthesize evidence on the effectiveness of saving promotion in Sub-Saharan Africa. Meta-analysis has several key strengths over individual quantitative studies: First, while a single study can generate findings with high internal validity, a systematic synthesis across multiple studies allows for more generalizable conclusions. Second, by pooling results across several studies and thus increasing the sample size, statistical power and precision of estimates is increased. Third, search strategies are set up to also identify and include estimates from unpublished studies, thus correcting pooled estimates for potential publication bias. Last and most importantly, cross-study estimates from a meta-regression can provide insights on how components of program design, intervention types, and participant characteristics may influence outcomes beyond the explanatory power of a single study (Card, 2012). Meta-analysis is therefore a first-choice tool to guide policy design.

Studies for our analysis were selected on three criteria. First, the intervention under evaluation had to feature a saving promotion component (e.g. access to formal bank accounts, savings groups, financial education on saving), excluding any intervention that combines saving promotion with additional components that could hypothetically have an impact on poverty, financial stress, or saving behavior through another mechanism.<sup>1</sup> Second, the intervention had to be evaluated within a randomized controlled set-up. Exclusive focus on randomized controlled trials, considered as the 'gold standard' approach to impact evaluation, aimed to ensure high internal validity of considered studies to obtain the most credible effect size estimates.<sup>2</sup> Third, the study had to report impacts on saving- and poverty-related outcomes. We allow for a relatively wide range of relevant outcome measures to gain a nuanced understanding of possible impacts. Existing RCTs have primarily focused on *intermediate outcomes*, for instance by observing increases in savings and financial literacy levels. However, our analysis intends to move beyond the short-run impacts of saving promotion and investigate its wider (and longer-term) welfare implications. We therefore draw on a body of literature that sheds light on the downstream impacts of increased savings on a range of poverty-related *distal outcomes*, including consumption, education, and health.

<sup>1</sup> We therefore exclude programs with components such as microcredit, insurance, mentorship, or cash transfers. We further exclude programs featuring financial incentives to save, such as provision of monetary top-ups contingent on realized savings amounts (see Ssewamala, Han, Neilands, Ismayilova, & Sperber, 2010a; Ssewamala & Ismayilova, 2009; Ssewamala et al., 2010b.). Incentivization schemes are equivalent to a conditional cash transfer contingent on saving compliance and may therefore differ from other saving promotion interventions both for necessitating infusion of external capital and manipulating levels of household poverty through channels other than saving.

<sup>2</sup> Although there is a range of high-quality quasi-experimental study designs, comparison analyses have pointed to discrepancies in findings when compared to truly experimental study designs, with a tendency of the former to over-estimate effect sizes (Glazerman, Levy, & Myers, 2003; Shadish & Ragsdale, 1996).

Our database search identifies 27 eligible randomized controlled trials on saving promotion programs. Results from our meta-analysis show that saving promotion interventions do help households in Sub-Saharan Africa to accumulate savings and, more importantly, have trickle-down effects on poverty-related outcomes. Specifically, we show small but significant impacts on household expenditures and incomes, higher returns from family businesses, and improved food security.

To our knowledge, the present review is the first to quantitatively synthesize evidence on a comprehensive range of saving promotion interventions. Three systematic reviews have been carried out to investigate the impact of general financial literacy programs. Yet, these studies are not exclusively savings-oriented and include evidence from developed countries where context and participants exhibit a range of characteristics that differ from low- and middle-income countries (Fernandes, Lynch, & Netemeyer, 2014; Kaiser & Menkhoff, 2016; O'Prey & Shephard, 2014). Three further reviews examined a broader range of programs, including microcredit interventions and self-help groups and therefore feature programmatic components that could impact poverty alleviation through channels other than saving (Brody et al., 2015; Duvendack et al., 2011; Stewart et al., 2012). Another review put exclusive focus on formal banking services in low- and middle-income countries, thus excluding a range of other saving interventions such as promotion of savings groups (Pande, Cole, Sivasankaran, Bastian, & Durlacher, 2012).

The remainder of this paper proceeds as follows. The next section defines the geographic scope of our review. Section 3 discusses the theoretical literature on saving promotion interventions and their outcomes. Section 4 describes the data source and the measurement of variables. Section 5 introduces the statistical methods for effect size aggregation and meta-regression. The main results are presented and discussed in Section 6, before the conclusions set out in Section 7.

## 2. Geographic scope

This systematic review is focused on Sub-Saharan Africa as motivated by two key considerations. First, Sub-Saharan Africa remains one of the most impoverished and under-served regions and its study is therefore justified from an equity perspective. Financial inclusion on the continent continues to lag behind and penetration of formal banking is the lowest globally. Across Sub-Saharan Africa, only 35% of adults hold a bank account (largest access rates are in Kenya and South Africa), compared to at least 50% in Asia, Latin America, and the Caribbean, and 95% in high-income countries (World Bank, 2016; Demirgüç-Kunt & Klapper, 2012). The aggregated savings rates in Sub-Saharan Africa only amounts up to 15% of the gross national income. While savings rates have been rising in other regions over the past few decades (e.g. doubled in East Asia), they have stagnated in Sub-Saharan Africa (Loayza et al., 2000). Apart from this, the global disease burden is still highest in Sub-Saharan Africa and financial mechanisms to alleviate the impact of associated income shocks are therefore most warranted. For instance, both prevalence and mortality rates from HIV/AIDS exceed those of other regions, and 75% of all new global HIV infections in 2015 were registered in Sub-Saharan Africa (see Wang et al., 2016). In absence of formal insurance mechanisms, precautionary saving can be a crucial protection mechanism against the financial burden resulting from death or chronic illness of a breadwinner.

Second, our geographic focus is essential in limiting heterogeneity of settings and populations. In line with previous scholars, we argue that "context matters" for program design and particularly for an underlying theory of change (see Bates & Glennster,

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