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The Impact of Microfinance in Sub-Saharan Africa: A Systematic Review of the Evidence

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Summary. — Microfinance is seen as a key development tool, and despite the current deepening crisis within the industry, it continues to grow in sub-Saharan Africa. We systematically reviewed the evidence of the impacts of micro-credit and micro-savings on poor people in sub-Saharan Africa. We considered impacts on income, savings, expenditure, and the accumulation of assets, as well as non-financial outcomes including health, nutrition, food security, education, child labor, women's empowerment, housing, job creation, and social cohesion. The available evidence shows that microfinance does harm, as well as good, to the livelihoods of the poor.

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1. INTRODUCTION

The development industry, and in particular government agencies, are calling for greater evidence and a focus on “what works”. There is therefore an urgent need to collate and review the available evidence of the impacts of major development programs. Microfinance is one of the largest development programs worldwide, both in financial terms and in relation to the number of poor people targeted. In this paper, we report the findings of the first systematic review to address the question “what works” in microfinance. In doing so we employ a rigorous and increasingly important methodology which is promoted as a valuable tool for bringing together the best quality, most relevant evidence (DFID, 2011; Petticrew & Roberts, 2006).

The provision of “micro” financial services to the poor (those earning less than \$2/day), in particular small loans of \$50–\$1000, has been hailed by advocates as an effective poverty alleviation and development tool (CGAP, 2003, pp. 1; Robinson, 2001; Yunus, 1999). Known collectively as microfinance, these services include micro-credit, micro-savings, micro-insurance, and money transfers, and have been attributed with enabling micro-entrepreneurs to build businesses and increase their income¹, as well as improving the general economic wellbeing of the poor. Furthermore, microfinance has been credited with improving other financial outcomes (including savings and the accumulation of assets such as furniture or a sewing machine), as well as non-financial outcomes such as health, food-security, nutrition, education, women's empowerment, housing, job creation, and social cohesion (Afrane, 2002; Barnes, 1996; Barnes & Keogh, 1999; Beck, Demircuc-Kunt, & Levine, 2004; Hietalahti & Linden, 2006;

Hossain & Knight, 2008; Khandker, 2001; Odell, 2010; Schuler, Hashemi, & Riley, 1997; UNICEF, 1997; Wright, 2000). The underlying logic is that by providing financial services to the poor, for example in the form of credit or savings, they manage their money differently, investing, acquiring productive assets, increasing their skills levels, opening new businesses, etc.

But various studies have questioned these positive impacts. Some indicate much more mixed impacts, such as benefits for the poor but not for the poorest (e.g., Copestake, Bhalotra, & Johnson, 2001; Hulme & Mosley, 1996; Morduch, 1998; Mosley & Hulme, 1998; Zaman, 2001); or helping the poor to better manage the money they have (Rutherford, 1996, pp. 2) but not directly or sufficiently increasing income, empowering women, etc. (e.g., Husain, Mukherjee, & Dutta, 2010; Mayoux, 1999; Rahman, 1998) or that money spent on microfinances could be better used more effectively for other interventions (Karnani, 2007) or that a single intervention (such as microfinance) is much less effective as an

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anti-poverty resource than simultaneous efforts that combine microfinance, health, education, etc. (Lipton, 1996). Others allude to negative impacts (i.e., that microfinance does harm), such as the exploitation of women, increased or at best unchanged poverty levels, increased income inequality, increased workloads and child labor, the creation of dependencies and barriers to sustainable local economic and social development (e.g., Adams & Von Pischke, 1992; Bateman & Chang, 2009; Copestake, 2002; Rogaly, 1996).

Microfinance is increasingly questioned, not only for its lack of proven poverty reduction and development outcomes, but also on ideological terms — for example, see Bateman (2010, 2011), Dichter (2007), Fernando (2006), and Roy (2010). The recent crisis which has hit the industry in India (but also in Bosnia, Morocco, Pakistan, Nicaragua, and Nigeria) where thousands are over-indebted with serious implications for people's livelihoods and communities, also increased the concerns. Further, an increase in the commercialization of the industry has been met with suspicion and concerns around the ethics of making money from the poor, and talk of "mission drift", even within the microfinance industry (Chang, 2007; Fernando, 2006; Karnani, 2009; Weber, 2006; Yunus & Weber, 2010). Especially in India the case for greater regulation has been voiced clearer and louder as businesses have failed and suicide rates risen. The evidence for the positive claims surrounding microfinance is being challenged, and rigorous evaluations sought. But much of the available research has focused on how to improve the industry, rather than how to prove impact (Hulme, 1997). What good research does exist has only served to deepen the controversy: the publication in 2009 of the first randomized controlled trials (RCTs) in India and the Philippines (Banerjee, Duflo, Glennerster, & Kinnan, 2009; Karlan & Zinman, 2010) failed to find evidence that microfinance alleviates poverty, sparking a defensive response from within the industry (Acción International *et al.*, 2010). There is a need to systematically bring together this varied evidence to establish what the combined good quality evidence shows about whether or not microfinance benefits the poor in terms of a wide range of outcomes. Furthermore, in acknowledgement that microfinance itself varies enormously and is available to a wide range of people in a variety of contexts (Goldberg, 2005; Odell, 2010, pp. 12), there is a need to consider what we know about the different types and models of microfinance and whether or not they work, for whom and in what circumstances.

While the level of evidence is gradually increasing, a simple search of bibliographic literature, and more thorough overviews of the evidence (Duvendack *et al.*, 2011), reveal that the majority of microfinance and of the related evaluations still emanate from Asia where the microfinance movement originated. Theory suggests however, that microfinance works differently in different regions where the population density, attitudes to debt, group-cohesion, enterprise development, financial literacy, and financial service providers all vary (Armendáriz de Aghion & Morduch, 2005; Fischer & Ghatak, 2011; MIX (Microfinance Information Exchange) & CGAP (Consultative Group to Assist the Poor), 2011). We believe there to be an increasing need to understand the evidence from sub-Saharan Africa, one of the poorest regions of the world where development aid is proportionally large (United Nations, 2008, pp. 1), and where there are still majority non-profit service providers in the microfinance industry (MIX & CGAP, 2011, pp. 2).² International agencies are increasing their investment in a wide range of microfinance initiatives in the region (MIX & CGAP, 2011; World Bank & DFID, 2010, pp. 8), where microfinance has a long history pre-dating

the better known micro-banks such as Grameen Bank; these include the credit unions of the 1950s and 1960s (Raftopoulos & Lacoste, 2001), and group-based savings and lending groups in the form of cooperatives (MIX & CGAP, 2011, pp. 3). At the same time, the microfinance industry in Africa is still relatively small and being concentrated in a small number of countries (MIX & CGAP, 2011, pp.10), but growing, thus providing an opportunity for research to shape decision-making, especially in the light of international agencies planning new initiatives to develop capacity in the region and seeking both the opinions of stakeholders (World Bank & DFID, 2010) and evidence of effectiveness (DFID, 2010).

Systematic review methodology provides an ideal opportunity to address this question of the state of the evidence of impact in the region thus far. While relatively new in the field of international development, this approach is standard practice in medicine, health promotion, and some areas of social policy, where policy-decisions are not made and new research not commissioned without first understanding the combined findings of the best-quality and most relevant research evidence as reported in a systematic review (Cochrane Collaboration, 2012; Cook, Mulrow, & Hayes, 1997; Mulrow, 1994; Sebba, 2004).

It is in this context that we set out to systematically review the evidence of impact of microfinance on the poor in Sub-Saharan Africa to test the claims for its successes and inform future decisions. Specifically we were commissioned by the UK's Department for International Development (DFID) to report on what is known about whether or not microfinance works in the region and, where possible, to differentiate between the different models of microfinance and their varying impacts in varying contexts. In doing so, we report the findings of the first published systematic review of the impact of microfinance on the poor.

2. METHODS

In line with systematic review methodology, we developed a protocol for this review which was peer reviewed and published at the start of the project (Stewart, van Rooyen, Majoro, & de Wet, 2010). This presented in detail the methodology described here and, through the process of review and publication, enabled us to take on board the views of wider stakeholders and ensured transparency of our approach. In addition to our multi-disciplinary international team, during the course of the project we drew on the expertise of potential users of the review, including researchers, policy advisers, and microfinance organizations, particularly seeking their input on where to search for relevant literature, on our initial findings and on how best to disseminate this work.

In order to ensure we identified all the relevant literature for inclusion in the review, we searched systematically for evaluations of micro-credit or micro-savings in sub-Saharan Africa, looking in three specialist systematic review libraries, 18 electronic online databases, the websites of 24 organizations, and an online directory of books. We also contacted 23 key organizations and individuals requesting relevant evidence, conducted citation searches for two key publications and searched the reference lists of initially included papers. In doing so, it was our intention to increase the sensitivity of our searching and avoid missing any relevant high quality research from the region.

Our search results were then screened for relevance in two stages. This involved systematically applying pre-specified "inclusion criteria". Research had to be: conducted in at least

one sub-Saharan African country; evaluating the impact of either micro-credit or micro-savings interventions with or without other related programs; using a comparative study design comparing impacts on those who received these financial services with those who did not; and considering impacts on clients as opposed to outcomes for the microfinance institutions. Initially we were over-inclusive and then collected full texts of papers which were scrutinized by two researchers for relevance in terms of being studies about the *impact of micro-credit and/or micro-savings on the poor in sub-Saharan Africa*. Next those papers which met our inclusion criteria were coded³ by the same two researchers, working closely together, querying and discussing any uncertainties to ensure accuracy, avoid bias and maintain clarity. Our coding included classifying studies according to the type of microfinance interventions evaluated, the target populations, the evaluation designs and the outcomes considered. The framework of outcomes was drawn up by the authors and amended following consultation with leading researchers of microfinance and systematic review methodologists.

All relevant studies were assessed using predetermined quality criteria, and the findings of those studies judged to be of “good enough” quality were extracted. One of the greatest challenges in assessing the impact of interventions is attributing causality to the said intervention. While it might be assumed that having a comparative study design with intervention and control groups is sufficient to establish causality, this is not necessarily the case (see, e.g., *Lecy, 2010*). When appraising the quality of studies for inclusion in this review we considered the appropriateness of the theoretical model tested, the study design employed and the conclusions drawn. Specifically we assessed the basis on which the study population (both those in the intervention group and those in the comparison group) were chosen and what the researchers did to assess and account for differences between them. We identified the timeline of the research, and the timing of and methods for data collection. Furthermore, we explored the extent to which the research team accounted for drop-out from the intervention and from the study itself and the reasons for such departures: clients may be leaving a microfinance program because they can no longer afford repayments, or because they no longer need a loan (and a multitude of other reasons). We examined the methods of analysis and their appropriateness to the study questions, and reflected on the completeness of the reporting of findings (see *Stewart, van Rooyen, Majoro, et al. (2010), Stewart, van Rooyen, Dickson, Majoro, and de Wet (2010)* for the specific criteria that we used). Each study was judged on each criterion to enable us to identify and exclude those most prone to bias. Where studies were judged to be at high risk of bias or lacking in enough detail to be thoroughly evaluated, they were excluded from the review. In the end, just 15 studies were deemed “good enough”, among which were four studies eliciting greatest confidence in the rigor of their methodology.

Each of these 15 studies was described using a structured format which included the nature of the intervention evaluated and related programs, the context of the study and key elements of the study design. These are summarized in *Table 1* below. The findings of the 15 studies were then synthesized using two approaches: identification of whether micro-credit or micro-savings were having positive, negative, varied or no effects on the lives of poor people, and a narrative synthesis of qualitative findings. We developed a causal chain to unpack how microfinance impacts on poor people and tested it by mapping the available evidence of effectiveness onto this causal chain. Lastly, our project report was peer reviewed and disseminated (*Stewart, van Rooyen, Dickson, et al. 2010*).

While our report presents a technical account of our methods and findings, it is largely a procedural document; this paper presents our findings and discusses them in detail for an academic audience. In so doing, we present a valuable status report of the good quality, relevant, reliable evidence from sub-Saharan Africa on the impact of microfinance and move forward knowledge on this important subject.

3. FINDINGS

In discussing our findings, we consider the size and nature of the evidence base, and then present the impacts on studied outcomes — for this we broadly categorize the outcomes studied, and claimed by the microfinance industry and in the evaluation literature to be the target, as financial and non-financial outcomes.

(a) *Size of the evidence base*

We found a larger pool of evidence about the impacts of micro-credit and micro-savings in sub-Saharan Africa than we had anticipated. Our searches resulted in over 6000 hits, which were then scanned for relevance and narrowed down to 383 “probably relevant” reports. Reading the full texts of these enabled us to identify 69 relevant impact evaluations. We excluded those which did not have a comparison group (34 evaluations), lacked details which were judged essential for the findings to be useful (14 evaluations),⁴ or lacked methodological rigor (eight evaluations),⁵ leaving us with 15 studies for inclusion in the review. These 15 are, therefore, the “available” reliable and relevant evidence on the impact of micro-savings and micro-credit in sub-Saharan Africa.

These 15 studies are summarized in *Table 1* below. They included evaluations of programs in Ethiopia, Ghana, Kenya, Madagascar, Malawi, Rwanda, South Africa, Tanzania (Zanzibar), Uganda, and Zimbabwe. Of these 11 were studies of micro-credit, two of combined micro-credit and micro-savings interventions, and two of micro-savings alone.

Before considering the findings of our review of the evidence of impact, it is worth noting the methodological challenges we faced conducting this review. We were surprised to discover the extent of the diversity within the included studies, both in the interventions evaluated and in the outcomes measured. The variety made it difficult to synthesize the available evidence. The outcomes which some micro-credit and micro-savings initiatives aim to achieve are also fundamentally difficult to define and measure — for example, the empowerment of women. One study in our review considered empowerment in a thorough and thoughtful way but did not use standardized outcome measures (*Lakwo, 2006*). While valuable, the succinct, standard approaches to measuring outcomes commonly sought by systematic reviewers do not yet appear to be available for outcomes such as these.

The interventions themselves were also reported in varying degrees of detail. In particular we noted the lack of descriptions of the consistency of the interventions over time and the unavailability of information about other microfinance programs in the study areas which contaminated the results. Data on drop out, from both the interventions and the studies, were often missing.

We also found relatively few evaluations of “traditional” self-help models of micro-credit and -savings where the community saves and borrows from the same “pot”. This is inconsistent with the microfinance profile in sub-Saharan Africa (*Honohan & Beck, 2007, pp. 166; Mosley & Rock, 2004, pp.*

Table 1. *A summary of the 15 reliable and relevant studies included in this review*

Main paper	Study design	Setting	Microfinance intervention	Microfinance model	Name of microfinance program
Adjei <i>et al.</i> (2009)	With and without	Rural and urban setting in Ghana	Credit with business management training & client welfare scheme	Group-based lending to men and women	Sinapi Aba Trust (SAT)
Ashraf <i>et al.</i> (2008)	Cluster RCT	Rural Kenya	Credit with orientation course & advice on export crops and facilitation of export process	Group-based lending to small holder farmers	Drumnet
Barnes, Gaile <i>et al.</i> (2001)	Controlled trial	Rural and urban setting in Uganda	Credit and savings with non-formal education in health, nutrition, family planning, HIV/Aids prevention & business management	Group-based lending to men and women	Foundation for International Community Assistance (FINCA), Foundation for Credit and Community Assistance (FOCCAS), Promotion of Rural Initiatives and development enterprises (PRIDE)
Barnes, Keogh <i>et al.</i> (2001)	Control trial	Urban Zimbabwe	Credit with business management training	Group and individual lending to men and women	Zambuko Trust
Brannen (2010)	With and without	Rural Tanzania (<i>Zanzibar</i>)	Credit and savings with business training	Group-based lending to men and women	Village Savings and Loan Association
Doocy <i>et al.</i> (2005)	With and without	Rural Ethiopia	Credit	Group-based lending to men and women	WISDOM Microfinance Institution
Dupas and Robinson (2008)	RCT	Rural Kenya	Savings with scope to purchase shares	Individual savings accounts	<i>Unnamed</i>
Gubert and Roubaud (2005)	With and without	Urban Madagascar	Credit	Group-based lending to men and women	Action for Development and Financing of Micro-Enterprises (ADéFI)
Lacalle Calderon <i>et al.</i> (2008)	With and without	Rural Rwanda	Credit	Group-based lending to men and women	Spanish Red Cross in Rwanda
Lakwo (2006)	With and without	Rural Uganda	Credit with training in microenterprise skills and business counseling	Group-based lending to men and women	Pakwach Nam Co-op Savings and Credit Society
Nanor (2008)	With and without	Rural Ghana	Credit with financial literacy training	Individual lending to women	Upper Manya Kro Rural Bank, South Akrim Rural Bank and the Afram Rural Bank. KROBODAN (NGO)
Pronyk <i>et al.</i> (2008)	Cluster RCT	Rural South Africa	Credit with gender and HIV/awareness training [Sisters for Life] and community mobilization support	Group-based lending to men and women	Small Enterprise Foundation (SEF)
Shimamura and Lastarria-Cornhiel (2009)	With and without	Rural Malawi	Credit with financial literacy training	Group and individual lending to men and women	Malawi Rural Finance Company (MRFC)
Ssewamala <i>et al.</i> (2010)	Cluster RCT	Rural Uganda	Savings dedicated to paying for post-primary schooling, alongside training and mentorship programs	Individual savings accounts for young people (boys and girls)	Suubi Research Program (Suubi is Luganda for 'hope')
Wakoko (2004)	With and without	Rural and urban setting in Uganda	Credit with various other unspecified programs	Group and individual lending to men and women	Unnamed

468). However, given that the current trend is for microfinance, not as informal community-grown initiatives, but more formal NGO (including private sector) and government-driven development and commercial programs, perhaps it is not surprising that evaluations of their programs dominate the evidence. If there were more studies on informal mutual forms of microfinance (which might also be more savings-oriented), we might have found evidence regarding microfinance impact on, for example, social cohesion. Further, the majority of the included studies were in rural settings, although they did incorporate a wide range of providers and of different lending and savings models. Most of the evidence also related to micro-credit, with only limited evidence relating to micro-savings. Having said this, the evidence on savings was from two very high quality RCTs. These imbalances are indicative of gaps in the evidence base, rather than a limitation of this review *per se*. We advise careful consideration of this reviewed evidence when applying it to specific contexts.

As can be seen from Table 1, we found a wide variety of interventions, both in terms of the “element” of microfinance evaluated (savings and credit and various additional linked programs), and in terms of the lending model (group-based or individual). While we have considered the different models of microfinance when reporting the findings of the included studies, we do not believe that there are currently sufficient levels of data from the available rigorous relevant evidence to allow us to draw clear conclusions on which models work best. On the whole the findings we report related to mainly group-based micro-credit, or individual savings accounts as distinguished below.

Underlying this review and the studies included within it is the hypothesis that by providing financial services in terms of micro-credit and/or micro-savings (combined with various related interventions) microfinance institutions are changing the way in which poor people manage their finances, spending and saving their money in different ways. In turn, these changes are impacting on a wide range of important outcomes including financial and non-financial outcomes. In all 15 studies contained within this review the authors of the included studies are thus testing through empirical data the theory that microfinance (in the specific forms assessed in that study) impacts on the specific outcomes measured, be they income, education, health, or others. These findings are presented below.

(a) *Impacts of micro-credit and micro-savings on financial outcomes*

For impacts on financial outcomes we considered the income levels of individuals, of households and of businesses, as well as savings levels, expenditure, and asset accumulation. We acknowledged that for poor individuals and in poor households, the differentiation between individual, household, and business wealth is not clear cut and can be closely linked (Ssendi & Anderson, 2009). We take our lead from the studies reviewed and report the levels at which outcomes are measured within them. In this article we use the outcomes as they were reported in the 15 included studies. Ten studies measured outcomes related to these financial outcomes. Their findings are grouped according to the type of microfinance evaluated and are summarized in Table 2 below.

Five of the 15 good quality studies explored the impact of micro-credit and/or micro-savings on income (Ashraf, Gine, & Karlan, 2008; Barnes, Keogh, & Namarundwe, 2001; Dupas & Robinson, 2008; Gubert & Roubaud, 2005; Nanor, 2008). The available evidence from these studies suggests that micro-credit has both positive and negative impacts on the

incomes of poor people, in one instance both increasing incomes and decreasing incomes. No studies assessed the impact of micro-credit or micro-savings on the individual incomes of poor people, while there is some evidence for impacts on household and business income. Regarding household income, the one study that explores the impact of micro-credit directly on household income, reveals inconsistent evidence, with clients’ household income significantly higher than that of non-clients within two of the four districts examined, but significantly lower in the other two (Nanor, 2008). Regarding business income, although there are data from two studies to support the hypothesis that farmers receiving micro-credit diversify the crops they grow (Barnes, Gaile, & Kibombo, 2001; Barnes, Keogh, *et al.*, 2001), only one of these studies found that this increase in the number of crops grown translated into greater business income (Barnes, Gaile, *et al.*, 2001). A study focused on a combined agricultural business development and credit program in Kenya showed increased farmers’ income from export crops, but this could not be attributed to the micro-credit element of the intervention (Ashraf *et al.*, 2008). While one study suggests client businesses performed better than those of the control group, this was not statistically significant (Gubert & Roubaud, 2005). Another study found that the longer a client stayed in a credit scheme, the *worse* their business profit became (Nanor, 2008). This highlights the need to better understand how micro-credit might enable increased business profits. As can be seen from Table 2 it is not really possible to comment on whether group or individual lending models are more effective at increasing income as more studies are needed before patterns can be identified from the available research.

Table 2 also shows the impact of micro-savings on income levels. One study on micro-savings (also the only high quality study among the five studies dealing with financial outcomes) found no impact on income of businesses (Dupas & Robinson, 2008). While it found that client women invest more in their businesses, there is no evidence that these investments led to greater profit levels (Dupas & Robinson, 2008).

The available evidence regarding impact on saving levels seems to be more positive, though only four studies looked at savings levels (summarized in Table 2 above); it suggests that both micro-credit and micro-savings have positive impacts on the levels of poor people’s savings. This is true for the three high quality studies and the one medium quality study reviewed (Adjei, Arun, & Hossain, 2009; Barnes, Gaile, *et al.*, 2001; Dupas & Robinson, 2008; Ssewamala *et al.*, 2010). Similarly, the evidence shows that micro-credit and micro-savings increase both expenditure (only two studies considered this impact) and the accumulation of assets. It is worth noting however, that the two high quality studies which consider these outcomes are perhaps less positive than the five medium quality studies. Furthermore, two studies found that while households accumulated more assets initially, this did not continue over time (Adjei *et al.*, 2009; Brannen, 2010).

(c) *Impacts of micro-credit and micro-savings on non-financial outcomes*

In addition to the financial outcomes indicators explored above, we have extracted findings from 14⁶ good quality studies relating to the health, food security, education of clients and their families, and child labor, as well as exploring the evidence for the empowerment of women, social cohesion, improved housing, and job creation. Twelve of the reviewed studies considered outcomes related to health, food security

Table 2. Findings on impact of micro-credit and micro-savings on income, savings levels, expenditure and accumulation of assets

Study	Type of impact study	Source of evidence			Evidence of impact		
		Microfinance type	Microfinance model	Income	Savings levels	Expenditure	Accumulation of assets
<i>Impact of micro-credit</i>							
Adjei <i>et al.</i> (2009)	With and without	Credit with business management training & client welfare scheme	Group-based lending to men and women		+ for individual savings (mostly involuntary savings)		+ for households (but no association with length of time in micro-credit program)
Ashraf <i>et al.</i> (2008)	Cluster RCT	Credit with orientation course & advice on export crops and facilitation of export process	Group-based lending to small holder farmers	+ for business income (but not attributable to micro-credit)			
Barnes, Keogh, <i>et al.</i> (2001)	Control trial	Credit with business management training	Group and individual lending to men and women	+ for household income			+ for business-level assets
Gubert and Roubaud (2005)	With and without study	Credit	Group-based lending to men and women	+ for business income			
Lacalle Calderon <i>et al.</i> (2008)	With and without study	Credit	Group-based lending to men and women				+ for households
Nanor (2008)	With and without	Credit with financial literacy training	Individual lending to women	+ and – Mixed for household and business income		+ (but varied)	
<i>Impact of combined micro-credit and micro-savings</i>							
Barnes, Gaile, <i>et al.</i> (2001)	Control trial	Credit and savings with non-formal education in health, nutrition, family planning, HIV/Aids prevention & business management	Group-based lending to men and women		+ for individual savings		+ for households (but not significant, and a small number of clients had to sell assets to make loan repayments)
Brannen (2010)	With and without	Credit and savings with business training	Group-based lending to men and women				+ for households (not over time)
<i>Impact of micro-savings</i>							
Dupas and Robinson (2008)	RCT	Savings with scope to purchase shares	Individual savings accounts	No impact identified at business level	+ for individual savings (but varied)	No effect at individual level	+ and – Mixed effect at business level
Ssewamala <i>et al.</i> (2010)	Cluster RCT	Savings dedicated to paying for post-primary schooling, alongside training and mentorship programs	Individual savings accounts for young people (boys and girls)		+ for individual savings		

Table 3. *Findings on impact of micro-credit and micro-savings on health, food security and nutrition, and education*

Study	Source of evidence			Evidence of impact		
	Type of impact study	Microfinance type	Microfinance model	Health	Food security and nutrition	Education
<i>Impact of micro-credit</i>						
Adjei <i>et al.</i> (2009)	With and without study	Credit with business management training & client welfare scheme	Group-based lending to men and women	+		+
Barnes, Keogh, <i>et al.</i> (2001)	Control trial	Credit with business management training	Group and individual lending to men and women	+ (in terms of range of income sources to smooth health shocks)	+	+ (boys) – (girls, especially for continuing clients)
Doocy <i>et al.</i> (2005)	With and without	Credit	Group-based lending to men and women		No effect	
Gubert and Roubaud (2005)	With and without	Credit	Group-based lending to men and women			No effect on enrollment
Lacalle Calderon <i>et al.</i> (2008)	With and without	Credit	Group-based lending to men and women	+	+	+
Nanor (2008)	With and without	Credit with financial literacy training	Individual loans for women		Varied	Mixed (+ in some districts, – in others)
Pronyk <i>et al.</i> (2008)	Cluster RCT	Credit with gender and HIV/awareness training [Sisters for Life] and community mobilization support	Group-based lending to men and women	+ (but not attributed to micro-credit element of the program)		
Shimamura and Lasterria-Cornhiel (2009)	With and without	Credit with financial literacy training	Group and individual lending to men and women		+ (only in specific instances)	– for primary No effect for secondary
<i>Impact of combined micro-credit and micro-savings</i>						
Barnes, Gaile, <i>et al.</i> (2001)	Control trial	Credit and savings with non-formal education in health, nutrition, family planning, HIV/Aids prevention & business management	Group-based lending to men and women			–
Brannen (2010)	With and without	Credit and savings with business training	Group-based lending to men and women	+	+	No effect
<i>Impact of micro-savings</i>						
Dupas and Robinson (2008)	RCT	Savings with scope to purchase shares	Individual savings accounts	+	+	
Ssewamala <i>et al.</i> (2010)	Cluster RCT	Savings dedicated to paying for post-primary schooling, alongside training and mentorship programs	Individual savings accounts for young people (boys and girls)	+		+

and nutrition, and education. Their findings are summarized and grouped into the broad type and model of microfinance evaluated in Table 3 and discussed below.

(i) Health

The available evidence from seven, both high and medium quality, studies suggests that both micro-credit and micro-sav-

ings have a generally positive impact on the health of poor people in terms of the amount of days when they are unable to work due to sickness, the number of episodes of sickness (for example due to malaria) and their levels of nutrition assessed using standard measures such as the middle upper arm circumference (an indicator of short-term nutrition) and height (an indicator of longer term nutrition). There is some

Table 4. Findings on impact of micro-credit and micro-savings on women's empowerment, housing and job creation

Source of evidence				Evidence of impact		
Study	Type of impact study	Microfinance type	Microfinance model	Women's empowerment	Housing	Job creation
<i>Impact of micro-credit</i>						
Barnes, Keogh, <i>et al.</i> (2001)	Control trial	Credit with business management training	Group and individual lending to men and women	+ (but varied)		No effect
Gubert and Roubaud (2005)	With and without	Credit	Group-based lending to men and women			+ (but reduces over time in program)
Lacalle Calderon <i>et al.</i> (2008)	With and without	Credit	Group-based lending to men and women		+	
Lakwo (2006)	With and without	Credit with training in microenterprise skills and business counseling	Group-based lending to men and women	+		
Pronyk <i>et al.</i> (2008)	Cluster RCT	Credit with gender and HIV/awareness training [Sisters for Life] and community mobilization support	Group-based lending to men and women	+ and – Mixed		
Wakoko (2004)	With and without	Credit with various other unspecified programs	Group and individual lending to men and women	No effect		
<i>Impact of combined micro-credit and micro-savings</i>						
Barnes, Gaile, <i>et al.</i> (2001)	Control trial	Credit and savings with non-formal education in health, nutrition, family planning, HIV/Aids prevention & business management	Group-based lending to men and women		+	
Brannen (2010)	With and without	Credit and savings with business training	Group-based lending to men and women		+	

evidence that micro-credit increases investment in health care in terms of health insurance (Lacalle Calderon, Rico Garrido, & Duran Navarro, 2008) and expenditure on health care itself (Adjei *et al.*, 2009; Brannen, 2010; Dupas & Robinson, 2008) — note that only Dupas and Robinson's is a high quality study, while only Adjei *et al.*'s finding is statistically significant. They also find that length of time within the program does not affect health expenditure (Adjei *et al.*, 2009). Micro-credit may also improve the health of the children of clients in terms of (a) protective behaviors (such as sleeping under a mosquito net (Brannen, 2010)), and (b) nutritional status (for families in particularly stressed environments (Doocy, Teffera, Norell, & Burnham, 2005)). However, Doocy and colleagues' findings are only significant for some of the geographical areas investigated. When one considers nutrition as an indication of health, Doocy and colleagues find that established and new borrowers have better nourished children than non-borrowing community controls, suggesting that borrowers are quite different from non-borrowers. It is worth noting that Doocy *et al.* (2005) do find that it is largely the female clients (and not male clients) who invest in their children's nutrition.

Two trials we judged as high quality found improvements in health behavior due to micro-credit and micro-savings interventions respectively. While the IMAGE trial in South Africa found significant improvements in sexual health and women's empowerment for intervention participants, the intervention they received included far more than just micro-credit, with considerable investment in gender and HIV awareness training (Pronyk *et al.*, 2008). A trial of the impact of savings accounts on the risk-taking sexual health behaviors of AIDS-orphans in

Uganda (Ssewamala *et al.*, 2010) however, did find significant improvements for the young savers due to the micro-savings intervention itself. Relative to the boys and girls in the control group who showed an increased approval of risky sexual behaviors over the course of the study, those in the intervention group showed either unchanged attitudes (in girls) or a significant decrease in approval of such behaviors (in boys). Thus, both boys and girls benefitted from the intervention, but in different ways, and girls to a lesser extent.

(ii) Food quality and nutrition

The majority of the evidence suggests that micro-credit and micro-savings have a positive impact on food security and nutrition, although this is not true across the board; neither participation in a combined micro-savings and micro-credit program (Brannen, 2010), nor participation in a credit-only program (Doocy *et al.*, 2005), has any effect on meal quantity. Evidence from Tanzania (Brannen, 2010) and Rwanda (Lacalle Calderon *et al.*, 2008) do suggest that participation in the Village Savings and Credit Association and the Red Cross credit program respectively is associated with a significant positive increase in meal quality, and with an increase in consumption of meat (in both countries), and fish (in Zanzibar). Participation in the Zambuko Trust in Zimbabwe also had a positive impact on consumption of nutritious food (meat, chicken or fish, milk) in extremely poor client households compared to non-clients and those who have left the program (Barnes, Keogh, *et al.*, 2001).

This is contrasted with data from Ethiopia (Doocy *et al.*, 2005) and Ghana (Nanor, 2008) which show little significant difference in household diet and food security due to

micro-credit. Doocy and colleagues' study about coping mechanisms with regard to food in Ethiopia shows insignificant differences in the use of coping mechanisms between established clients, incoming clients, and community controls (2005). Prevalence of consumption of seed crop was similar among established clients and community controls at 17.1% and 19.2% respectively, while incoming clients had a significantly lower rate of seed crop consumption at 11.4% (Doocy *et al.*, 2005). There was a significant difference in the reported consumption and sale of small animals between the three client groups: 37.7% of established clients as compared to 28.5% of incoming clients, and 30.7% of community controls reported above normal consumption or sale of small animals (Doocy *et al.*, 2005). Clearly other factors are influencing diet and food security other than merely access to micro-credit.

There is a suggestion from the high quality RCT of micro-savings in Kenya that increased food quality is due to increased food expenditures which increased significantly for client women (Dupas & Robinson, 2008). Analysis of data from Ethiopia also indicates that female client households were more successful in maintaining quality diets than households of male clients or community controls (Doocy *et al.*, 2005). This is supported in part by data from Malawi which show that access to credit of adult female household members improves girls' (up to six years old), but not boys', long-term nutrition as measured by height for age (Shimamura & Lastarria-Cornhiel, 2009). This is not the case for measures of short-term nutrition (such as mid-upper arm circumference) and does not apply to male household credit recipients. The gender dimension to the impact of micro-credit and micro-savings on food quality and nutrition is thus obvious.

(iii) Education

Nine studies provide evidence of the impact of micro-credit and micro-savings on education. The evidence for micro-credit's impact on school enrollment is contradictory, suggesting some positive and negative impacts: there are two studies which show that participation in a credit program increases a household's expenditure on children's education (Adjei *et al.*, 2009; Lacalle Calderon *et al.*, 2008); two studies find no such effect (Brannen, 2010; Gubert & Roubaud, 2005). One other study finds both positive and negative impacts on expenditure on education depending on the region, suggesting other regional factors are influencing the causal relationship between micro-credit and education (Nanor, 2008). Perhaps most concerning are two studies which show that microfinance is doing harm by reducing education among micro-credit clients: data from Malawi shows that micro-credit significantly decreases primary school attendance among borrowers' children, leading to a repetition of primary grades in young boys and delayed or lack of enrollment for young girls (Shimamura & Lastarria-Cornhiel, 2009). In Uganda a high quality study found that client households were significantly more likely than non-client households to be unable to pay school charges for one or more household members for at least one term during previous two years, hence children had to drop out of school (Barnes, Gaile, *et al.*, 2001).

Further, data suggest that the length of time within the credit program fails to increase positive impacts on expenditure on education (Adjei *et al.*, 2009), and worse still, decreases children's enrollment: one study found that on-going borrowing reduced children's enrollment in school, with the proportion of the household's girls aged six to sixteen in school decreasing greater for continuing clients, than for departing clients and non-clients (Barnes, Keogh, *et al.*, 2001). The impacts are also different for girls and boys: data from Zimbabwe suggests participation in micro-credit has a positive impact on the

proportion of the household's boys aged six to sixteen actually enrolled in school (Barnes, Keogh, *et al.*, 2001), while data from the same study show no such effect for girls.

Regarding the impact of micro-savings on education, a high quality study on savings provision to AIDS-orphaned young people in Uganda shows increased intention to attend secondary schooling, and amplified certainty that these plans will come to fruition (Ssewamala *et al.*, 2010). These young people also did significantly better in Uganda's Primary Leaving Examinations than the control group.

We thus found that the evidence of the impact of micro-credit on education is varied, with limited evidence for positive effects and considerable evidence that micro-credit may be doing harm, negatively impacting on the education of clients' children. Micro-credit does not appear to increase child labor (see below), so we presume children are not being taken out of school to work, but rather that clients have difficulties paying school expenses or reprioritize spending, and therefore children (especially girls) are taken out of school.

(iv) Child labor

While we did not explicitly seek out evidence on the impact of micro-credit or micro-savings on child labor, one study did explore this outcome (Shimamura & Lastarria-Cornhiel, 2009). Evidence from this study found no significant effect of micro-credit on child labor; indeed it reduced child participation in household chores. This was despite the finding within the same study that children of credit clients are less likely to attend school (Shimamura & Lastarria-Cornhiel, 2009). Although there was an increase among credit-clients' children's involvement in agricultural production (mostly tobacco production), this was not significant and the authors say this may be due to a measurement error — the survey was conducted after the harvest season.

A further eight studies considered the impact of micro-credit and micro-savings on women's empowerment, housing, and job creation. These studies are grouped into those which evaluated the findings of micro-credit and combined micro-credit and -savings (none of these evaluated micro-savings alone), and their findings are summarized in Table 4 below.

(v) Women's empowerment

From the four studies considering the impact of micro-credit on women's empowerment, there is some evidence that micro-credit is empowering women, however, this is not consistent across the reviewed studies. Three studies of the impact of micro-credit on empowerment, particularly women's empowerment, are inconclusive. This is largely due to the difficulties of isolating the impacts of micro-credit within complex interventions. There are some data from Uganda which suggest that micro-credit contributes to women's decision-making power, however, the author notes that this is a symptom of status within the household and control in their farming businesses as much as an impact of micro-credit (Wakoko, 2004). Similarly the data from the IMAGE trial in South Africa found a marked improvement in intervention women's ability to negotiate safe sexual practices and avoid intimate partner violence (Pronyk *et al.*, 2008). However, this is likely to be due to other aspects of the intervention and cannot be attributed to the micro-credit alone. And, analysis of micro-credit alone, *vs* IMAGE, *vs* control (in Kim *et al.*, 2009)⁷ found non-consistency of effect of micro-credit alone on these empowerment variables. Findings from Zimbabwe are also inconclusive: while there is no indication that participation in Zambuko led to greater control over the earnings from the business, for both married men and women there was more

consultation and joint decision-making with the spouse (Barnes, Keogh, *et al.*, 2001).

We found only one study on the impact of a rural micro-credit program in Uganda which found significantly greater empowerment among women taking part in the program (Lakwo, 2006). This included evidence of women borrowers gaining financial management skills, owning bank accounts, gaining greater mobility outside their homes and taking pride in contributing to household income. Women also gained ownership of some selected household assets more commonly owned by men (mainly over poultry and beds with mattresses), and their micro-enterprises. Although this study was judged to be of medium, rather than high quality, arguably this study is the most thorough investigation of the role of micro-credit in women's empowerment.

(vi) *Housing*

Data on housing are limited but all three identified studies in this in-depth review suggest positive impacts of micro-credit and micro-savings on housing. Village Savings and Loan Association participants in Zanzibar are more likely to own their own home and make investments in the quality of their home than control groups (Brannen, 2010). In Rwanda credit recipients were found to have made more improvements to their homes than non-credit clients (Lacalle Calderon *et al.*, 2008). The high quality study by Barnes, Gaile, *et al.* (2001) also found a greater proportion of client households, compared to non-client households, became owners of the place in which they resided, and that client households were more likely to have increased the number of rental units owned than non-client households.

(vii) *Job creation*

There is little evidence that micro-credit has any impact on job creation; only two studies reported impacts of micro-credit on job creation. No studies of micro-savings considered job creation as an outcome. Gubert and Roubaud (2005) found that in 2001 the impact of micro-credit on employment was positive and significant, but by 2004, while positive, it was not statistically significant. Data from Zimbabwe also showed micro-credit had no impact on employment levels in businesses (Barnes, Keogh, *et al.*, 2001). In both cases political unrest and economic crises may have played a role in these results.

(viii) *Social cohesion*

There is no evidence for the impact of micro-credit or micro-savings on social cohesion: none of the included studies considered this outcome.

4. DISCUSSION

Here we discuss the findings of our systematic review in terms of what it means for microfinance, but also in terms of the use of systematic reviews to evaluate the evidence-base on the impact of microfinance.

(a) *On microfinance*

We confirm Roodman's (2012) approach that depending on the definition of "development" used — as escape from poverty, as freedom, and as industry building — different impacts result. We have found that specific elements of microfinance seem to work in specific contexts and yet the complexity of poverty and the variation in the intervention means that it is

hard to draw out generalizable lessons. Nevertheless, the evidence base highlights some important lessons for policy-makers and practitioners, as well as researchers.

The theory of microfinance is that one of the main problems the poor face is access to capital and credit, and by providing them access to small amounts of loans, they will be able to escape poverty through investing in businesses. But we found that microfinance is doing harm as well as good to the poor people it purports to help. The available evidence from sub-Saharan Africa suggests that micro-credit has both positive and negative impacts on the incomes of poor people, while a micro-savings intervention by itself appears to have no impact. Both micro-credit and micro-savings have positive impacts on the levels of poor people's savings while they also both increase clients' expenditure and their accumulation of assets. Taken together, these findings suggest that micro-savings should not be promoted as a means to *reduce* poverty; micro-credit on the other hand could be, but because of the potential for harm, should not be, promoted as a solution for the poorest clients. Roodman's (2012) in-depth engagement with studies about the impact of microfinance worldwide shows similarly that as a tool to escape poverty, microfinance does not perform well.

Both micro-credit and micro-savings have a generally positive impact on the health of poor people, and on their food security and nutrition, although the effect on the latter is not observed across the board. In contrast, the evidence on the impact of micro-credit and micro-savings on education is varied with limited evidence for positive effects and considerable evidence that micro-credit may be doing harm, negatively impacting on the education of clients' children. Having said this, micro-credit does not appear to increase child labor. We found some evidence that micro-credit is empowering is not consistent across the reviewed studies. Both micro-credit and micro-savings have a positive impact on clients' housing. However, there is little evidence that micro-credit has any impact on job creation, and no studies measured social cohesion. Microfinance should therefore not be promoted as a means to achieve these longer term non-financial outcomes directly, but only when, and if, financial improvements are first achieved. Roodman (2012) finds similarly that when development is defined as freedom, the track record of microfinance varies and depends on the situation.

There is a growing weight of evidence (e.g., Adjei *et al.*, 2009; Barnes, Keogh, *et al.*, 2001; Waelde, 2011) which suggests that microfinance may be having increasingly negative impacts over time with recurring clients' businesses becoming less successful and levels of health and education decreasing the longer individuals remain in the microfinance program. It is possible that this is a symptom of the types of people who remain within the scheme — i.e., those with a continuing need for loans but the current evidence available is insufficient to establish a clear causal relationship. We recommend closer examination of the impact of the length of time within a program on clients.

(b) *About the evidence-base and our approach to reviewing it*

In the literature of MFIs there is a strong rhetoric around microfinance as a positive development initiative. Not the least being Muhammad Yunus's 2006 Nobel Peace Prize, and the description of access to credit as a human right. We found the positive rhetoric having a negative impact on the quality of evidence. Some authors even argued clearly for rigorous evaluation using comparative study designs, and then dismissed the need for such rigor when research is for the purpose

of advocacy; Makina and Malobola (2004), for example, comment on the use of the scientific method to show impact, and yet state that for the purpose of advocacy, methodology need not be scientific.

When we started our review we anticipated to find no RCTs which we, or our peer reviewers, were not already aware of. We were pleasantly surprised and pleased that our extensive searching strategy identified “new” trials, as well as other high quality non-randomized trials and other controlled trials and case-control studies. We were also pleased to find studies which considered not only the impacts on current clients but also those who had left microfinance programs.

We also acknowledge, and promote, that the systematic review methodology we employed was not 100% orthodox (Stewart, van Rooyen, Dickson, *et al.*, 2010). We set out to balance rigor and realism, seeking to make the most of the available evidence in the region to inform decision-making while maintaining quality standards. While our pragmatic approach brought specific advantages to this review, there were also weaknesses in our review methodology. Our quality criteria, while explicit and specific, were not as refined as those used by some systematic reviews. For example, the IMAGE trial (Pronyk *et al.*, 2008) has been challenged regarding the selection of the control villages, and is considered by some (Development Finance, 2010) not a “randomized” trial. None-the-less, under our criteria it remains a high quality study. We also synthesized evidence from all included study designs together, including RCTs, controlled trials and case-control studies. We made some reference to the different study types, but did not distinguish between them in our findings. Others might judge that RCTs are the only study design that can be considered high quality. We similarly included all relevant studies which we judged to be “good enough”, including those of medium and high quality.

We did reflect on whether the findings of the four high quality studies differed significantly from those which were judged to be “medium” quality. Contrasting the direction of effects identified from the four high quality and eleven medium quality studies within this review, we found no notable difference in the evidence about the impacts of micro-credit and micro-savings on the levels of poor people’s savings, on general measures of wealth, on health, education, empowerment, housing or job creation. In relation to the impact of micro-credit and micro-savings on the incomes of the poor and their accumulation of assets, the evidence from the high quality studies is less positive than the evidence from medium quality studies, i.e., if you consider only the highest quality evidence, you would conclude that these interventions reduce the incomes of the poor and reduce their accumulation of assets. In contrast, the evidence about their impact on food security and nutrition is more positive, i.e., if you consider only the highest quality evidence you would conclude that these interventions have a positive impact on food security and nutrition, while consideration of the broader medium quality evidence suggests mixed impacts. It is worth noting that the findings across all 15 reviewed studies were varied for all three of these outcomes.

We acknowledge that as a meta-analysis, this paper does, by definition bring together empirical findings from a range of studies in an attempt to draw common lessons. This is necessary to provide an overall answer to the broad question which we were commissioned to address regarding the impacts of micro-credit and micro-savings on clients in sub-Saharan Africa (Stewart, van Rooyen, Dickson, *et al.*, 2010). None-the-less we have stopped short of a full statistical meta-analysis of results in which numerical measures of impacts are combined and have purposefully reported findings using narrative

synthesis. Others have gone further and are currently undertaking full statistical meta-analysis of some of this same literature (Vaessen *et al.*, 2010). While the condensing of results in this paper may for some appear to have gone too far, it is inherent within the nature of systematic review methodology and, as such, this paper provides a valuable case study of one way in which this approach is being used in international development.

In considering the way in which systematic review methodology has been adopted within international development, we do have some concerns that an approach usually used to refine knowledge on a very specific questions is being applied to very broad topic areas encompassing a huge range of interventions, populations, contexts and outcomes, and yet a similarly focused and refined outcome is sought. We believe that the strength of systematic review methodology for international development is in its ability to report on the state of the evidence base, rather than deliver conclusive “answers” to specific questions. We recommend that future reviews either address broad questions and present an overview or “map” of the evidence base, or focus on more specific questions to which generalized “answers” can be generated.

5. CONCLUSION AND RECOMMENDATIONS

Debates continue in the worlds of microfinance and international development about the effectiveness of micro-credit and micro-savings. Research in this area is often challenged on methodological and ideological grounds. We have therefore undertaken a systematic review with explicit quality criteria to enable us to expose the available evidence in a transparent and rigorous way. Our synthesis of the evidence of effectiveness finds that microfinance in sub-Saharan Africa — while it has modest but not uniform positive impacts — is not always a golden bullet, but indeed can cause harm. While the data on micro-savings look more promising than that on micro-credit, as does the theory, savings do not appear to increase income. Micro-savings schemes are also newer and there is less evidence of its effectiveness (either positive or negative). Further research is clearly needed, especially in the light of the microfinance industry increasing turning to savings (CARE, 2011, pp. 26, 58).

Our findings that microfinance can, in some cases, increase poverty, reduce levels of children’s education and disempower women, are particularly relevant in the context of the United Nation’s Millennium Development Goals; even more so given that some (e.g., Littlefield, Morduch, & Mesbahuddin, 2003; World Savings Bank Institute, 2010) argue that microfinance is a key tool to achieve the Millennium Development Goals. Clearly relying on rhetoric, anecdotal accounts, advocacy research, and unfounded assumptions is not sufficient. There is a need for rigorous impact evaluation and systematic review of the evidence to inform decisions. The work of the Poverty Action Lab, 3ie and others is crucial in this regard, and needs to focus both on unanswered questions, and on challenging unfounded rhetoric. Only through better understanding of poor people’s needs in relation to financial services, and through systematic review of the evidence relating to alternative financial and development services to meet these needs will a fully evidence-informed approach be possible.

Based on the findings of this systematic review we recommend that policy makers ensure greater requirements for rigorous evaluation of pilot programmes before roll-out to larger populations to minimize the risks of doing harm. We also advise against the promotion of microfinance as a means to achieve the Millennium Development Goals — outcomes

such as increased primary school enrollment do not increase micro-credit clients' ability to repay their loans and the diversion of finances to such long-term goals may lead to acute debt and increased poverty. We recommend that practitioners adopt a more cautious approach to offering clients continuing

loans, as the longer people are engaged in microfinance schemes, the greater the potential for harm. Microfinance institutions also share a responsibility to avoid contributing to the rhetoric of the success of microfinance and instead encouraging decision-making based on rigorous evidence.

NOTES

1. When discussing changes in levels of income of micro-credit clients, we refer to changes due to how clients choose to spend their money differently, not due to receipt of the loan alone.
2. Interestingly, in 2009 sub-Saharan Africa was one of three regions in the world where there were more depositors than borrowers in the microfinance industry (MIX & CGAP, 2011:3)
3. Our use of the term 'coded' here is in reference to the practice in systematic reviews of applying pre-determined criteria - peer-reviewed in the protocol - to specific studies.

4. This included information such as a description of those whom received microfinance.
5. Two studies are double-counted here as both were of poor quality methodologically, and lacked essential information.
6. One of the 15 reviewed studies, Ashraf et al. (2008) only considered financial outcomes, and is thus not considered for this discussion.
7. This is another publication of the IMAGE trail, linked to the Pronyk et al. (2008) study.

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